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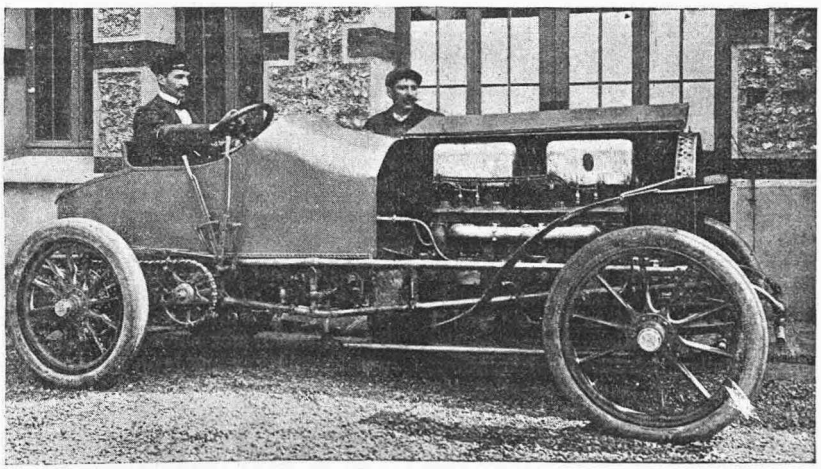
THE IMPORTANCE OF DETAILS.

By "VEEAITCH."

The motor cycle has reached a very high state of efficiency, but has only reached that stage by continual alterations and improvements, which, tending to enhance the value of the complete machine, have not been suddenly added, but are the result of experiment and experience by numberless makers and users. Exactly the same process by which the featherweight pedal bicycle became evolved from the early boneshaker, has the motor-bicycle (but more quickly) trodden the heels of the, comparatively, recent motor-tricycle. (I use the term "recent" to the tricycle, for the three-wheeler has stood still whilst the single-tracker has gone forward.) Evolution in each case has been by what engineers term rule of thumb, but which might more correctly be described as the method of trial and error; not possibly the best way of arriving at the goal of perfection, but undoubtedly, in our hitherto limited knowledge of the theory of the internal combustion engine, the only possible means. It is principally the little points of detail that take up a good deal of time in pottering about and tuning up a machine to that perfection of sweet running which every considerate driver likes to attain on each and all of his rides; this keeping of a machine in good trim often suggests to a rider a slightly better way of fitting a particular lever or an improvement in fixing a bolt or screw to secure better results and save needless trouble. Many of these little details could be altered at the factory, were the makers' attention called to the necessity thereof, and although the rider may grumble, he rarely takes the trouble to notify headquarters. The minor faults should not always be placed on the manufacturer's shoulders, as he is usually anxious in these days of fierce competition to go one better than his rivals; but he cannot possibly be on a machine and overlooking his factory as well; and so, for the sake of a few minutes' trouble involved in writing a letter, the maker loses knowledge which he would be thankful to possess, and the rider equally loses that saving of time on the roadside or before starting out. It is the trivial things which are of vast importance to the man who desires to see the day arrive (we all trust that it may be in the near future) when he can get his machine on the road for a short five-mile spin with as much facility as a pedal bicycle. "This" only takes a couple of minutes to adjust, or "that" can doubtless be fixed in four or five minutes; but these odd minutes added together for every ride often deter the owner from taking his machine on the road for very short distances, and practically precludes usage, except for half-day or whole day rides. Fifteen minutes out of half a day does not count; but to take practically as long a time to get the machine in running order for a five-mile business trip as it actually takes to cover the short journey, causes many a man to fall back upon the pedal-bike for such a purpose. Take such a necessity as filling the petrol tank; simple enough in its way, but it requires knack to manipulate a small tin funnel and a heavy two-gallon drum so that all the spirit runs into the tank, and not, as usually happens, for a pint or so to find its way to the ground. Either the petrol comes out of the mouth of the drum with a rush, and swamps everything around, or trickles out so slowly with a rhythmic "gurgle," "gurgle," "gurgle," as to give impatient men a fit of the jumps; so the stuff is poured in with a "hang the expense" twist of the arm. Cinquevalli can balance a cannon ball and a scrap of paper, but we cannot all emulate his cleverness with a three-ounce funnel and a 20 lb. drum, and

IN THE ANXIETY TO PREVENT BULGING THE FUNNEL,

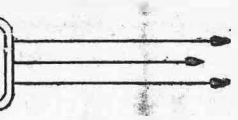
by resting the weight of the drum upon it, the muscles of the arms are strengthened without the use of an exerciser; and whilst foolishly imagining that the tank will take another pint, and wondering meanwhile whether the lubricating oil needs replenishing, one is suddenly awakened by that extra pint finding its way where it is not desired. Or if the tank is fitted with a sight gauge, it is very carefully watched, and the spirit saves the trouble of washing off the superfluous dust from the exterior of the tank. The filling hole in the tank cannot be large, but it need not be placed out of the horizontal, and thus cause one hand to be kept on the funnel; nor need it be close up to the lever. The nearer the hole is to the edge of the tank the better, for



104 MILES PER HOUR.

Rigolly on the Gobron-Brillie car. In the Ardennes Circuit, Rigolly drove at the rate of nearly 104 miles per hour.

The Importance of Details—contd.



sometimes one is forced to use a round funnel, and closeness to the frame requires a steadying hand, which can ill be spared from carrying the weight of the drum; the hole ought also to have a small lip above the top of the tank. Some of the spirit manufacturers are past praying for; they will persist in sending out their wares in inconvenient receptacles, and with caps to the filling spouts, which require special tools for their removal; in fact, that brand which is always to be relied upon for its standard of good quality, is handicapped by the awkward drums it is sent out in, and retailers will not be bothered with them; I believe this is the sole reason why it can rarely be obtained outside the London district. The filling hole to the lubricating oil tank is usually in an out-of-the-way spot, as close to the head of machine as it can be squeezed in; on the majority of machines it is impossible to insert a funnel, and the oil must be trickled in directly from the can. This little fitting is more the cause of mess and dirt than almost anything else on the machine, and could be easily altered, and thus prevent oil being carried over the front edges of the tank. Whilst on the subject of oil, the pump occurs to me as

NEEDING A SLIGHT ALTERATION IN FITTING.

I am referring to the type which is fitted at the side of the tank near the steering head. It is rare to find a bad one on recent patterns of machines; the pump does not occasionally work well when quite new, but settles down to business when the oil has quite saturated the leather washer. Oil pumps are usually now made with a protecting metal cover to the glass barrel, with a glass-slit left at each side for the length of the barrel; but with the pump screwed to the tank so as to be parallel with the steering centre, it is impossible for the rider to see from the saddle whether there is a half or full charge when the piston is pulled up. Were the position reversed, viz., bottom of pump pointing to centre line of wheel base, and top pointing towards the lamp, the piston could be just as easily worked as at present, and it could be seen whether the pump was working satisfactorily. With the pump on the top rail of machine, all these difficulties are overcome, but if the pump leaks or the oil oozes out of the air-hole, a glorious mess is the result. The universal type of back rim-brake gives general satisfaction; I do not suppose the manufacturers would have a larger sale, but they certainly would receive the blessings of all thankful people if they could only contrive to make quickly-detachable brake shoes. Punctures are bad enough, without the added worry of manipulating the inner tube past the brake shoes where the tyre happens to be closest to the frame, and, at the same time, trying to save the tube getting mixed up with the chain or free-wheel clutch. Some of the more prominent makers have arranged the rear mudguard in combination with the stand or jack, so that the act of placing the stand under the machine carries half the mudguard with it, and

LEAVES THE TOP OF THE TYRE QUITE CLEAR

for repairs. This excellent method might be generally copied The accumulator hardly comes within the scope of the manufacturer of the machine, this being a special industry; terminals which will not corrode or jam the screws by reason of the acid creeping are badly needed. That it is possible to make them in this way I have proof in an old cell I possess, which is quite useless for ignition, owing to the paste falling out of the grids, and which has been standing on a shelf for the past 18 months; it is covered with the familiar green crystals, but the screws are as free on the terminals as the day it was made. One firm has attacked the problem of acid-spilling with considerable success, and the point which has hitherto been the worry to secondary battery makers appears to have been solved. Might I here repeat the advice tendered by every accumulator maker—never to test a cell by an ammeter, or to short-circuit the cell by testing for a spark with a piece of metal "snapped" across the terminals. Twice during the recent holidays I saw good cells made ready for an early appearance on the scrap heap by this wrong practice. The last 12 months has seen big strides in perfecting the high-speed trembler coil, and there is now no difficulty in buying a British coil more than equal to anything turned out in France; but why do we still have to contend with refractory screw terminals which pinch down on the fine flexible wires and squash them beyond breaking point? Most of us have had to wrestle on the road with a snapped coil wire connecting to cell or contact breaker, which is just that odd inch shorter than we need, and which has had to be tinkered up with an odd piece of bare copper wire, and placed back in its compartment with an ever-present fear of a "short." I had many troubles of this nature until I came across

A FRENCH COIL WITH SPRING TERMINAL CLIPS;

one has only to scrape the insulation away, press back the end of the spring, and slip the wire in the hole thus exposed, right up to the covering. Not a scrap of bare wire is shown, and there is no chance of an odd strand running the accumulator down by a dead earth. This is one of the many little ignition details which British coil makers would do well to copy. English manufacturers again have proved that there is no difficulty in accurately boring a single piece cylinder, and have laid to rest that bogey of possible loss of accuracy which was raised by their foreign competitors when this improvement was introduced. But why follow the ancient De Dion practice of screwing the holding down bolts or studs for the cylinder into the aluminium crank-case? With the old pattern of two-piece cylinder this was a frequent source of trouble; in endeavouring to make the separate combustion-head quite gas-tight, the act of screwing down the nuts on top often drew the long screwed rods clean out of the crank-case; and making such a defect good is a bigger factory job than the smallness of the fault seems to warrant. A far better practice is to make the bottom of the holding-down rod into an eye and recess the interior of each half of the crank-case, so that the eye fits in snugly, and pass a bolt right through each edge of the case, and also through the eye; the bolts through the eyes serve also for holding the two halves of the case together. Only two holding-down rods are then necessary; the rods can then be drawn up tight enough to make the faces of crank-case and cylinder oil-tight; but, of course, there is no need for that excessive pressure, which was necessitated by having to make a gas-tight joint with a separate head.

THIS METHOD IS NOT ORIGINAL,

and may not be the best; but it appears to cause no trouble to the average man, who sometimes wants to take his engine down. I hardly like mentioning the next little item, for it is as bad as holding up the proverbial red flag to the bull, when motorcyclists pour out their tales of woe. Worry, indeed; why all the varied troubles of engine and ignition vanish into thin air when that greatest bugbear of all is faced; the thing that has caused more misuse of the King's English than anything else on the machine combined; that has sent many a promising and enthusiastic rider on tottering steps nearly to the door of the county lunatic asylum; and which must be wrestled with by every novice to the sport ere he can consider himself a fully-fledged and experienced convert. Only two little words; but what haunting visions they recall of moonless nights, with the east wind cutting one through and through like stabs with a spear, and the limited vocabulary of blue language has utterly failed to rise to the occasion. We have all had, not some, but too much lamp bracket! The word evolution has been previously used, and, as generally understood, is a short definition of Darwin's theory of the survival of the fittest; but I fear the term would be inappropriate if applied to lamp brackets, and we seem to have travelled backwards into the dim and distant past of the "G.O.O." (Bicycle riders of the early eighties will recognise those mystic letters.) It is true the lamp does not, as it then did, get mixed up with the spokes; but the lamp bracket still persists in bending, breaking, and doing every-

The Importance of Details—contd.

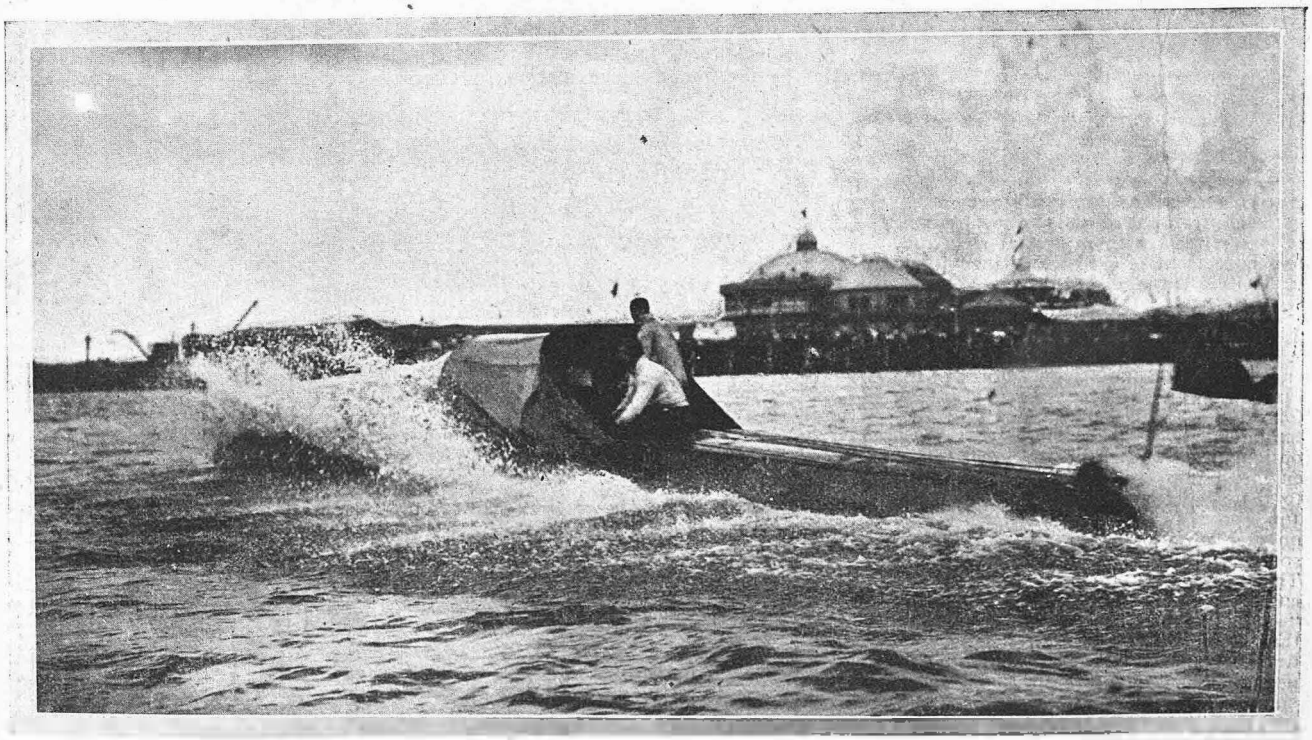
thing else possible, except actually carrying the lamp in a vertical position. And this is just the thing the bracket is wanted for, although no amount of courteous letter-writing or verbal abuse has yet convinced the manufacturer that the light is not wanted in the neighbourhood of the front hub. When it is gently hinted that neither the sky nor the tyre needs illumination, but the actual surface of the road 20 or 30 yards ahead, one is staggered by such a reply as was recently made after a remonstrance upon a weak lamp bracket—"Do you

EXPECT TO CARRY A LIGHTHOUSE

on a bicycle." This was really meant in all good faith, and was the expression of a firmly-rooted opinion, and not sarcastic chaff, as I first thought. A motorcycle manufacturer may be the most progressive of men when the construction of an engine is in question, but is conservative to a degree when the purely bicycle portion of the machine is discussed. Let the reader examine any illustration of a motor-bicycle; although the engine, tank, frame, tyres, etc., etc., may be entirely different from its fellows, it will be difficult, indeed, to find the slightest variation in the position or fitting of the lamp bracket; almost without exception it will be found on top of the steering, fixed under the ball-head adjustment ring, and kept in its position by the bolt which clamps the handlebar stem. A motorcyclist requires a lamp to brilliantly illuminate the road more than to signal his approach to other users; hence his desire for a miniature lighthouse, and something really substantial, which will satisfactorily carry the, necessarily, heavy modern lamp. Free-wheel clutches recall the unhappy memories of the 1,000 miles trials of 1903; most of the riders therein had trouble with their clutch, not because the clutch was inherently bad or faulty in itself, but because it was not protected from the effects of grit and mud. When the pros and cons of the trials were discussed in the press at the conclusion, there was considerable ventilation of this very subject; and, of course, one looked round the machines at the shows in November, and expected to find a remedy. On only one well-known machine, even in July, 1904, can I find any

PROVISION MADE FOR PROTECTING THE CLUTCH.

A gear-case for the chain would naturally obviate any difficulty, but the chain has such little work to do that a cased-in chain is a nuisance, and an additional trouble if the rider has the bad luck of many punctures. It is so easy to fit a small guard round the clutch when the machine is being assembled in the factory, that it is surprising such a fitment is not general; if the rider desires to fit a guard himself, it means taking the wheel from the forks, dismantling the brake, chain, and belt, and the joy of fixing all up again; and sooner than face this trouble the clutch has to get along as best it can. Mudguards are all but perfect; the extra vibration to which motorcycles are subject has been well considered, and breakages are very infrequent. But it is possible to carry perfection a little farther, and make the guards real preventers of mud slinging, by making the section of the guard more circular, and bringing the edge of guard deeper down the side of tyre. The addition of a leather flap at the bottom of front guard is now a standard specification with many machines; the rear guard might well be brought considerably round the tyre where the tyre passes close to the diagonal tube and chain stays, and carried down two or three inches below the stays. Extended to the rear end of guard so that it is in line with or below the level of the hub it would be the means of preventing many splashes reaching the rider's back, and the addition of a small leather flap at this point would also be advantageous. The various details which I have roughly sketched can be easily incorporated in the designs for a succeeding season without any more expense, excepting, perhaps, the combined mudguard and stand. I trust these notes of small things will be considered more as suggestions for better co-operation between the maker and his customers than as cause for quarrelling with the many good things we possess.



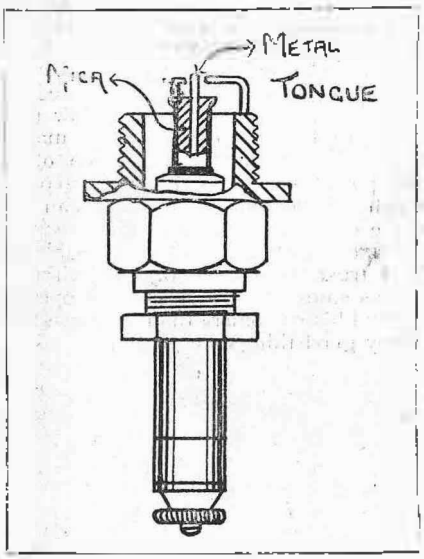
MOTOR BOAT RACING.
"Napier II.," the English boat, beating the American boat "Challenger," in the International Cup Race.

INVENTIONS

THE LATEST IMPROVEMENTS IN MOTORS, MOTORCYCLES, MOTOR CARS & ACCESSORIES.

A New Sparking-plug.

The special advantages of the plug shown in the diagram are due to an insulated metal tongue being placed between the spark gap. The spark in passing has to attack the insulated series tongue which divides the spark into two, but owing to the shape of the tongue the sparks pass over it; they combine and form one large, thick, hot spark, which the inventor claims readily fires any bad mixture. He states that he has had motors run with this plug when the battery current will barely run the trembler and fire regularly with only two volts of current. The series tongue is inserted in a steel cup or crown and insulated by mica, and



is so constructed as to partially protect the porcelain from the effects of the explosion. It is screwed up by a central steel rod, and no cement is used. The inventor is F. T. Reid, 177, Sidwell Street, Exeter.

"The Repton" Three-wheeled Motorcar.

A novelty in the shape of a three-wheeled car for one person, shown in the illustration, has recently been made by the Repton Engineering Works, near Burton-on-Trent. It is of the most modern design, fitted with a 4 h.p. water-cooled engine, pump circulation through radiators, two speeds forward, direct drive on top speed by worm into worm wheel on rear wheel, slow speed, 4 to 1, fast speed, about 25 m.p.h., and is quite silent. There is a foot clutch, as well as free engine in the gearing, which is of the "sun and planet" design, and so arranged that there is no end thrust in any position. The car is designed to carry one person on bucket seat, fitted with 4 in. spiral spring seat, and the workmanship and material are of the very best, making a comfortable conveyance, very fast and handy. All gears are cased in and protected from dust and injury.

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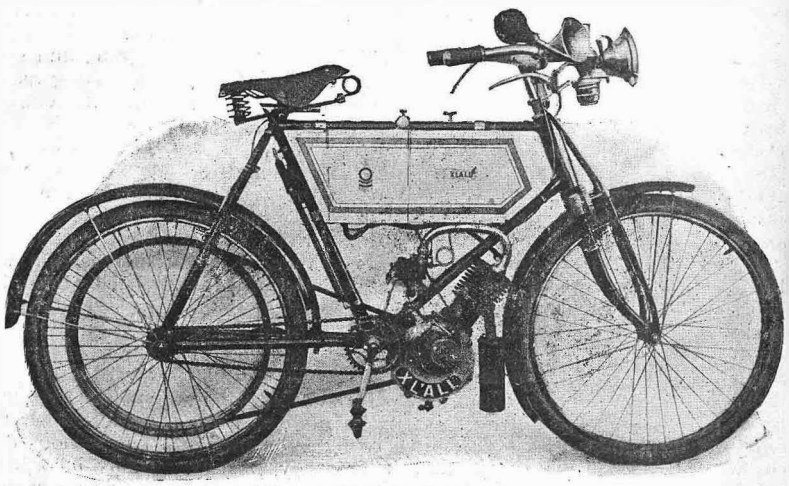
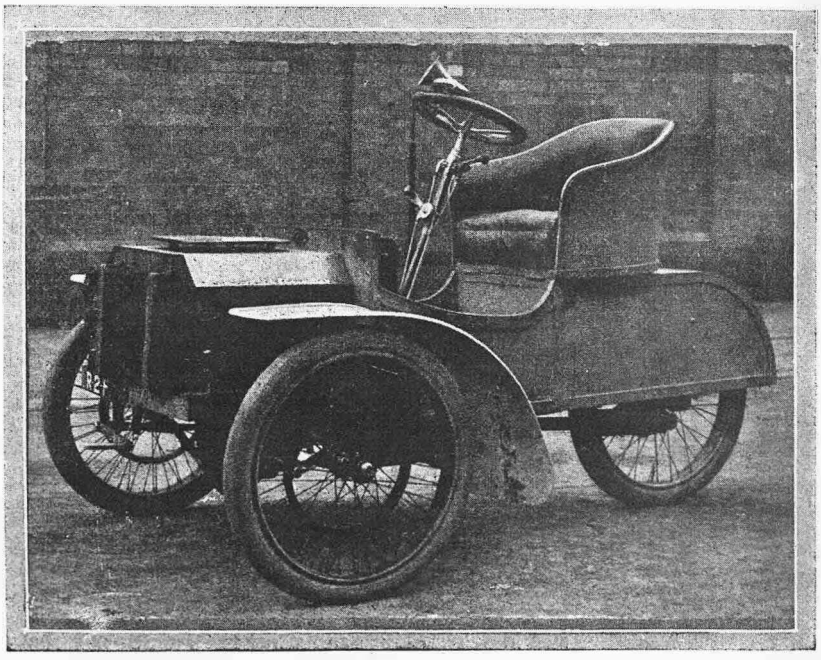
The XL-All Motor-bicycle.

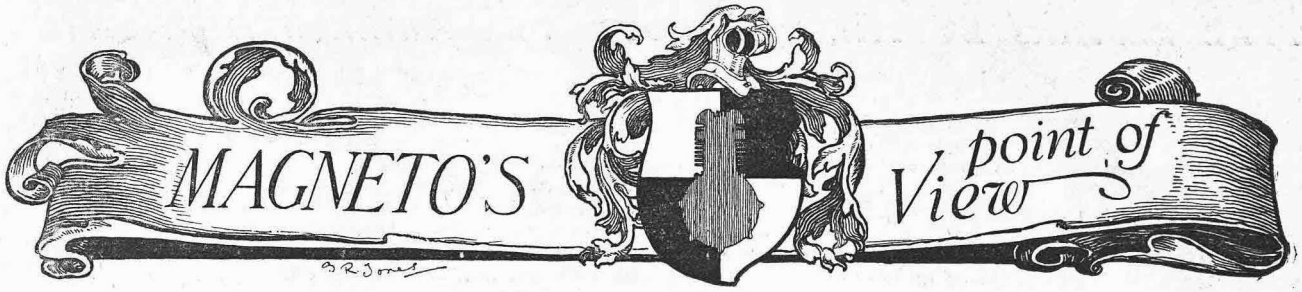
The illustration depicts the 1905 2¼ h.p. XL-All motor-bicycle, made by the Eclipse Motor and Cycle Co., John Bright Street, Birmingham. It is claimed that it has some new features in it that are not to be found in any other machine. All levers for the manipulation of the motor on the tank and handlebar have been abolished. The throttle is controlled by a twist handle. The switch, which is a three-way type for two accumulators, is fitted inside the handlebar and controlled by the thumb. The sparking advance is controlled by another twisting handle, which, when retarded to the extreme, also lifts the exhaust valve. There is no additional air lever fitted, as the carburetter is automatic, thus the entire motor is managed without loosing the handle grips, and without the usual complications of levers and wires. The motor is of 4 h.p.; the makers are also fitting a ⅞ in. V shape belt to this machine, and the engine pulley is made with deep flanges, so that it is impossible for the belt to run off by accident, even when running quite slack. The price is £35.



The 2¼ h.p. XL-All Motor-bicycle.



The Repton Three-wheeled Car for one person.



Continental Customs Regulations.

If the tourist intends to cross over the frontier from one country to another, say, from France to Germany or Italy, the delay at the Customs is sometimes very vexatious, unless he happens to be a member of the Touring Club of the country he is entering. In France the authorities are insisting upon tourists obtaining a permit to drive and having identification plates. It is a very great pity indeed that some arrangement could not be agreed to between the Automobile Club of Great Britain and the French Government more especially, to relieve English motorists of all these troublesome formalities. What is required is for the Club to be able to certify that the motorist entering France is a bona-fide tourist and a capable rider. The method of obtaining the permit to ride in France is to write the Prefect of Police of the Department in which the port of entry is situated. If Dieppe or Havre, it would be at Rouen; if Boulogne or Calais, it would be Arras. To facilitate matters the letters should be written in French, and a stamped (French) addressed envelope enclosed for reply. Very important is it to remember that the rule of the road is exactly the reverse to that followed here; that is to say, keep to the *right*, and not the left. Neglect of this rule might land one in a nasty accident through collision. Supplies such as petrol and oil are obtainable everywhere. Repairs to machine or tyres can be easily done, but it is not so easy to get accumulators re-charged, except in the towns, and even then it costs two to three francs to have a 12 ampere-hour size cell charged. Hence it is very important to have a good supply of current to last the tour. The direction-posts set up on the roads throughout France are very helpful in finding one's way, as the distances to the towns along the route are clearly set forth. The surface and grading of the main French roads is not equalled in any other country in Europe; but where the roads run through villages and small towns, it is nearly always paved, and the paving is of the roughest description, necessitating very slow driving, unless one desires to be shaken to pieces; but once on the main road again the pavé is quickly forgotten. What will doubtless surprise the tourist is the number of extraordinarily long and straggling villages met with, especially in Normandy. When touring in the south the rider must be on his guard for a curious kind of shallow-paved ditch which crosses the main road now and again. I think they term these death-traps "Caniveaux," and to take one of these at any pace is an experience not likely to be forgotten. Many are the experiences of broken axles and damaged cars motorists can tell when coming across a "caniveaux" in the dark.

MAPS AND GUIDE BOOKS.

A good map and guide of the country are, of course, a sine quâ non to the motor tourist. I should like to call attention to the most excellent motorist's guide-book to France, issued by the Michelin Tyre Co., and entitled "Le Guide Michelin." Although at present this has not been translated into English, anyone with a smattering of French can follow it in the main details, particularly the directions and maps of how to find one's way through the towns. I believe this guide can be obtained from any Michelin depot. It is given gratis in France, but I am not sure but what a small charge might be made in this country. The Continental Tyre Company also issue a handbook gratis which is replete with valuable information on Continental touring.

Breakage of Back Hub Axles.

Several instances of back axles of motorcycles having snapped have come under my notice recently, and the machines upon which the mishaps have occurred have been of good standard types, so that it is all the more extraordinary that they should occur. The strength of the back axle is a detail to which makers, I am of opinion, should direct rather more attention than they have done. For a heavy motor-bicycle a ⅜ths axle has really no superfluous strength, and there is always a risk in adopting it. Nothing less than a 7-16ths axle should be used, if a margin of safety is required to withstand the occasional severe shock a motorcycle is subjected to when running over a badly-surfaced road. It is this falling of the back wheel into a deep hole or rut that causes the mischief. Of course, the careful rider will always keep a sharp look-out for such death-traps, but it might be impossible to avoid one at night. Fore-carriage axles should be a full ½-inch diameter, and special care paid to the selection of the steel they are made of. The worst fault is to have an axle too hard and brittle. If it is small in diameter the tendency is to make it hard, to avoid bending. When it is of good diameter it can safely be left milder and tougher. I do not overlook the fact that riders are occasionally themselves to blame for having a broken axle, because they do not take care to set the axle perfectly square in the forks before they tighten up the nuts, after having had occasion to slacken the wheel for any reason. One side is tightened up first with the axle slightly on the skew; and then the tightening up of the other nut naturally tends to draw the axle square and thereby strain it; because the other end is locked fast and is unable to adjust itself.

WHEEL-BEARING ADJUSTMENT.

The strain on an axle is considerably increased if there is any looseness of the bearing, for the simple reason that the pressure is not evenly distributed by the balls. A loose bearing is infinitely more damaging in its effects than a tight one. The latter soon makes itself evident by the stiffness of running of the machine, but a loose bearing gives apparently easy running for a time, and, when it is noticed, it is, as a rule, impossible to adjust it properly again, because, owing to the unequal pressure on the balls and cone the latter will have worn oval shape. The rule should be to keep bearings well adjusted, so that there is not the faintest trace of shake evident. Very careful movement of the cone will effect this, always remembering that the tightening up of the nut on the axle end invariably makes the cone a shade tighter than before it is locked, so that this much must be allowed for. It is a very good plan, I find, to move the axle round in the fork to a new position after every few hundred miles of running, as more even wear of the bearing is ensured thereby. A tip with respect to replacing ball bearings may be useful, as the novice is apt to find the balls have a distinct aversion to staying in the cups. It is a very simple matter to put a thick layer of vaseline in the cup and embed the balls in it; they are not likely to fall out, even if the hub is turned over. The vaseline is an excellent lubricant, and can be left in the bearing. Before replacing the balls it is just as well to very carefully look at them, because it sometimes happens that a cracked or chipped ball may be among them, and if this be left in it would play havoc with the bearing generally.

TYRE REPAIRS BY THE "LE ROY" VULCANIZING APPARATUS.

It is well known that the pneumatic tyre is essentially vulnerable, and liable to be put out of action by small objects, such as flints and nails. Liability to damage is the characteristic feature of the pneumatic tyre. The various kinds of protection coverings are only preservatives, and cannot be regarded as absolutely proof against the various pointed objects met with on roads. This being the case, let us see what are the remedies for a burst tyre. Repairs may be classed in two categories; repairs without, and repairs with, vulcanization. The first is based upon employment of the usual rubber solutions or cements and is well known, so that we need not dwell upon the subject. Very different is vulcanized repairing. Hitherto, this work could only be executed in indiarubber factories; for the motorist himself it was impossible. This difficulty has now been solved by Mr. G. A. Le Roy, chemist at Rouen, who has succeeded, by the scientific association of the various means of vulcanization, in placing a very simple instrument within reach of the motorist, styled "Nécessaire Autovulcanisateur," which renders it possible to make vulcanized repairs oneself in air tubes, envelopes, and solid tyres. In order to get a better idea of the process, a few words dealing with the properties of indiaruber may be useful. Chemically,

INDIARUBBER IS A HYDROCARBON,

i.e., a compound of carbon and hydrogen. Thus, it might be considered as a kind of lighting gas or motor oil solidified. In fact, it only differs from these hydrocarbons by a certain number of atoms of hydrogen or carbon, more or less. Indiarubber is the exudation from trees of the genus *Hevea*. When dried and purified by manufacture it presents the following properties:—It is pliant and elastic at 10 degrees to 35 degrees centigrade, but hardens below 0 degrees c., and gradually softens above 35 degrees c., to become viscous at 100 degrees, and melt about 180 degrees. It is insoluble in water, but melts in benzine, petroleum oils, chloroform, bisulphide of carbon, etc. It possesses the property of welding together indissolubly when, for example, two pieces are compressed one against the other. These inconvenient properties of hardening in cold and softening in heat have considerably restricted the uses of indiarubber for manufacturing purposes, first adopted at commencement of the 19th century. Thus, shoes and waterproof garments were not very practical, as they became hard in winter and of a pitchy consistency in summer. About 1840, Goodyear invented the method of vulcanization; since when the indiarubber industry has developed considerably. Goodyear noted that indiarubber when heated to a suitable degree with sulphur forms a compound which does not harden in cold nor soften below 150 degrees, and which is tougher and more elastic. On the other hand, vulcanised indiarubber loses its property of welding by pressure and dissolving in benzine and similar solvents. The valuable properties of resistance to cold and heat, as also extra elasticity due to vulcanisation, characterise the indiarubber goods of commerce. Consequently, with some rare exceptions, it is always vulcanised rubber that the consumer buys, and, chemically, it is not really rubber, but sulphuretted rubber, or sulpho-caoutchouc. The various parts of a pneumatic tyre are usually made of vulcanised rubber, and thus do not harden in cold nor soften in moderate heat, but *per contra*, they cannot be welded nor dissolved. Consequently, direct junction is impossible without the employment of pure rubber. Usually, a rubber solution in a volatile solvent is utilised. After evaporation of the solvent, the rubber acts as a welding and adhesive agent. By virtue of its viscosity and elasticity it causes adhesion of the two parts between which it is inserted. However, as it is not vulcanized, it is subject to the action of cold and heat, which act upon the adhesive power and frequently destroy the repairs. This is why repairs made without vulcanization are not solid nor durable, especially in summer. Consequently, the repaired part must be vulcanized, as is done in factories with the industrial plant, autoclaves, steam under pressure of several atmospheres, etc. The "Autovulcanisateur" of Mr. Le Roy is an apparatus by the aid of which the motorist

CAN MAKE ORDINARY VULCANIZED REPAIRS HIMSELF.

The apparatus consists of an exterior vessel formed of a prism-shaped piece of wood, 20 centimetres high and 10 on the sides. Longitudinally, it is perforated with four cylindrical openings, forming receptacles for the various objects contained by the *nécessaire*. There are three bottles, blue, yellow, and red, and three glass cups of the same colour; two solution tubes, red for the patches, and blue for cement, a case containing vermicellé and clippings, and another for talc. There are also injectors, brushes, coloured plugs, emery cloth, pieces of cloth, and patches. The various colours prevent mistakes in using the liquids. The inflammable materials, like benzine, are made incombustible, so that they can be sent by post. The complete outfit weighs about 2½ kilogrammes, or 5½ lbs. Its contents provide for 30 repairs. Moreover, they can be separately interchanged or replaced. If the bottles are kept well stoppered, preservation is almost indefinite. To fix a patch on an air tube or outer cover, the following operations are performed:—The surfaces are first cleaned with glass paper and blue liquid, then the patch and tyre are coated with the red solution. When dry, the yellow liquid is applied to one of the surfaces, which must immediately be brought into contact with the other; then the exterior is coated with the green liquid and talc (french chalk).

To fix a double patch on an air tube.—Affix a pastille, or patch, with the solution, without vulcanizing, and work as for an ordinary patch, non-vulcanized. Coat the top with the red solution, as also a piece cut from a worn-out air tube; and apply this second patch with vulcanization.

Cementing burst and punctured outer covers.—Clean the break with the blue liquid, and inject cement (blue), with the injector screwed on the tube. Dip pieces of rubber clippings into the cement, and let dry. Make the patch level with a hot iron, and then coat with the yellow liquid, and finally talc.

Such are the simple operations for the usual kind of repairs. The pieces thus cemented are quite secure, even when heated in boiling water or at a hot fire. —"La France Automobile."

CONSTABLE (noting): "Y—R, 1—."

MOTIST: "Here, wait a minute, constable; that's not the number of the car, that's the year it was built."

The Provincial Government of Lower Austria has issued a decree empowering local authorities to prohibit motor traffic over any roads, or parts of roads, where, in their judgment, such traffic would endanger the safety and comfort of pedestrians and others using the roads. The use of barriers to close such roads against motorcars may be employed; although how other traffic is to surmount barriers impregnable to the motorcar does not seem clear.

The Motor
INCORPORATING Motor Cycling & Motoring

The sale of "The Motor" exceeds that of any FOUR motor papers combined.

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OPINION.

The Dust Problem.

In his most interesting paper read before the Conference of Municipal and County Engineers in connection with the Twenty-second Congress of the Sanitary Institute, Mr. E. Shrapnell Smith submitted the dust question as "one of the most pressing which arises out of automobile progress." All motorists will agree with this view of the importance of the dust problem, as also with the following remarks on the subject embodied in Mr. Shrapnell Smith's paper:—

> "The country to-day looks for salvation to the Highway Authorities in this matter, and, above all, to their executive officers. The cure for this really intolerable disturbance of road detritus lies neither in the extermination of automobilists nor in the imposition of ridiculous speed limits. Motorists are a rapidly increasing body of the public, whilst enough dust may be raised at ten miles an hour to be considerably objectionable. The remedy appears to lie in the gradual laying of metal that has been steeped in tar or other similar liquid, with proper consolidation and limited binding matter. The use of surface treatment can be urged as an adjunct or expedient only and not as the final solution *per se*. This aspect of highway maintenance—the reduction of the dust nuisance—affects the county and urban surveyor more than the municipal engineer, but I do not err in stating that no recent instances of their activity have given greater satisfaction to the general public than those where something effectual has been accomplished in that direction. Prevention is better than cure, hence the growing conviction that the construction of dustless roads must form an important branch of work for the municipal, urban, or county engineer and surveyor."

Following up Mr. Smith's paper, Mr. George Mawbey, M.I.C.E., moved the following important resolution:—

> "This Conference of Engineers and Surveyors to County and other Sanitary Authorities is of opinion that the advent and increase of motor vehicles on public highways renders it imperative in the interests of Public Health that municipal, urban, and county authorities should adopt methods for the prevention of dust on macadamised roads, and this meeting recommends the Council of the Sanitary Institute to make known this view as widely as practicable.

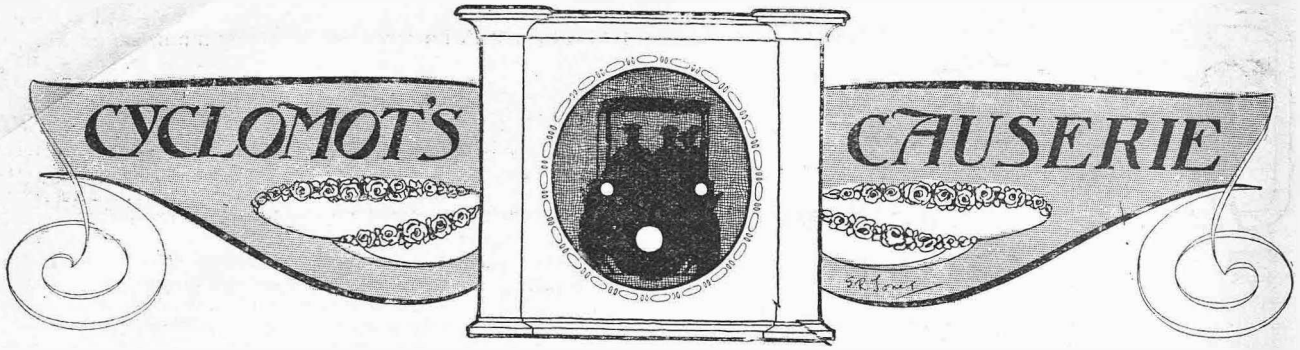
Motorists will welcome every movement that tends to an abatement of the dust evil, which is admittedly a serious one. No automobilist, unless he be steeped in selfishness, can help feeling acute sympathy for other road users who have to follow in his wake and absorb the dust clouds he leaves behind. Although it is too much to expect early and drastic reforms, it is at least satisfactory to know that the question is receiving serious consideration in authoritative quarters. In the meantime automobilists cannot be too strongly urged to exercise all possible restraint in the matter of driving, so that other road users may suffer as little as possible from a nuisance which, however considerately motorists may drive, is likely to be inevitable for some time to come.

A Motorcycle "G.B."

The Motorcycle Club of France has stepped into an obvious breach and has instituted a "Gordon-Bennett" (the term is so thoroughly explanatory that we make no apology for making use of it for once) for motor-bicycles. The Auto-Cycle Club has received an invitation to send three representatives by September 1st, the race to be run off on an early date, and on a course to be arranged in France. But we understand from the terms of the invitation that it is being issued indiscriminately to various motor-cycling clubs in each country, and in these circumstances it would seem as if some concerted action amongst English clubs would be desirable, because—one reason will suffice—suppose an English rider were to win, which is not at all unlikely, are we prepared to run a big international motorcycle race in this country next year? This is apparently an insurmountable difficulty, but if it could be suggested by England to France that the number of representatives of any one country be limited (five would be a good figure), and by arranging that, at any rate, a course would always be available in France, the English clubs might agree to enter for the first contest. We strongly recommend the Auto-Cycle Club to call a meeting, or to get opinions from the other clubs of the country, before entering for the race.

Prejudice Let Loose.

It is strange how prejudice lurks persistently in the minds of some newspaper men. It is impossible for them to find a single good word for the motorcar or for those who use it. As an instance of the way in which they are apt to allow prejudice to outrun discretion, we may quote this extract from a record of the recent Bank Holiday doings. After referring to the number of people who sought enjoyment in the outlying rural parts near London, the writer in question says—"The only thing to mar their rural pleasures was the motor incursion, which brought noise and dust and oily smells, and ogres in goggles to the most secluded spots, and, for the time, cut most of the beauty out of Arcadia." Note the specific allusion to the *only* thing that, according to this critic, marred the rural pleasures of the Bank Holiday crowds! To a critic of this type, who sets out to find only one defect, the motorcar would naturally appeal, and yet we who spent our holiday motoring have recollections of meeting noisy roysterers who made the country lanes dangerous by reason of erratic driving, whose blatant "music" was neither soothing nor inspiring, and who were nothing loath to drop their spent bottles on the highway to cut the tyres of cycles and motorcars, or to even hurl missiles at the occupants of passing vehicles. No brake-load of semi-intoxicated people, of course, brought noise or dust to secluded spots, or conspired to cut any of the beauty out of Arcadia: that, according to this writer, was left exclusively to those on motor vehicles—"ogres in goggles," who *alone* marred the rural pleasures of the quiet, the reserved, the angelic excursionist! We may be blamed for picking out this item for special reference on the ground that such wanton prejudice carries on its face its own condemnation; but it serves to point to the worthless nature of the criticism of such a writer when he seeks to deal with motor matters of greater import.



Searching for the Cause of the Trouble.

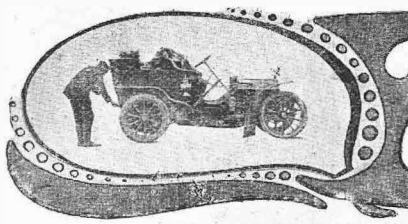
A fortnight ago I related the incident of my first real road failure with the car, and since then I have only had one free half-day, which, instead of being devoted to my vehicle, was occupied, so far as the hours of daylight were concerned, to a glorious ride on one of the new 7 h.p. Little Stars—of which more anon. But as we finished our 75 miles run between lunch and seven in the evening and as that run had stirred up my enthusiasm and made me hanker for more car work, I got into my oldest clothes, cleared my bench for action, and set to work to get at the root of the trouble. The upper halves of the gear-case and of the cover to the bevel pinions are fastened to the lower by an interminable number of bolts and nuts, the latter being secured by split pins, the bolts being delightfully free to turn with the nut, which of course meant a sort of contortionist performance on each one, the left hand and arm having to be somewhere below the car holding the bolt head, whilst the right hand unscrewed the nut. It took about two hours of patient work to merely undo the fastenings, and knowing the artfulness of such things, I carefully tied the various bolts up into separate bundles so that when I come to the task of reassembling I shall not have the ineffable pleasure of undoing nuts and bolts that have been laboriously but wrongly used. When the gear cover was removed it was abundantly apparent that there was not the slightest trouble there, all the gear wheels and the feathers on the second motion shaft being in perfect order. There was not the least sign of wear, although the car has travelled some thousands of miles and has frequently carried a very full load.

The cover to the bevel gears was next removed, and at once the cause of the trouble stood revealed. The piece which takes the drive from the gear box consists of a heavy sleeve about six inches long with a 6½ inch spur-wheel at one end to engage with the reverse pinion whenever that is thrown into mesh, a 4-inch bevel pinion at the other to engage with the bevel pinion on the countershaft, and it is internally cut with five channels from end to end to take the drive from the second motion shaft. Altogether it is a beautiful piece of work, but it is hopelessly spoiled and must be replaced, because the tops of the teeth of the bevel pinion are sheered off, the bevel on the countershaft being loose and having shifted away only just sufficiently to cut off the teeth on the first bevel. So far as I can see the means whereby the bevel pinion is keyed to the countershaft are rather inadequate, but to settle this point I must take the countershaft off, which does not seem to be a very serious job. The sum total of the work to be done on the car is enough to put her out of charter for some time, mainly because I want to dismantle the parts myself and to send the defective ones to the works to be replaced, and spare time is a rare commodity with me, particularly in the summer months, when there is so much to be done. I am thinking of following the example of an esteemed friend and of engaging a good engineer who will simply take directions one morning and will get the parts which I indicate dismantled by the time I return home, and I rather fancy that this will be the best way out of the difficulty, provided I can persuade such a man to confine his attentions entirely to certain things, and to leave everything else alone.

A Run on the Little Star.

My run on the Little Star was a most delightful experience. Mr. F. R. Goodwin, the head of the Star Motor Agency in London, who practically designed the new 7 h.p. car, is an old cycling friend, and so we had much in common, the consequence being that we sat in the car almost absolutely absorbed in our conversation, and the one who was driving was doing so in as mechanical and unthinking a way as if we had been simply walking or cycling. And that I consider is a great testimony to the perfect simplicity of the car. She was entirely new to me, and yet when I was at the wheel on the homeward journey I can positively aver that for miles she would be quite out of the conversational part of my mind. Mr. Goodwin called for me at the close of office hours on Saturday, and we went quite comfortably through the congested traffic out to the Great North Road, her quietness, the ease with which she could be accelerated, the healthy pull that could be felt, and the rapid brake action all creating a good impression. Then suddenly, as we ran on to the North Road at Potter's Bar, the car came to a stop, and Mr. Goodwin said "Now you take her!" I had not expected it, and if I had been asked I should have preferred to wait for a quieter stretch of road and one which had not been watered. But I would not give a hint of my feelings, just taking the driver's seat and surveying the control pedals and levers. I found her somewhat more simple than my own car, and only had to get the feel of the accelerator pedal to gain proper mastery over her.

At the very start I appreciated the benefit of a two-cylindered engine, because I found that she got away so much better, whilst the setting of the governor was such that directly the foot moved off the accelerator pedal in order to go to the brake pedal, the engine slowed down and acted as a perfect brake of great moderation. At first I thought the governor was set too close, but before the run was concluded I agreed that the engine needing the accelerator to be always depressed to a more or less degree, except when the car was standing still, was a very good scheme. At the very first hill I got her up on the top gear to Mr. Goodwin's surprise. He had, on the same hill, previously gone up on the second. But the car being new to me I had experimented with the ignition and so got the best timing as I went up, and this made all the difference. The result was that I took her to Hitchin on the top gear, and coming home we only had to put the second gear once into engagement. We did not time our fastest mile through missing the mile-stone, but another almost as good was covered in 2 mins. 5 secs., whilst we averaged just over 24 an hour with myself driving and it was obvious that I did not get the best out of her because I slowed down for corners much more than I should have done if I had been familiar with the car. Altogether I thoroughly enjoyed my trip, and I gained a great admiration for the Little Star, not because she was fast or because of her power up hill, but more because of absolute ease of driving. The advantage of a double-cylindered engine over a single cylinder is very great, and I must say that I look to it as the engine of the future for light cars, because of its much greater flexibility. To be able to travel a long distance with only an occasional change of gear is a great relief.



NEWS.

"The Motor Boat."

For full report of the cross-Channel race.

A special squad of motorcycling police to catch "speeding" motorists and runaway horses is to be established in New York.

The Ivel agricultural motor received the highest award at the Royal Lancashire Show last week. Its continued success is remarkable.

We are glad to report that Mr. J. Edge, who was badly hurt whilst riding a motorcycle on the New Brighton track recently, has left the hospital, and is doing well.

Out of 22,916 motorcycles registered to the end of July, 18,116 are used for pleasure purposes; 3,370 in business; and 1,430 for business and pleasure combined.

A motorcycle section has just been formed in connection with the Sheffield Central Cycling Club. Full particulars may be obtained from the hon. sec., Mr. T. W. Sykes, 265, Shalesmoor, Sheffield.

A serious accident occurred last week on Brixton Hill. This has recently been electrified with a double line of rails. A young man, named James Hodges, of Streatham Common, collided with one of the cars when proceeding down the hill. His injuries were of a very grave character.

When one reads that the game of "Daring the Motor" is a popular juvenile amusement in Sussex and Surrey, is it to be wondered at that occasionally a child gets run over? The game consists in "deliberately standing in the road in front of a car so as to compel the motorist to pull up."

Visitors to Bexhill during the carnival days were given the unusual spectacle of an Earl keeping the course as well as competing in motor races. Earl de la Warr was an all-round man, and at times assisted to persuade (in courteous accents) unwelcome intruders to remove themselves from the enclosure.

A team will be selected to represent the Coventry Motor Cycle Club in the 100 miles non-stop team competition to be promoted by the Motor Cycling Club. The course is within 35 miles of Coventry by road, and starts will take place at Bicester, in Oxfordshire. The rides will consist of 12½ miles out and home, this to be done four times.

Edward Buffum, winner of the economy test in the recent motorcycle trials from New York to Albany, was knocked over (i will be remembered) by a motorcar during the trials, and badly injured his leg. It was feared that it would have to undergo amputation, but luckily the damage was not quite so serious as anticipated. Buffum, however, will have to use crutches for some months.

Coming Events.

Aug. 13. Motor Cycle Union of Ireland 200 Miles Reliability Contest.
,, 14 *to* 19. Motor-boat Races in France Paris to the sea.
,, 15 *to* 20. Auto-Cycle Club's Reliability Trials for Motorcycles.
,, 21. Gaston-Menier Cup.
,, 21. Motor Race Meet at World's Fair, St. Louis.
,, 27. Motor Cycling Club's Team Trials.
,, 29—*Sep.* 3. Automobile Club's Reliability Trials for Motorcars.
Sept. 3. South M.C. Hill Climb.
,, 10.—Motor C.C. Reliability Runs for the Brown Trophy.
,, 24. Auto Cycle Club races at Crystal Palace.
,, —. Midland A.C. Speed Trials.
Oct. 5. D'ieurdan Kilometre Trials.
,, 8. Vanderbilt Cup in America.
,, 9. Gaillon Hill Climb.
,, 14. Leipzig Motor Show.
Dec. 9 *to* 26 French Automobile Salon (Grand Palais, Paris)

The consistent hospitality of Earl de la Warr rendered the stay of the official visitors and the Press at Bexhill a most delightful experience. His efforts for the pleasure and comfort of all concerned left nothing to be desired.

Visitors to Bexhill in search for a hotel where they can get comfortable accommodation at reasonable rates should call at the Star Hotel, Western Road. The proprietor is assiduous in his efforts to please his guests. The house figures in the C.T.C. list.

Thursday's issue of "The Motor Boat" will contain some striking illustrations.

A reader informs us that the police have a trap near the southern entrance to Stevenage.

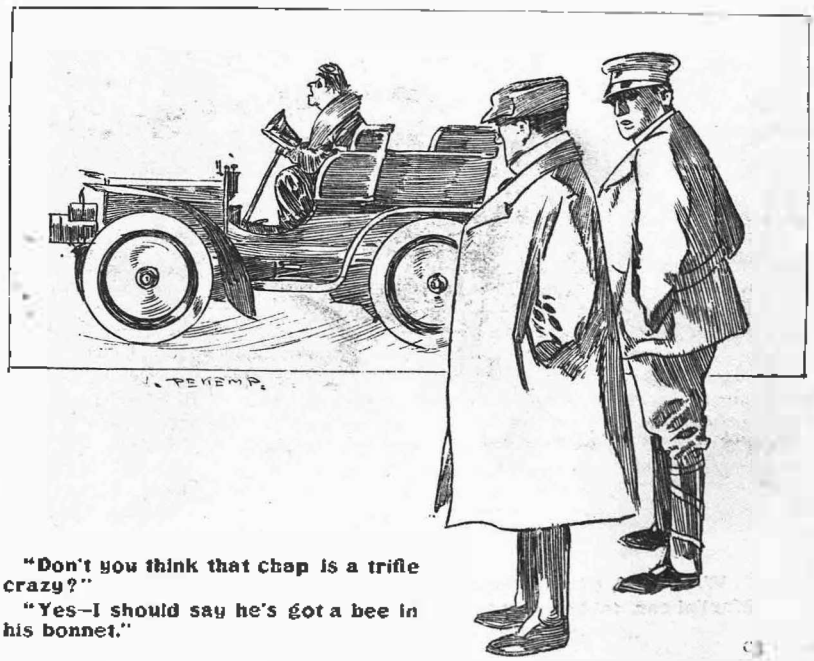
A remarkable form of motor-assisted bicycle is illustrated and commented upon elsewhere in this issue.

"The Motor Boat" will appear on Thursday with a graphic description of the cross-Channel race, written and illustrated by special representatives on board "The Queen."

W.H.C. (Chippenham) writes:—It may interest you to know that I had 69 replies to my advertisement *re* small car in "THE MOTOR," and I sold it the day following the appearance of advertisement.

Baron Schrenk Notzing, who superintended the weighing operations in connection with this year's Gordon-Bennett race, considers that the race has been of great benefit to German makers. "We now know," he says, "in what parts our otherwise incomparable Mercedes car can still be improved. In no other way could we so easily and certainly have arrived at this knowledge."

The Automobile Club reiterates its plea to motorists to drive with discretion on dusty roads. In view of the apparent inability, or disinclination, of local authorities to discover a cure for dust, the advice is good; but it may be pointed out that however discreetly a motorist may drive, short of an actual crawl, he cannot help being a nuisance on some of the abominable roads on which this country prides itself.



"Don't you think that chap is a trifle crazy?"

"Yes—I should say he's got a bee in his bonnet."

NEWS.

Tourists who may chance to be in the neighbourhood of the historic city of Coventry should note that the Rover Cycle Co., Ltd., extends a free invitation to all cyclists and motorcyclists to visit their works at Coventry.

In connection with devices for inspecting the exploding gases in an engine cylinder, we are asked to state that such a device has been on the market some time, it being the patent of E. B. Milburn, Northumberland Works, Marlborough, Wilts. We illustrated a device of this nature in our June 28th issue, introduced by a French manufacturer.

A motor vehicle parade recently held in Los Angeles, Southern California, attracted over 130 touring cars, in addition to many commercial vehicles. A continuous line of spectators banked the footpaths, and the windows of houses and shops were thronged. The "motif" of the parade was to demonstrate the absurdity of the four and eight mile speed limits imposed by the authorities.

The French Automobile Salon.

Taking time by the forelock, the preliminary arrangements for the next great French automobile exhibition are well in hand. The trade has been circularised with regard to the letting of space, and the opening day has been fixed for December 9th, and the closing day the 26th of the same month. The venue as before will be the Grand Palais, in the Champs Elysée Avenue, and everything points to the 1904 display being as great a success as those of previous years. As hitherto, the exhibition will be held under the auspices of the Automobile Club de France, and the arrangements will be practically the same as last year, the chief difference being that the huge central hall will be entirely reserved for bona fide manufacturers, no agents being allowed to have space there.

TUNBRIDGE WELLS' SPORTS.

T. H. Tessier covering 5 miles in the fast time of 8 mins. 16⅗ secs. on a 2¾ Bat.

Motorcycle Racing at Tunbridge Wells.

The Tunbridge Wells St. John's C. and A.C. held a successful athletic meeting on Bank Holiday, on the Nevill Athletic Ground, in the presence of 8,000 spectators. Sport in the motorcycling events proved excellent. In a flying start one mile contest W. W. Genn, on an Eland Minerva, won a gold medal, having completed the distance in 1 min. 31 secs., on a grass track, four laps to the mile. T. H. Tessier's time in the same event was 1 min. 32⅘ secs. The track was in excellent condition and very "fast." A five miles handicap (open) was won by C. E. Bennett (Canning Town, 1 min. 40 secs.), on a Kerry machine, in 8 mins. 23⅘ secs. In the final Tessier (2¾ Bat), riding from scratch, failed to catch up his men, and retired. The three miles open race also fell to C. E. Bennett, W. W. Genn putting up a capital race until he had the misfortune to lose his belt. Time, 4 mins. 54⅖ secs.

Motor track racing as practised in America abounds in danger, and it is considered probable that it will be prohibited before long. The races are held on unbanked tracks, with a loose, dusty surface—generally a horse trotting track. In addition to the grave risk of skidding at an unbanked corner, there is the danger of running into the rails or another competitor on account of the dust raised.

Motors for Military Men.

At the forthcoming Austro-Hungarian Army manœuvres motorcycles and cars will form a prominent feature. Some thirty members of the Austrian Automobile Club, and the Motorcycle Vereinigung, who volunteered for service, have already been drafted—on paper—into various corps. In a communication to the Austrian Automobile Club, the Technical Military Committee intimates that the Military Exchequer will bear the transport costs for chauffeurs and motors, and pay an indemnification of 30 or 6 crowns a day for the use of car or motorcycle. The military authorities intend thoroughly to investigate the suitability or otherwise of motors for military service.

British "Enterprise."

In the report of the Consul-General of Frankfort reference is made to the motor exhibition held there last March, and surprise is expressed that there was not a single British exhibit. Only one British firm was included among the exhibitors, and they were showing a Swiss car. "It is most regrettable," says the Consul-General, "that the British trade should have taken no notice of the exhibition, which proved a very great success, one of the models on show being ordered fifty times over. It is not surprising that the enterprise of most exhibitors should have been handsomely rewarded by numerous orders, as Frankfort was an ideal market; in spite of its great wealth few automobiles had until then been owned, and the general interest in automobiles had been aroused by the forthcoming race for the Gordon-Bennett Cup. It is to be hoped that when the time comes British manufacturers will not again be conspicuous by their absence, though they have rendered their own chances more difficult by letting the first opportunity go by."

Mr. C. W. Pennell, of the Lincolnshire A.C., at the helm of his 16-20 h.p. Martini car, taking part in the driving competition at Asgarby as reported in our last issue (page 756).

NEWS.

In last week's issue (page 758) a printer's error crept into the inscription relating to the illustration of Mr. A. E. Lowe and his J.A.P. motor-bicycle, on which he rode against A. A. Chase up Westerham Hill on Wednesday last in a match for £50 a side. The machine was styled as a Bat instead of a J.A.P. We therefore have pleasure in making the *amende honorable*.

Unofficial Non-stop Runs.

The Automobile Club wishes to direct the attention of the public to the worthlessness of records of non-stop runs which are not officially certified. The Club has a stringent code of rules for properly carrying out such trials, important amongst which are the safeguards which have been provided for the protection of the public, and it is formulating further regulations in order to prevent irregular trials by unauthorised persons in the future.

A Horse-owner's View.

"Lovers of horses must view with satisfaction," says a horse-owning correspondent to the Sheffield "Daily Telegraph," "the rapid strides the motor is making both for light and heavy traffic, because in a city like Sheffield the horse has a bad time. It is distressing to see the loads that cab horses and cart horses are expected to pull up our heavy gradients, and when old age is added the burden is great. The motorcar, therefore, is what most people are looking forward to. With the rapid improvements that are taking place, the quieting of the engine, and the various non-skidding devices and improvements in tyres, the wonderful lowering of prices all round, as patents run out, and parts are made by machinery, and standardised, there is no doubt that in a few years' time the motor will be used universally. Our streets will be better, last longer, and be infinitely more sanitary. Let us welcome, therefore, the new locomotion, instead of trying to handicap it by writing silly letters to the Press."

Enthusiastic.

A correspondent forwards us the following account of an extraordinary accident which he saw last week. A young motorist was driving a motor-bicycle at a goodish pace from a side-carriage attached, near Surbiton, when, probably from leaning forward, the side-car overbalanced, and the front bar catching in the ground caused the whole thing to overturn and throw the driver a distance of 23 feet on to his knee. After luckily missing the kerbstone, he was brought up by the river wall. The youth was on his feet in a trice, and after a few minutes spent in adjusting and testing the machine he popped on to it minus one of his trouser legs, which had been cut away. Neither he nor the machine were really fit for riding, as the machine had a broken handlebar and several minor damages, besides being at a most extraordinary angle with the side-carriage, though it speaks well for the maker that the mechanism seemed to be in good order. About half-an-hour later the same youngster sailed past in another suit on another machine, apparently not in the least upset by his unpleasant experience.

THE LIGHT CAR TRIALS.

A Description of Some of the Principal Cars which have been entered.

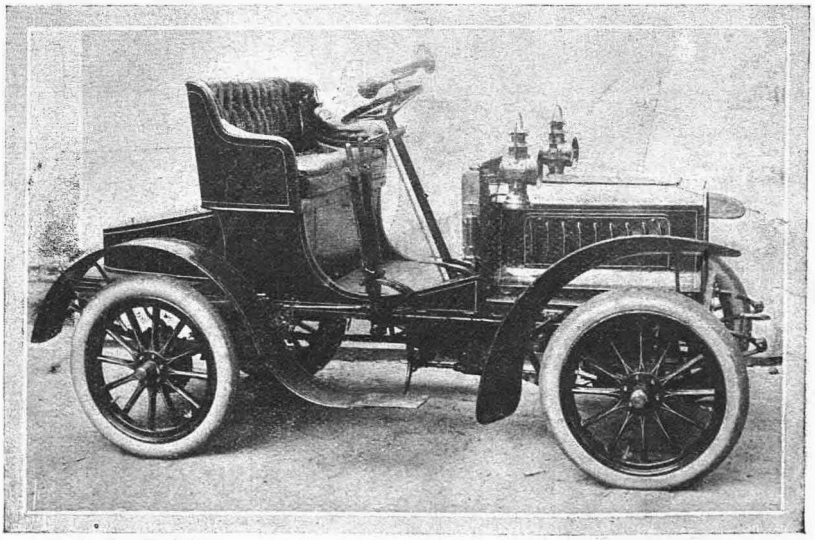
Having dealt fully with the objects and rules of the forthcoming Light Car Trials, we now proceed to describe some of the principal cars which have been entered for this important event. The following, of course, is only the first instalment of the article:—

The 6 h.p. De Dion.

Messrs. De Dion Bouton, Ltd., 10, Gt. Marlborough Street, Regent Street, W., are among the pioneers of the light car, and the number of their early types of 3½ and 4½ horse-power, which still continue to do good work, testifies to their sound methods of construction. This company have entered two cars of the same horse-power, and these, under the trial rules, will run as a team. The bodies are of the construction known as Rotonde, and each car will carry the driver and a passenger. The engine is the well-known De Dion, water-cooled, single cylinder, developing 6 h.p. at a speed of 1,600 per minute, and having a bore of 90 mm. and a stroke of 110 mm. The cooling is effected by a water tank carried under the bonnet and attached to the front of the dashboard. The radiators are kept well forward below the frame, and the circulation is maintained through the gilled tubes by a centrifugal pump driven direct off the two-to-one gear. Ignition is the usual high tension, current being supplied by a dry battery to the induction coil, with De Dion patent trembling contact breaker. The actuating parts of the latter are now fitted to a metal base, replacing the vulcanite base used on the earlier models. The carburetter is the De Dion patent float feed spray, petrol being conveyed to same from the tank fitted under the seat. No alteration has been made in the gear, this being the De Dion expanding clutch, with the wheels always in mesh, having two speeds forward and a reverse. This construction compels the driver to entirely release one gear before the other can be brought into action. The engine is connected to the gear-box by a universally jointed shaft, with bevel pinions between gear and differential, and thence to road wheels by De Dion cardan axles. These cardan axles only drive, the weight of car and rear wheels being carried upon a separate rigid axle, which is dropped behind and below the driving axles. Engine lubrication is effected by a hand-operated pump affixed to dashboard, a grease force pump supplying the bearings of the road wheels. Three brakes are fitted; the metal to metal one on countershaft being brought into action by a pedal, and the two band brakes on driving wheels by a side lever. The control levers are all carried on a vertical pillar just beneath the inclined steering wheel, the change speed lever also being attached to the column. The frame is weldless steel tubing, carried upon very flexible springs attached to artillery wood wheels. Four equal sized tyres, 28 by 3½ Dunlops as standard, complete this shapely looking vehicle. Wheel base is 5 feet 11 inches by 3 feet 10 inches; total weight about 9½ cwt. Price £200.

The 6 h.p. Mobile.

The Mobile Motor and Engineering Co., Ltd., John Bright Street, Birmingham. Two entries: the first being the Mobile voiturette, which is driven by a De Dion engine, 90 mm. bore by 110 mm. stroke, giving 6 horse at 1,600 revolutions per minute and governed on the inlet. The cooling is by Mercedes pattern radiator in front of engine, the bonnet coming entirely round the sides of it. Circulation is by pump driven by small friction wheel off fly-wheel. Ignition is by accumulators and high speed trembling coil, with wipe contact on two-to-one shaft. Carburetter is the De Dion float feed, connecting to petrol tank on front of dashboard. The gears are of the Panhard sliding type, having three speeds and reverse, with direct drive on top speed; the gear wheels are of high carbon steel, mounted on steel axles, and running in phosphor bronze bearings. Transmission is from the large sized leather-faced friction clutch by universal jointed shaft to gear box, and thence to live axle by jointed shaft. A three-way pump is attached to the oil tank on the dashboard, connected by suitably sized



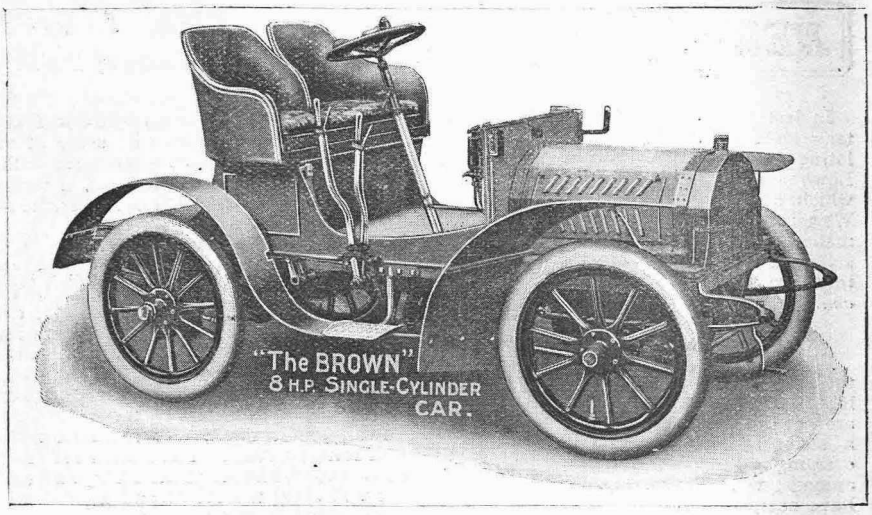
The Light Car Trials. The 6 h.p. De Dion Car.

NEWS.

pipes to the crank case of engine, differential on live axle, and the gear box. Three brakes are fitted, one, metal to metal on countershaft controlled by pedal; the other two band brakes on hubs of driving wheels being brought into action by a side lever. The clutch pedal is connected to both the brakes, and one movement, therefore, suffices to withdraw the clutch and put on either of the brakes desired. The control levers for ignition, throttle, and air regulation are on the steering column, and the change speed lever on the right-hand side of the driver, attached to the usual slotted quadrant. Framework is of weldless steel tubing, and the standard body is supplied with two bucket seats upholstered in real leather with brass fittings. The coach work is elegantly finished and lined out with tints complimentary to the colour of body and wheels. Artillery wood wheels, having forged steel hubs are all of equal size, 28 by 3½, and Dunlop or other first grade tyres to selection are fitted. The total weight is about 9 cwt., and as a pair of lamps, repair outfit, pump, and complete kit of tools is supplied, the price seems reasonable enough at £175. The second entry of this firm, a Mobile light car, we shall watch with particular interest. This is fitted with a 9 horse single cylinder De Dion engine, and has an armoured wood chassis or frame. A Roi de Belges body has seats for four passengers, all other details being similar to the 6 h.p.; no lamps or tools are supplied, but, without these, the price of £200 is startling for what is offered.

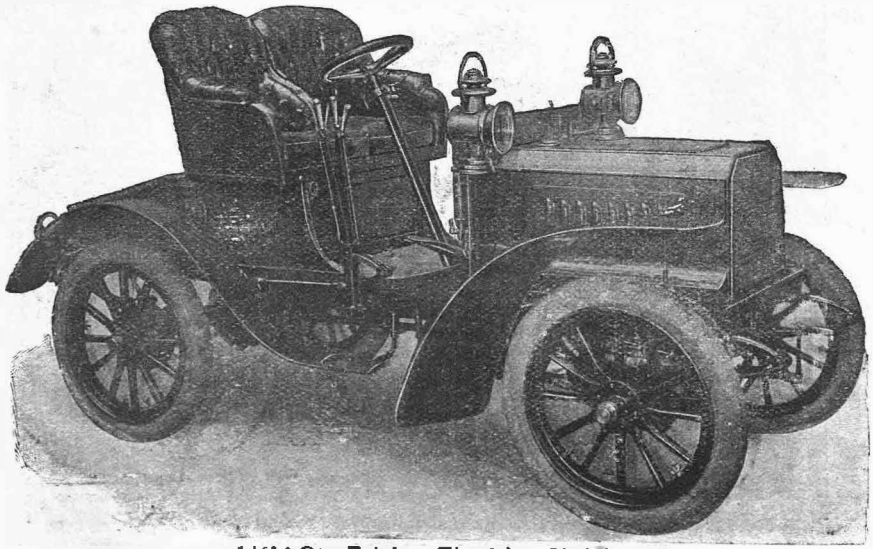
The 8 h.p. Brown.

Brown Bros., Ltd., 22-30, Great Eastern Street, London, E.C.—This well-known firm have entered one 8 h.p. gear-driven car. The engine is a single cylinder-governed, vertical, 110 mm. bore by 120 mm. stroke, and develops its power at 1,200 revolutions a minute. The frame is wood, strengthened with flitch plates, with extra plates on the corners. Ignition is the usual high tension, by coil and accumulator, with a wipe contact breaker. The transmission is by propeller shaft to the gear box, and thence to live axle by a cardan shaft, with universal joints, the live axle being carried on ball-bearings. The clutch can be removed for examination without disturbing engine or gear box. Three speeds and a reverse are fitted, with actuating side lever, the gear being of Panhard type. The lubrication of the engine is effected from the dash by a combined force and drip lubricator, the plain bearing of the bevel driving pinion being also lubricated from the dashboard. The water circulation is maintained by a gear-driven pump, fitted in a very accessible position in front of the engine. The brakes are of the metal to metal type; the countershaft brake is applied by foot pedal, and the two brakes on the rear wheels are actuated by a side lever. Artillery wood wheels, all of equal size, carry Continental Dunlop tyres, 30in. by 3½in. The levers for throttle and advance spark are on the steering pillar, connection being by Bowden wires: the air regulator to the carburetter is on the dashboard. Length of wheel base, 6ft.; width over all, 4ft. 10in. Price, complete with side lamps, horn and set of tools, £175. Altogether a well-built car, it is expected to perform well in the trials.



The 9 h.p. Simms (Model C.).

The Simms Manufacturing Co., Ltd., Kimberley Road, Willesden Lane, London, N.W., are relying upon one car, this being known as the Simms Model "C." The engine is of the company's own manufacture (110 bore by 110 stroke), being governed on the inlet, and developing nearly 9 h.p. on the brake. The ignition is by the well-known Simms-Bosch magneto. Cooling is effected by a gear driven centrifugal pump, and the tank and radiators are the honeycomb or Mercedes type. The bonnet fits closely to this, and the sides are hinged to the carburetter of the float feed spray type, with an automatic air regulator. The gears are of the Panhard sliding pattern, three speeds and reverse, with direct drive on top being provided. The transmission is by the usual clutch to gear box, and thence to road wheels by live axle; this latter consists of solid drawn steel tubing for the outer case. The differential is of the spur-wheel type, and all the "live" parts of the axle are carried upon adjustable ball-bearings: the small bevel driving pinion has also ball-bearings. The wood frame is constructed of best ash, strengthened with flitch plates, and extra plates on the corners. The engine, etc., is carried upon a secondary frame of angle steel. Three brakes are fitted: one metal to metal, actuated by pedal, and the other two, of the internal expansion type, working inside drums attached to the road wheels, and brought into action by a side lever. In addition to the two pedals for clutch and brake respectively, a third pedal opens the throttle and releases the governor. The ignition and throttle levers are on the steering column. Engine lubrication is by splash, fed from a drip feed; while the main bearings receive their lubricant from screw-down grease containers on the dashboard. The equal-size artillery wood wheels are shod with pneumatic tyres, 700 mm. by 85 mm. Very long and flexible springs carry a two-seated body of wood and aluminium upholstered in real leather. The wheel base is 7ft. Every detail tending to efficiency of all wearing parts has been well considered, and with the several years experience behind this firm buyers may be sure of first-class quality. The price is £200. The car will make its first appearance in a public trial in September, and its behaviour will be watched with interest.



Light Car Trials. The 6 h.p. Mobile.

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The police are still active in the Huntingdon district. Ten drivers were charged at St. Neots one day last week for driving to the common danger through Buckden, one driver being a chauffeur of Sir George Newnes.

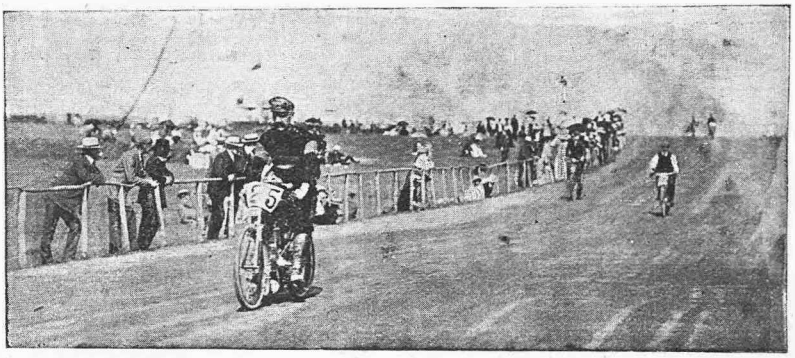
Mr. Thomas Shaw, of Dundee, has succeeded in driving his 15 h.p. Napier from London to Dundee without a stop. The distance is 530 miles, and it was covered in 24½ hours. The car had a full complement of four passengers.

The level railway crossing constitutes a very serious danger to traffic in America. Accidents are of frequent occurrence. Three serious catastrophes of this nature have happened within a month at Coney Island, and five persons altogether have lost their lives therein.

In a recent issue an explanation was given of the light car trial rules, and mention was made of the preliminary arrangements. Sufficient justice was hardly done to the work of Mr. Basil H. Joy, who is entirely responsible for the mapping out of the routes, and upon whose shoulders devolves the multitudinous details connected with the work.

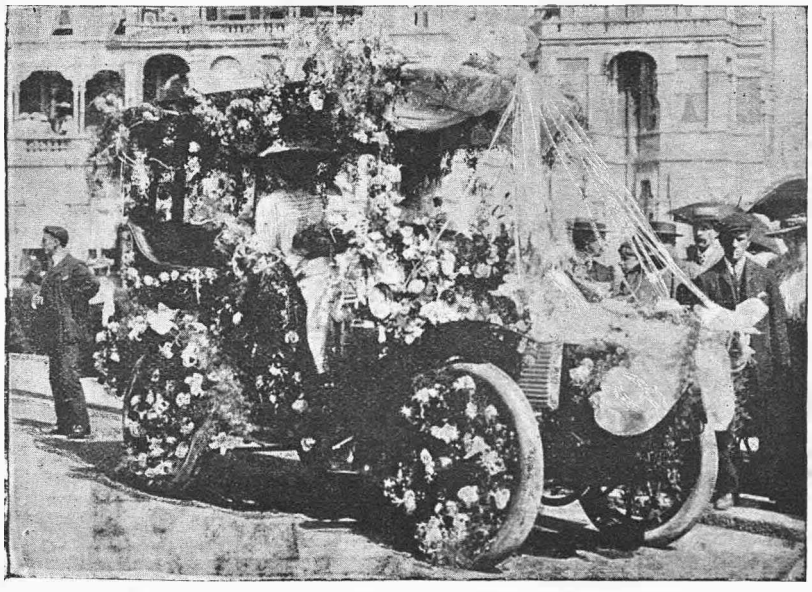
Motor versus Man.

One of the French railways, the Compagnie du Nord, has been successfully experimenting with a petrol motor to do work which formerly occupied the time of five or six men. At the station of Longroy-Gamache, on the line from Paris to Treport, it is necessary to turn locomotive engines round on a "plaque" or turntable. Formerly requiring half a dozen men for 20 minutes, the turning is now effected by a 5 h.p. Aster motor in three minutes. The cost of the motor and its installation amounted to about £140, and it costs 3d. every time it is used. Paid at the same rate, the men would get 1½d an hour—a shilling a day!



The Bexhill Meeting. Returning down the hill after a motor-bicycle race; E. B. Blaker leading.

Mr. Harold Williamson and the 3½ h.p. Rex, on which he recently established a new End to End record.



Decorated Cars at Bexhill. Mrs. Manville's car which secured the second award.

Sale of Marquis of Anglesey's Cars.

Last Thursday the motorcars belonging to the Marquis of Anglesey were sold at Anglesey Castle, by public auction. Rather high prices were realised. A 2¾ h.p. Mabley went at £67; a 6 h.p. Locomobile brought in £56; while £360 and £300 were paid for a 10 h.p. Lanchester and a 1902 pattern 16 h.p. Panhard. The famous 36 h.p. Mors, with Pullman saloon body, sold at £825 to a Liverpool merchant. Great interest was evinced in the sale, and there was a good attendance, about 35 to 40 motorcars of all classes coming by road.

The Latest End to End Record.

G. P. Mills' end-to-end motorcycle record has not been allowed to stand long. As briefly reported in our issue last week, it has been beaten by Harold Williamson, of Coventry, on a 3½ h.p. Rex machine. Leaving Land's End at 4.15 a.m. on Thursday week, Mr. Williamson reached John o'Groats at 4.51 a.m. on Saturday, thus covering the full distance of 880 miles in 48 hrs. 36 mins.—a reduction of 2 hrs. 10 mins. on Mills' figures. Heavy rain in the west country had softened the roads, and the rider found the going heavier than he had anticipated. At nightfall on Thursday, Mr. Williamson had reached the "salubrious" district lying between Warrington and Wigan, the normal thickness of the atmosphere in those parts being augmented by a fog: this and some lamp worries caused a slight diminution of speed. From there, however, to Lancaster, the Rex bowled merrily along until a puncture, followed by two more on Shap Fells, brought about another delay. When once the long rise over Shap had been surmounted, the Scotch border was soon reached. The next bit of difficult work was the Grampians, where the roads are not always of the smoothest: indeed, one can easily realise, when mounted on a motor-bicycle, that it was here that a celebrated individual "fed his flocks"—for the roads are not unlike sheep tracks. Friday night had set in before Mr. Williamson was half-way through his troubles here, some additional punctures causing further loss of time. At daybreak on Saturday, the Berriedale ascent was negotiated, and the last 40 miles of the run to John o'Groats was done at top speed—30 miles an hour. Throughout, the Rex machine performed admirably, the only troubles experienced being those occasioned by punctures and lamps.

NEWS.

The Kingston-on-Thames Motor Cycling Club will meet on Sunday, 14th, at 10 a.m., at the Anglers, for a run to Brighton. Intending members are invited.

One of the most painstaking and hard-working officials at the Bexhill carnival was Sir Archibald McDonald, who was on duty at the winning-post at Galley Hill the whole time, keeping the enclosure free from intruders.

The Liverpool Fire Brigade have just received from Messrs. Merryweather and Sons a new motor engine, said to be the finest yet made. It can travel over thirty miles an hour, carrying nine or ten men, and can throw 500 gallons of water per minute. This makes the fourth motor fire engine in Liverpool.

The Auto-Cycle Club has arranged for its annual race meeting to be held on the Crystal Palace track, on September 24th. This will be followed by a trial to test petrol consumption, early in October. A two days' run to Exeter and back to Southampton (in reliability trial style) for members only is projected.

The Reliability of the Motorcycle.

Of the thirteen competitors who failed to complete the recent motor-bicycle endurance run in America, only three really suffered from machine troubles, the breakdown in two cases being due to the stripping of the electrical timing gear, and in the third to carburetter trouble. Of the others, two came to grief through broken frames—an unseen ditch being the cause in one case, and the ubiquitous dog in the other; one was run into by a motor-car; two had broken belt pulleys due to side-slip; three abandoned the contest from sheer physical exhaustion; and two gave up because they had "had enough of it." The total number of competitors was 26; so that 50 per cent. came through without a stop, and only about 7 per cent. failed from machine troubles.

MOTOR CYCLING CLUB SELECTION TRIALS.

Densham, Reeves, and Maffert Secure the First Three Places.

The club event held on Saturday last to select a team of riders to compete in the inter-club competition at Oxford, on August 27th, proved to be a most enjoyable function. The distance run off was a 50 miles non-stop from Redbourne to a point 25 miles along the Coventry road, and return. At one time it looked as if there was to be a wet afternoon, but before 3 o'clock things brightened up, and the riding conditions were as good as could be desired. Eight members started off at 3.45, viz.:—Arnott (two-cylinder Princeps), Hulbert (Hulbert-Bramley), Crundall (Humber), Densham (Anglian), Reeves (R. and P.), Sale (Quadrant), Maffert (Bat), and Wells (F.N.). Out of this group Crundall was the only one to experience a bit of genuine hard luck in the contest, inasmuch as through the breaking of a coil trembler spring he lost his chance of finishing. The remaining seven members thereupon had to compete in the starting and stopping test so successfully carried out on previous occasions. After tea an adjournment was made to a stretch of good road close to the hotel. This stretch was measured off to be just a mile out and home, and seven stopping places were totalled in the distance. Reeves was unfortunate in having a rather bad fall in taking a corner, and this resulted in a bent crank. Densham who followed, got off and on at each point in excellent style. Then came Arnott. He got away all right from the first two controls, but at the third his pedal chain came off, and he also experienced difficulty in getting his engine to fire. Maffert, on a pedalless Bat machine, did remarkably well at all the controls. Sale, on a Quadrant also did well, but lost some time through his band brake jamming. Reeves meanwhile had his crank straightened and made another attempt, and although it looked odds on him having another fall in his endeavours to mount quickly, he got through very pluckily, and in good time at each control. The course was not an easy one, as it comprised an awkward hill to start on and a nasty turning. The best times for the mile were:—Densham, 3 min. 14⅘ secs.; Reeves, 3 mins. 31⅘ secs.; Maffert, 3 mins. 38 secs., so that, in all probability, these three will figure in the team. The checking and management was very efficiently carried out by Messrs. Brown, Van Hooydonk, Rev. B. H. Davies, and Cowles.

Preparing for the starting and stopping contest on Redbourne Common. Mr. C. W. Brown marshalling a group of competitors.

Maffert (Bat), Densham (Anglian), and Hulbert (Hulbert-Bramley) surmounting the rise to Dunstable Cutting.

Professor Von Hubert Herkomer's magnificent new 36 h.p. Daimler car has just been shipped on board the Royal Mail Steam Packet Co.'s Continental steamer, "Dartmeet," for Hamburg, whence it will be driven to Bavaria, where the great artist has a large estate. By the way, there are special facilities for the shipment of cars by the route mentioned above, and motorists intending touring in Germany would do well in considering same.

NEWS.

The Anglesey County Council decided last week to fix the speed limit for motor-cars in the county at seven miles an hour, except on the Holyhead to Menai Bridge road, and the Menai Bridge to Beaumaris road, where the speeds are fixed at twelve and ten miles an hour respectively.

A 200 MILES' RELIABILITY TRIAL.

"Triumphs" Triumphant.

The Motor Cycle Union of Ireland is certainly one of the most active bodies devoted to the promotion of the sport of motorcycling, and its programme during the present season has been an exceedingly large and diversified one. On each alternate Saturday since the beginning of the season it has had a competition of some form or other, either of speed, reliability, or a hill-climbing test. Its most important competition of the season was run off on Tuesday of last week, when a 200 miles Reliability Trial from Dublin to Waterford and back was held under its auspices. Our contemporary, the "Irish Cyclist," presented £10 10s. to the Union for prizes for the event. The competition took the form of a team race confined to teams of four riders mounted on the same make of bicycle. Four teams took part in the competition, two of them riding F.N. bicycles, and two of them Triumphs. The conditions of the race were of a simple character. The pace was limited to 20 miles an hour, and for any time gained in access of that rate one mark was deducted for each minute, and for any time under 15 miles an hour a mark was similarly deducted. There were no penalties for stoppages on the road, but the riders were required to execute repairs with implements carried by them, and were limited to assistance from their team mates. Unfortunately the day was not altogether favourable, heavy rain during the night making the roads wet for two-thirds of the outward journey. As, however, there was little rain during the day, things improved on the homeward journey, and the competitors were able to travel fully up to the maximum speed. The competition resulted in a win for a team of Triumph riders, all of whom covered the distance within the time limits, and succeeded in getting full marks. Two of the second Triumph team also secured full marks, but their partners, having trouble in the earlier stages of the day, did not complete the journey. Of the two F.N. teams, the brothers Franklin were the only ones to receive full marks. The result was as follows:—

Triumph team No. 2:—		
A. Summers	...	100 marks
L. Summers	...	100 marks
G. Mayne	...	100 marks
J. G. Drury	...	100 marks
F.N. team No. 1:—		
C. B. Franklin	...	100 marks
R. F. Franklin	...	100 marks
Triumph team No. 1:—		
R. M. Talbot	...	100 marks
T. W. Murphy	...	100 marks

The Motor C.C. Trial. Arnott on a 2-cylinder Princeps approaching Dunstable.

The Auto-Cycle Club held a special general meeting on Friday last, and finally passed the new scheme of affiliation. The proposals will very shortly be laid before the other motorcycling clubs of the country. Concerted action amongst motorcyclists is a most desirable thing, and this scheme will provide for it.

Lincolnshire A.C.

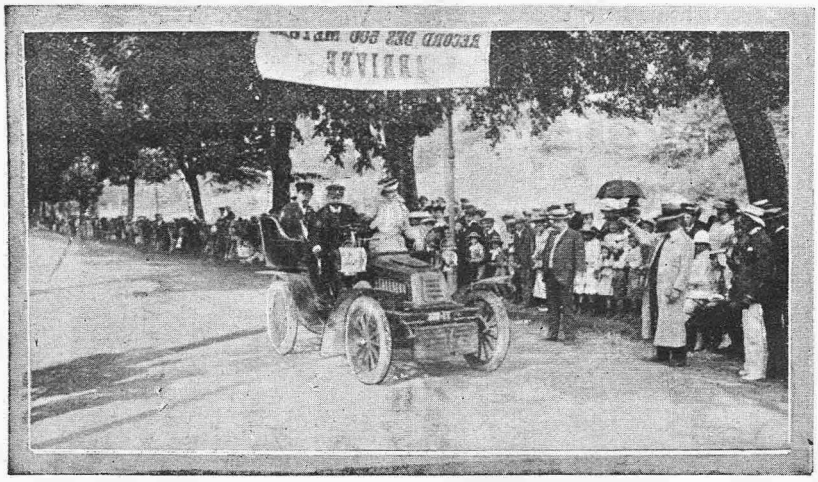
The Lincolnshire Automobile Club, which is one of the leading provincial organisations, owes much of its success to the sociability of its members and the influence of many county gentlemen who frequently entertain the members to a garden party or a similar function. Another such gathering—and there have been quite a host of these this season—took place on Thursday, August 4th, at Westholme, Mr. H. A. Peake's delightful residence at Sleaford. Mr. Peake is not a member of the club, but he is one of those gentlemen who takes an interest in its welfare, and the manner in which he entertained the members last week shows that he is a keen supporter of the automobile movement. Amongst the 24 cars which turned up at the meet were many fine specimens. After partaking of tea at separate tables on the lawns, the guests enjoyed a stroll through the delightful grounds. The conservatories and flower gardens came in for a considerable share of inspection and admiration. Many participated in the lawn games provided for their delectation, and no pains were spared to make the visit as enjoyable as possible. A string band discoursed charming selections of music during the afternoon and evening.

J. G. Drury, one of the successful competitors in the M.C.U.I. Reliability Trial referred to on this page.

NEWS.

The Suffolk Police Sports will be held at Ipswich, on September 10th, motorcycle events, under the rules of the Auto-Cycle Club, being included in a most interesting programme.

Just as we go to press (noon Monday) our representative at Dover telegraphs that the turbine steamer "The Queen," which had been commissioned by "The Motor Boat" to follow up the great Channel motor boat race, had started for Calais with 500 guests and passengers aboard. The weather was perfect, the wire ran, and everything pointed to a glorious trip. A full report of the racing, with striking illustrations, will appear in next Thursday's issue of "The Motor Boat."



Dauphine Trials: Cormier (the winner in the touring class) on his 12 h.p. De Dion.

Commission for Advice.

At a meeting of the council of the Society of Motor Manufacturers and traders, held on Thursday last, it was "Resolved unanimously that this council is of opinion that it is against the best interests, both of the trade and the buying public, for any automobile journal to take commissions or make any profit in connection with the sale of cars recommended in its columns or otherwise." Our views on this subject were so clearly put before our readers in our last issue that it is unnecessary for us to enlarge on them. We need hardly say that we heartily approve of the resolution, for its spirit is the same that has always dominated our policy in regard to such recommendations.

A Strange Request.

Mr. Ernest H. Arnott writes that while at Bexhill watching the motor races from his car, which was drawn up with others alongside the track, he was informed by a man, accompanied by a police constable, armed with an official-looking notebook, that he had the option of paying 10s. for standing room or of moving the car away; and apparently every car owner was in turn accosted in the same manner. Mr. Arnott neither paid nor moved away, as he exceedingly doubted the legality of the claim. He was not troubled further, but, as he saw other cars moving out of the line of spectators, he presumed they believed the claim to be legal, and that probably some of those who remained had paid for the privilege of doing so. It would be interesting, says Mr. Arnott, to know if there were any legal right to these payments, and if not, the Automobile Club should be asked to consider the question as to whether the payments cannot be refunded. If the claim be legal, our correspondent takes it his case would not have been concluded with a refusal on his part to either move or pay.

Motoring in France.

A five days' hill climbing and reliability trial has just been brought to a conclusion in the Dauphiné district of France. Events were confined to touring cars and motorcycles. In the endurance run—310 kilometres, equal to about 200 miles—Albert, on a 28 h.p. Darracq, did best; next coming Vitalis 35 h.p. Rochet-Schneider). Vitalis again showed up well in the hill climb at Laffrey, and eventually won this competition. In the general classification for touring cars Cormier, on a De Dion, was adjudged the winner. It is satisfactory to note that all the winning vehicles were shod with Dunlop tyres.

Messrs. Richardson, Ltd., Saxelly and Lincoln, have opened a new depot and free garage at St. Peter's at Gowt's Bridge, High Street, Lincoln. A full stock of spirits, oils, tyres, parts, etc., will be kept. It is a large building, and should be a convenience, especially as it is open night and day.

Mr. Philip Dawson, of Lawrie Park, Sydenham, was summoned before the Croydon County Bench, on Saturday last, for driving a motorcar in the parish of Coulsdon ,on July 16th last at a speed exceeding 20 miles an hour. There was a great conflict of testimony. Mr. O'Gorman was in attendance to give evidence for the defence, and after hearing Mr. Staplee Firth, who appeared for Mr. Dawson, the Bench dismissed the summons.

The Manchester Motorcycle Club: Cheshire Police Persecution.

A sequel to the Knutsford police interference on the occasion of the first round of the Club's 100 miles' non-stop reliability trial on July 16th, took place on Wednesday last at the Knutsford Petty Sessions, when the three members who had been stopped by the police, viz., Messrs. J. T. Ward, R. Raines, and H. Tippings, were each fined £1 and 11s. 6d. costs, or 31s. 6d. each in all. In defence it was stated that the defendants were simply "crawling" along at eight miles an hour when stopped, and that there was no one in the street at the time. They were summoned for "riding to the danger of the public having regard to all the circumstances of the case," and the police evidence was to the effect that the street was full of children at the time, and that the riders were driving furiously at the rate of 15 miles an hour. Each rider ably defended his own case, but it was of no avail, and the Chairman of the Bench read the men a very severe lesson on the iniquities of furious driving, stating that he implicitly believed the police, and generally treated the case as one of very serious aspect. He also led them to understand that this being the first offence he had let them off very lightly, but the fine would be much heavier on a future occasion; the men's licences were ordered to be endorsed.

Dauphine Trials: Vitalis (35 h.p. Rochet-Schneider), winner of Hill Climb and second in the Endurance Run.

NEWS.

We wish to call our readers' attention to a new brand of motor oil that is being placed on the market by the old established firm of Grindley and Co., Ltd., Poplar, London, E. It is named the Pioneer brand, and the makers claim as one of its special features that it retains its lubricating value at the highest cylinder temperatures. The firm also. have specialities in petrol, motor greases, enamels, etc.

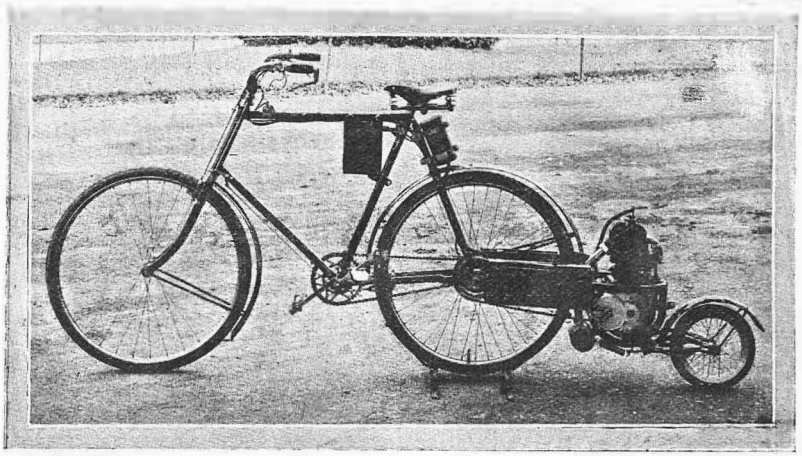
A motorcyclist of Edinburgh (Virginia, U.S.A.) has been accustomed to do the family washing by means of a pedal-cycle which he suspended in a frame, mounted, and worked. Now, in the hot weather, he finds it too much labour, so he lies in a hammock, and watches his motor do the work. The clothes are placed in a rotary washing machine, and the bicycle is on the stand. It sounds easy—but that it should come to this!

A Tri-car Parcel Distributor.

The illustration depicts a Garrard suspended tri-car fitted up as a swift parcel distributor. We understand this has been made to the order of the "En Avant" Yeast Co. The fore-carriage part has been replaced by a box having large storage capacity. This is an adaptation of the light motor vehicle that should prove of special interest to the up-to-date tradesman who is anxious to ensure the quickest possible delivery of his goods.

Cost of Motoring in India.

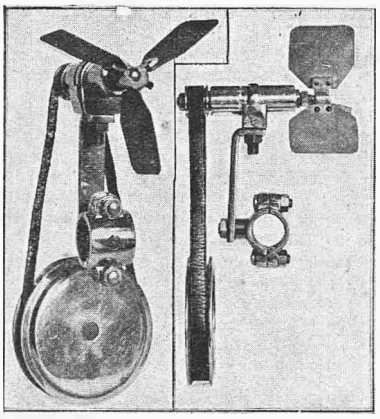
Mr. Francis J. E. Spring, Chairman of the Harbour Trust Board, Madras, has contributed some interesting details of the cost of motoring in India. Mr. Spring's figures are the result of a five months' tour on a 5 h.p. Allday and Onions' "Traveller Voiturette." During these five months, oil and stores cost 27 rupees (the rupee is equivalent to 1s. 1d.); petrol, 65 rupees; mechanician, 100 rupees; repairs, 33 rupees; total, 225 rupees—an average of 45 rupees (roughly, £2 10s.) a month. The car, tools, spares, etc., cost 2,787 rupees; and Mr. Spring calculates that if he runs the car for five years (and then sells it for the odd 787 rupees) the full cost of running the car will equal 88 rupees (£4 15s.) a month, or £57 a year.



A New Motor Attachment for ordinary Bicycles.

The Meredith Cooling Fan.

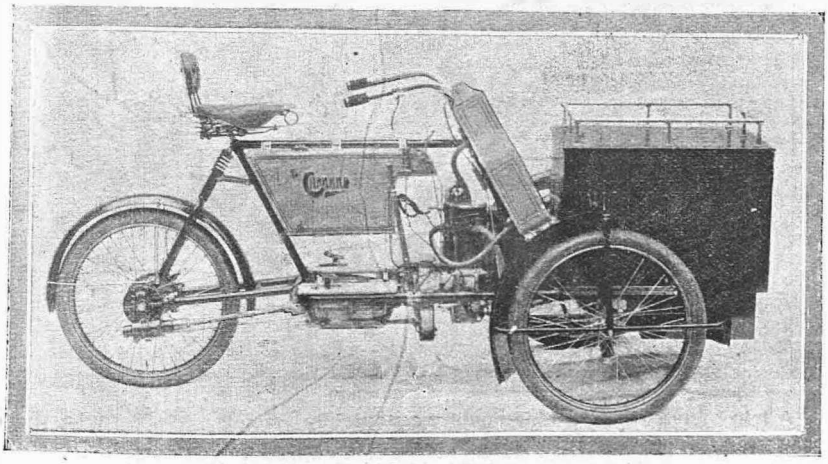
A particularly useful accessory to the motorcycle—be it a bicycle or tri-car—is that depicted in the illustration. It is a ball-bearing fan, mounted on an ingenious adjustable bracket, so that it can be



adapted to practically any existing machine with the exercise of a little thought. The fan spindle runs in a barrel, which can be moved within a considerable range through the clip. This clip is movable on a slotted arm, and thus carries the main clip for attaching to the frame tube, and which is also movable relative to the arm. A driving pulley for a small width flat belt is also supplied with the set. The fan itself has its arms or blades securely fixed, and it runs with remarkable freedom, so that practically no power is lost in bearing friction. The main clip fits 1⅛-1¼ tube. The makers are Messrs. C. J. Meredith and Co., Summer Lane, Birmingham.

A Curiosity in Motor-bicycle Attachments.

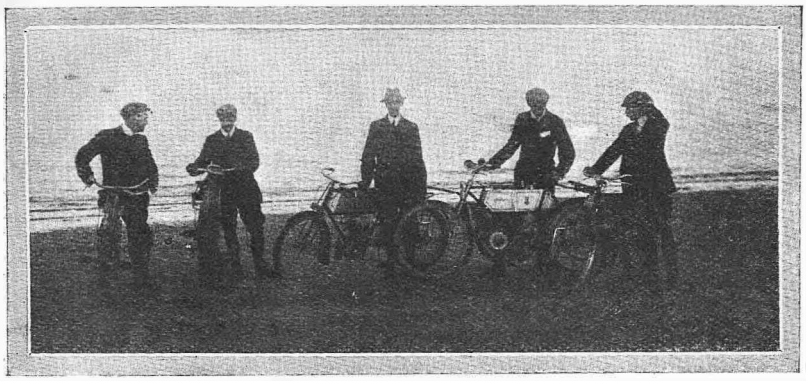
The impression conveyed at a first glance of the motorcycle attachment illustrated is that it might possibly work; but it is none the less an addition to the already long list of mechanical freaks in motorcycle inventions. The idea is plain enough and easily grasped. It consists of an ordinary air-cooled motor, supported in a special framework, which can be clamped to the rear stays of any ordinary pedal bicycle. A special chain and, presumably, a spring clutch are fitted to the back wheel hub, and take the drive from the engine by means of a chain. A reducing gear on the engine is fitted. The petrol tanks are seen fixed to the frame tubes. The accumulator and coil are clipped to the bicycle frame in the usual manner. Control of ignition, carburation and throttle are manipulated by Bowden wires and hand levers. It will be noted that part of the strain of the attachment is carried by a small trailing wheel carried by a spring fork. The wheel is apparently about 12 inches diameter, and shod with a pneumatic tyre. The carburetter is an ordinary spray. It is claimed that this attachment can be fitted to any bicycle in a few minutes, and should anything go wrong it can be removed and the machine pedalled home without it!! Speaking candidly, from a mechanical point, we cannot see how such an arrangement can justify the optimistic claims made for it. We should expect to find the steering seriously affected, and it would be awkward to manage in traffic by reason of its length, and the jumping about of the trailer part. The small trailer wheel would run at a tremendous pace, and the effect of it striking obstacles in the shape of stones, not to mention the risk of it getting stuck in a tram line groove, would not be pleasant. Further particulars of the invention can be had of Mr. H. Hewitt Griffin, 73, Norroy Road, Putney, London, S.W.



The Garrard Tri-car Parcel Distributor.

NEWS.

A driver of a motorcar was fined £10 on Thursday, at Slough, for driving negligently. The evidence showed that he was intoxicated.



Some of the competitors in speed trials held at Portmarnock under the auspices of the M.C.U.I. The results appeared in our last issue. Note the sea in the background; the trials were run on the shore.

In spite of the hundreds of cars at Bexhill last week, there was an entire absence of dust, owing to the roads having been Westrumited.

Incompetent Road Users.

A representative of "The Motor" was on a motorcar crossing the Broadway, Hammersmith, on a recent evening, when a lady cyclist appeared suddenly, wobbling violently on her wrong side of the road and right in front of the car. The driver, one of the most careful and skilful we know of, pulled up the car just in time to avoid a collision, and the lady wriggled rather than rode out of danger. A male escort of the lady dismounted and, instead of thanking the driver for his skilful handling of the car, as we expected him to do, insolently demanded the number, and apparently took it. What a pity it is that some cyclists do not acquaint themselves with the elementary rules of traffic riding! This lady cyclist had all the left-hand side of the road to herself, and yet she chose to be on the extreme right of the road as the car came round the corner. The numbering system has placed motorists at the mercy of such irresponsible and incompetent road users.

Motorcycling Dick Turpin.

A story (which we give with all reserve) has been sent by the "Special Correspondent" of a London daily from New York, relating how a motorcyclist has, successfully so far, played the part of highwayman. The story goes as follows:—

"Mr. Hall, a New York merchant, started on an automobile from Philadelphia for Delaware. At Water Gap, as he slowed up preparatory to taking a steep hill yesterday evening, by the light of his own headlight he saw a motorcyclist who had been for two miles slightly ahead of the car. At the point of two pistols the order was given for the party to leave their automobile. The assailant took Mr. Hall's money, the jewels of Mrs. Hall and two women friends—in all about 2,000 dols. worth—and compelled Mr. Hall to transfer the contents of his gasoline tank to the cycle, disconnect the batteries and deflate the tyres, leaving the car in the road. The victims walked about two miles to where they obtained aid. The bandit escaped."

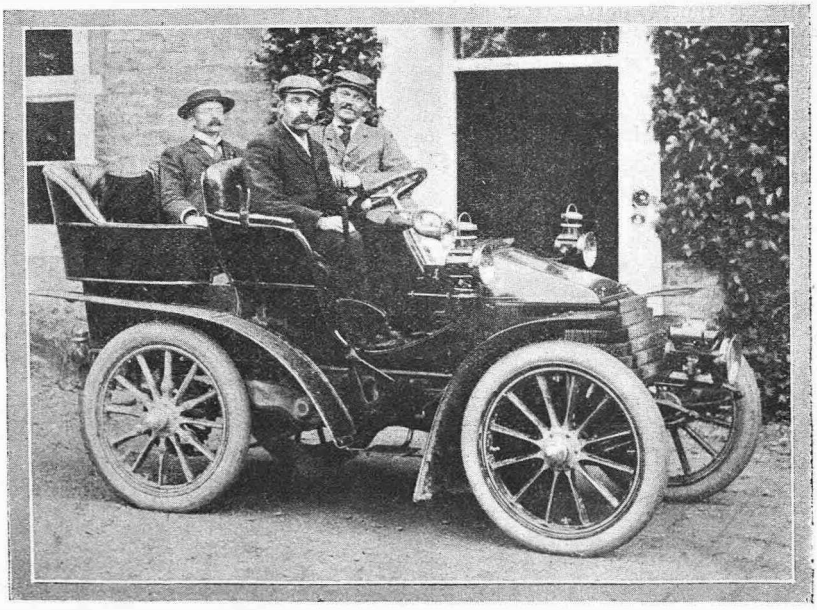
C12

Echoes of the Gordon-Bennett Race.

Gordon-Bennett "copy" continues to flow in the German Press. In the German Automobile Club's organ both Count Sierstorpff and Baron Brandenstein have contributed interesting observations. "In general," declares Count Sierstorpff, "I am satisfied with the issue of the race, and should like to contradict the view expressed in various newspapers that the contest was a failure because a foreigner succeeded and the costs stood out of all proportion to the results." Coming to the deficit, Count Sierstorpff remarks, "So far as the financial aspect is concerned, the costs were certainly very high, but are far from reaching the guaranteed funds. The guarantors are gentlemen and firms either willing to sacrifice large sums for the development of the German industry, or deriving a benefit from the holding of the race." Glancing at the Press arrangements, the Count admits that "special seats on the grand stand might have been set apart" for the Fourth Estate, yet considers that the "trifling oversight" ought to have obtained "gracious forgiveness." Having accentuated the industrial importance of the race, in contradistinction to its sporting value, Count Sierstorpff applies himself to the questions, "What do you think of next year's Gordon-Bennett race?" "Will many alterations be effected in it?" He answers: "The holding of next year's race will turn chiefly upon the attitude taken up towards it by the French Government, but I am of opinion that in France it will be regarded

AS A NATIONAL EVENT,

and that the French Automobile Club will receive permission to hold the race. Modifications in the regulations are scarcely likely to come in question, as the next International Conference does not meet until December." Baron Brandenstein bluntly ascribes the deficit in part to the "nearness" of the German public, who fought shy of the stands, and spread themselves out along the fringes of the road where there was nothing to pay; and to the wholesale use of Westrumite, which raised the expenses considerably. Baron Brandenstein stated, in reference to the race in 1905, that eliminating races would take place, but over a shorter course than that in the Taunus, say, the proposed stretch in Schleswig-Holstein (see "The Motor" for March 9th). Turning to future isolating arrangements in Germany, the Secretary General considers that the whole course should be shut off with wire fencing, surmounted by barbed wire. Questioned as to the necessity of such road racing for the further development of automobilism, the Baron replied, "Contests of this kind are necessary, so long as we have no motor track. By this means experiences of great value to the industry are rapidly collected, whereby the development of the industry advances at a greater pace."



A trio of well-known Lincolnshire automobile officials. Mr. F. Richardson (at the wheel of his 10 h.p. Wolseley) is hon. sec. of the South Lincs. A.C. Dr. Miller (sitting by his side) is captain of the same club, and Dr. Cragg (seated behind) is the energetic hon. sec. of the Lincolnshire A.C.

NEWS.

An "O.P.V." Correction.

In our last issue on the first page of "O.P.V." there appeared a letter dealing with twin-cylinder engines for tri-cars. Through a proof-reader's error the letter was made to appear as signed by the "Motor Manufacturing Co." It should have been "*Norton* Manufacturing Co." As the M M. Co. do not make or supply engines of the type referred to, we shall be glad if readers will please note the mistake in the letter in question.

Castle Spark-plugs to fit American Motors.

The United Motor Industries, Ltd., are now supplying that excellent little plug, the "Castle," made up with the American standard thread, so that it can be fitted to American motors. The thread used in England and on the Continent is quite different to the American thread, and up to now this fact has proved very inconvenient to users of American-made cars and motorcycles.

"Chase" v. "J.A.P."

The match between Arthur Chase and A. E. Lowe for £25 aside, which has caused a considerable amount of interest lately, duly "materialised" at Westerham Hill last Wednesday. Chase, of course, rode a Chase (76 bore by 85 stroke), while Lowe's mount was a J.A.P. (88 bore by 76 stroke). It will be observed that the bore of the J.A.P. engine is greater than the stroke, which is very unusual. The conditions were that no pedals were to be used, and the start to be from a stationary position, with a fifty yards run for getting under way. Each rider made three ascents of the three-quarter mile of stiff gradient, the winner being decided upon the best average performance. Chase won the toss and made the first run; then Lowe followed, and so the pair scaled the slope alternately. Chase's third run, however, was abortive, as he had accidentally turned off the petrol supply. This run, therefore, was not counted and he was allowed another essay. In every case Chase, who is physically stronger than Lowe, was the quicker to get away. After tea at the Crown Hotel the times of the individual runs were announced as follow:—

CHASE.		
First run	...	1 min. 27⅗ secs.
Second run	...	1 min. 29⅘ secs.
Third run	...	1 min. 31⅘ secs.
Average	...	1 min. 29⅘ secs.
LOWE.		
First run	...	1 min. 28⅘ secs.
Second run	...	1 min. 30⅘ secs.
Third run	...	1 min. 33⅘ secs.
Average	...	1 min. 30⅘ secs.

Thus Chase won the match, but, as will be noticed, by the very narrow margin of 1⅗ secs. only on an average. Both performances were excellent, and they prove after all that the Chase and J.A.P. machines are practically equal in power. Both "engines" climbed the trying hill in faultless manner. It is interesting to note that both riders broke the previous record for climbing Westerham Hill. The previous best was 1 min. 31⅘ secs., accomplished by a 4½ h.p. motor-bicycle. Chase's machine was the identical one used by him in the Catford hill climb.

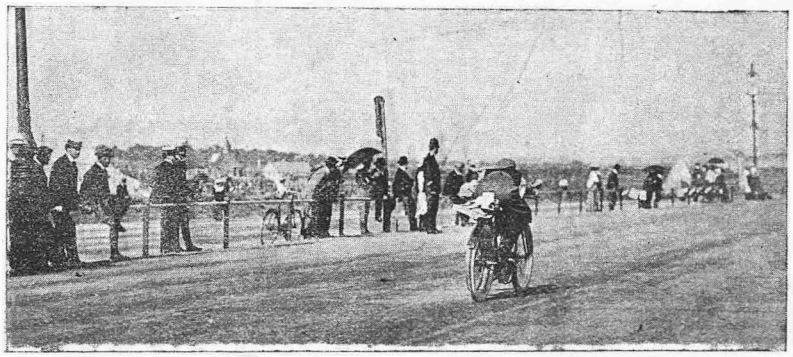
THE MOTOR CARNIVAL AT BEXHILL.

Our Special Representative concludes his Narrative.

Three and a half hours' close application on Bank Holiday only disposed of the first rounds in the competitions for touring cars, and the succeeding day was accordingly devoted to a continuance of the races, with the object of discovering the winners in the respective classes. Delays arising out of difficult protests conspired to drag out the affair until 7 p.m., the trouble which occurred in the last event causing a cessation of an hour and a half, and serving to

ANNIHILATE THE PATIENCE OF THE SPECTATORS,

most of whom went home before the meeting was concluded. The protest raised against Edge's car, mentioned in the report of the Monday's racing, was considered by the judges prior to the start on Tuesday. Three protests had been handed in by Messrs. Cordingley and Miller, and by Sir Archibald McDonald. It was alleged that the horsepower of Edge's car had been understated, and that, moreover, the value of the car was more than £1,000, the maximum in Class G. As regards the question of horsepower, the judges decided that no rule of the competition had been infringed, and, as regards the price of the car, upon a written undertaking being given by Mr. Edge that he was willing to sell replicas of his car for £850, the price mentioned upon his entry form, the protests were disallowed.



The Motorcycle Handicap at Bexhill. P. E. Lamberton on a Griffon travelling up the hill in good style.

THE FIRST EVENT

was started at 11.30, and consisted of the four heats in the second round of Class C (cars costing £200 or under). The results were as follow:—

Heat 1.—A. E. Culley (10 h.p. Ford) beat J. W. Stocks (6 h.p. De Dion-Bouton) by 3⅘ secs., in 1 min. 50⅘ secs. Heat 2.—E. Baker on a 10 h.p. Duryea beat J. W. Dew on a 9 h.p. Speedwell in 22⅘ secs., in 1 min. 15⅘ secs. Heat 3.—E. W. Lewis on an 8 h.p. Rover beat J. Lisle on a 7 h.p. Star, passing him on the hill, by ⅘ sec., in 1 min. 40⅘ secs. Heat 4.—R. Dickerson drove over.

Seven cars were left in for the second round of Class D (costing from £200 to £400). The results were as follow:—

Heat 1.—L. Beadle (14 h.p. Regal) beat W. Munn (10 h.p. De Dion-Bouton) in 1 min. 29 secs., by 1⅘ secs. Heat 2.—Stocks beat H. E. Hall by ⅘ sec. in 1 min. 27⅘ secs. Heat 3.—J. D. Lyons beat F. Churchill by 8⅘ secs. in 1 min. 32⅘ secs. Heat 4.—E. Shrubsole drove over.

There were seven cars also left in for the second round of Class E (costing between £400 and £550), but these were reduced to five on account of two non-starters. The elimination eventuated thus:—

Heat 1.—H. Hall (15 h.p. Darracq) beat J. Lisle (12 h.p. Star) by 28 secs. in 1 min. 11⅘ secs. Heat 2.—D. S. Graves (15 h.p. Darracq) beat W. D. Astell (12 h.p. Orleans) by 4⅘ secs. in 1 min. 11⅘ secs. The winner was, however, disqualified for carrying insufficient weight, and the heat was awarded to Astell. Heat 3.—A. H. Walker (15 h.p. Darracq) drove over.

There were eleven cars left in for the second round of Class F (£550-£750), but only nine started. In Heat 1 A Rawlinson (30 h.p. Darracq) beat H. R. Wilding (14 h.p. Renault) by 9 secs. in 1 min. 9⅘ secs. Heat 2.—E. T. Williams (16-20 h.p. Martini) beat J. H. Cooper (16 h.p. De Dietrich) by 4 secs. in 1 min. 19⅘ secs. Heat 3.—J. Watts (16 h.p. Fiat) drove over. Heat 4.—Earl de la Warr (18 h.p. Daimler) beat Mrs. Manville (18-26 h.p. Daimler) by 2 secs. in 1 min. 21⅘ secs. Heat 5.—A. H. Walker (30 h.p. Darracq) beat W. H. Astell (15 h.p. Orleans) in 1 min. 41 secs. by 25⅘ secs.

In Class G (cars costing £750 to £1,000) we had some good racing. Heat 1.—A. Farnell (28 h.p. Daimler) beat V. H. Miller (20 h.p. Fiat) by 3⅘ secs. in 1 min. 1 sec. Heat 2.—S. F. Edge (20 h.p. Napier) beat E. McInstone (26 h.p. Daimler) by 1⅗ secs. in 53⅗ secs. Heat 3.—Ivor Miller (24 h.p. Fiat) beat J. H. Dew (24 h.p. Bollee) by 1⅗ secs. in 1 min. 44⅘ secs. Heat 4.—Bushey, driving for N. Stratton (28 h.p. Daimler) beat J. White (20 h.p. Napier) by 9⅘ secs. in 59⅗ secs. Heat 5.—P. Martin (26 h.p. Daimler) drove over in 53⅗s.

In the heats of the second round of Class H (price unlimited) the times were very fast. In Heat 1 A. Dew (24 h.p. Bollee) beat V. H. Miller (24 h.p. Fiat) by 3⅘ secs. in 59⅘ secs. Heat 2.—A. L. Guinness (60 h.p. Mercedes) beat S. Girling (28 h.p. Wolseley) by 2⅘ secs. in 49 secs. Heat 3.—S. F. Edge drove over.

A kilometre handicap for motor-bicycles (standing start) was now carried out. The winner of each heat and the two fastest losers qualified for the final.

NEWS.

Results:—Heat 1.—W. W. Genn (Griffon), start 7 secs., 1; A. A. Chase (Chase), start 5 secs., 2; W. Hodgkinson (J.A.P.), start 5 secs., 3. Time, 1 min. 1 sec.

Heat 2.—T. H. Tessier (Bat), 12 secs., 1; C. Chapple (F.N.), 10 secs., 2. Time, 1 min. 14⅘ secs.

Heat 3.—E. B. Blaker (Bat), 12 secs., 1; G. A. Barnes (Barnes), scratch, 2. Time, 1 min. 17 secs.

Final Heat.—W. W. Genn (10 secs.), 1; T. H. Tessier (12 secs.), 2; A. A. Chase (5 secs.), 3. Time, 1 min. 2⅘ secs.; second and third men close up.

THE CAR COMPETITIONS

were then resumed with the semi-finals, and in classes F and G the third rounds.

In Class C, semi-final:—Heat 1.—Edward Baker (10 h.p. Duryea) beat R. Dickerson (10 h.p. Motobloc); time, 1 min. 12⅘ secs. Heat 2.—E. W. Lewis (8 h.p. Rover) beat A. E. Culley (10 h.p. Ford) in 1 min. 38⅘ secs.

Class D, semi-final:—Heat 1.—L. Beadle (14 h.p. Regal) beat E. Shrubsole (9-11 h.p. Clement) in 1 min. 22⅘ secs. Heat 2.—J. D. Lyons (10 h.p. Vinget Dequingand) beat J. W. Stocks (10 h.p. De Dion-Bouton) in a hard race by ⅘ sec.; time, 1 min. 24⅘ secs.

Class E, semi-final:—Heat 1.—H. Hall (15 h.p. Darracq) beat W. D. Astell (12 h.p. Orleans) by 4⅘ secs. in 1 min. 10 secs. Heat 2.—A. H. Walker (15 h.p. Darracq) drove over.

Class F, third round:—Heat 1.—A. Rawlinson (30 h.p. Darracq) beat J. Watts (16 h.p. Fiat) in 1 min. 6⅘ secs. Heat 2.—A. H. Walker (30 h.p. Durracq) beat E. T. Williams (16-20 h.p. Martini) easily in 1 min. 0⅘ sec. Heat 3.—Earl de la Warr drove over.

Class G, third round:—Heat 1.—S. F. Edge beat A. Farnell by 6⅘ secs. in 50⅘ secs. Heat 2.—C. Stratton beat Ivor Miller (Fiat) by 4 secs. in 57⅘ secs. The Fiat lost its bonnet half way on the journey. Heat 3.—P. Martin (Daimler) drove over in 52⅘ secs.

In the semi-final of Class H one of the finest races of the afternoon was seen. At last (in Heat 1) the great rivals, Edge and Guinness, were drawn to meet. A magnificent race ensued, Guinness winning the heat in the grand time of 47⅘ secs., beating Edge by 4⅘ secs. In Heat 2 A. Dew (Bollee) drove over.

Class F (semi-final).—Three competitors were left in for this, but the judges, by some obscure reasoning, allowed G. Baxendale (20 h.p. Thornycroft), who had missed the second and third rounds, to also compete, with the result that he won his heat. In Heat 1 A. H. Walker (Darracq) beat Earl de la Warr (Daimler); time, 1 min. 0⅘ sec. Heat 2.—G. Baxendale beat A. Rawlinson (Darracq), who broke down on the journey; time, 1 min. 13⅘ secs.

In the finals the racing was extremely interesting.

Decorated Cars. Mrs. Du Cros wins the first prize.

In Class C, Edmund Baker, driving Mr. Sturmey's Duryea (10 h.p.), beat E. W. Lewis (8 h.p. Rover) in 1 min. 14⅘ secs. by 25⅘ secs.

In Class D, L. Beadle (14 h.p. Regal) beat J. D. Lyons (10 h.p. Vinget Dequingaud) by 7 secs. in 1 min. 20⅘ secs.

In Class E, H. Hall beat A. H. Walker in a very close race (the best of the afternoon) by ⅘ sec. in 1 min. 11 secs. Both competitors drove 15 h.p. Darracqs.

In Class F, A. H. Walker (30 h.p. Darracq) beat Earl de la Warr (18 h.p. Daimler) by 7 secs. in 1 min. 1⅘ secs, G. Baxendale (20 h.p. Thornycroft) being 1⅘ secs. further behind.

In Class G the three remaining competitors elected to contest a final together. The result was as follows:—S. F. Edge (20 h.p. Napier) beat P. Martin (26 h.p. Daimler) by ⅘ sec. in a grand race in 51⅘ secs., C. Stratton's 28 h.p. Daimler being 1⅘ secs. behind.

Then ensued the unfortunate difficulty already alluded to. Edge had been beaten in his heat in the previous round, but he claimed that the drawing should have been differently arranged, and that the heats in the round in question should be annulled. The matter was discussed for a considerable time, and the judges hoped that the competitors would be able to settle the difficulty amicably among themselves. This being found impossible, they eventually, after a delay of an hour and a half, decided that the round should stand, and that the two survivors should contest the final. This was accordingly done, and A. L. Guinness on his 60 h.p. Mercedes won the event in the magnificent time of 46⅘ secs., beating A. Dew (24 h.p. Bollee) by 12⅘ secs.

The winners and runners up then rode in procession to the green fronting the Sackville Hotel, where Countess de la Warr presented the prizes.

In the evening the principal members of the local club, together with the visitors from the Automobile Club, dined together at the Hotel Metropole, at the invitation of Earl de la Warr.

THE BATTLE OF FLOWERS.

Wednesday morning opened with an Italian sky, and everything seemed to conspire to make the introduction of this Continental feature into England a conspicuous success. The town had decked itself with a glorious array of bunting, and crowds of inhabitants and visitors lined the streets. Although there were not very many decorated cars (not more than twelve in all), the quality of the decorations compensated for the lack of quantity of participants. These latter assembled at the Hotel Metropole, and proceeded to the Kursaal Parade, where they were judged by Countess de la Warr, Lady Francis Hope, Lady Mary Sackville, Mrs. Harvey Bathurst, and Mrs. C. Stratton. The awarding of the prizes gave general satisfaction. The first fell to Mrs. Harvey Du Cros, whose Clement car was decorated with pink carnations, asparagus ferns, and pink drapery. Pink lyres were distributed upon the back and sides of the car, with a flock of doves on the roof. Mrs. Manville obtained the second prize with a Daimler car, which was decorated with ferns, roses, and lilies, with most charming effect. Mr. A. Hordern secured third prize (M.M.C.). He had transformed his car into a basket of flowers, the scheme of colour being white, green, and pink. The Bexhill coat of arms was literally displayed on the front of the car. The fourth and fifth prizes were awarded to Mr. J. D. Hill (Panhard) and Mr. H. E. Engelhardt (Germain), while Mr. Kennard, whose car was swathed with flags and decorated with vegetables, obtained sixth award. A special prize was given to Master J. Murdoch, who, with another child, was driving a donkey cart, decorated with light blue and white flowers and drapery. Other competitors were W. Branch, Earl de la Warr (yellow flowers), D. George Collins ("L'Entente Cordiale," scheme of French and English flags entwined), H. Edmunds and W. Fletcher. After the procession there was a vigorous battle of flowers, the scene becoming very animated and picturesque, and the fun fast and furious. Then followed a gymkhana, with a couple of racing events for local residents. At the end of the proceedings the prizes were presented by Countess de la Warr, and thus a memorable experience for the enterprising inhabitants of Bexhill was brought to a successful conclusion.

NEWS.

In the Shetlands there are thirteen registered motorcycles and two registered cars; but only one man is licensed to drive them. In Govan, on the other hand, there are eighteen licensed drivers, but only nine registered vehicles for them to drive.

Mr. H. Williamson used a Castle accumulator on his Rex machine when he broke the Land's End to John o' Groats record. The same make of accumulators was also used on the "Napier Minor" when she won the International Motor Boat Cup on Saturday week last.

"Of the accidents which come before me I find that a hundred per cent. more are caused by or through horses than by motorcars," said the coroner at Chertsey recently when conducting an inquiry into the death of a commercial traveller, who was killed through the bolting of a horse.

E.I.C. coils for which Messrs. Brown Bros., Ltd., Great Eastern Street, E.C., are special selling agents, have been considerably reduced in price. This has been done in order to compete with foreign-made coils. The Electric Ignition Co. have also introduced a new sparking plug, viz., the E.I.C. Type B Plug, which is sold at 4s. 6d. retail.

Many automobilists will be glad to learn that a practical man in the person of Mr. T. Cawell, late of Bradbury Bros., Croydon, has opened a repair shop at Honiton. His place, we are informed by a reader, is well fitted up, and almost every kind of repair can be effected, while petrol will always be obtainable. Hitherto there has been no such repairer on the main road between Taunton and Exeter, and automobilists breaking down in or near to Honiton have frequently been subjected to considerable inconvenience. Mr. Cawell's advent, therefore, will be hailed with much satisfaction by West of England motorists.

The Car that Won the Gordon-Bennett.

Baron von Schrenck-Notzing, who conducted the weighing of the Gordon-Bennett cars at Homburg, last June, has just made some interesting observations in a German contemporary on Théry's Richard-Brasier. Says the Baron:—"Had a body of jurors had to judge of the racing cars from the standpoint of handiness and adaptability to the purpose of racing on June 16th, the first prize would unquestionably have been awarded to the firm of Richard-Brasier. The German Mercedes cars are perhaps superior to the Brasier in strength and construction of the motor, and in the resisting power and stability of the machine over bad, hilly roads; but certainly not in the general work of the chassis, nor in the springing and the handy accommodation of the vehicle to racing purposes. Through the rocking and plunging of the Mercedes while racing, there may arise variations of pressure on the wheels which cost several kilometres in the hour-rate of travelling, and necessitate greater caution and a slower pace when negotiating the bends than is the case with Théry's low, smooth-running car. In addition to this comes the extraordinary troublesome process—for a racing car—of letting petrol in and out."

THE MOTOR VEHICLE AS A PUBLIC SERVANT.

Some interesting and instructive remarks were made at the Sanitary Institute's Congress at Glasgow recently by Mr. E. Shrapnell Smith, secretary of the Automobile Mutual Protection Association, who is well-known in connection with motorcar trials, motor traffic associations, and self-propelled vehicle questions generally. Mr. Smith's views are that the heavy motor vehicle, by its increased power and efficiency will render valuable service to municipal authorities; and (by gradually replacing the horse) add to the convenience and healthiness of our streets.

Mr. Smith drew attention, at the outset of his paper, to the rapid growth of automobilism, showing that there are about 20,000 motorcars and 23,000 motorcycles in use in the United Kingdom at the present day.

THE DUST PROBLEM.

On this subject Mr. Smith said that the remedy appears to lie in the gradual laying of metal that has been steeped in tar or other similar liquid, with proper consolidation and limited binding matter. The use of surface treatment can be urged as an adjunct or expedient only and not as the final solution *per se*. . . . . Prevention is better than cure, hence the growing conviction that the construction of dustless roads must form an important branch of work for the municipal, urban, or county engineer and surveyor."

Proceeding, Mr. Smith pointed out the growing practice among urban and rural councils and other public bodies of providing a motor-bicycle or car for survey and inspection work. The light car is particularly suited, both in respect of its moderate price and its low running expenses, for this work. With regard to motor omnibus work, the capital expenditure is shown to be only one-sixth of that entailed by the trolley system of electric traction. The main item of running expense, tyre replacement, has been reduced from 8d. to 2d. a car-mile. Recent regulations, allowing an increased width of 7ft. 6in., and a speed of 12 miles an hour, had brightened the prospects of the motor omnibus considerably. Mr. Smith recommends

A HYDRAULIC VARIABLE SPEED GEAR

for use where traffic stops are numerous.

In conclusion, he dealt with the question of the heavier vehicles for street watering, haulage, and refuse removal; and showed that although the experiments of the last few years had been of considerable expense (particularly to the constructors who participated) and had not apparently demonstrated any great superiority of the motor over the horse-drawn vehicle, still they had yielded valuable experience, which, with the assistance of more beneficient regulations, would enable constructors of these vehicles to work with far better chances of success in the future.

A NEW AMERICAN CAR.
The Basket Victoria made by the New York Transportation Co.

OTHER PEOPLE'S VIEWS

NOTE.—These columns are set apart for the discussion of motor topics by bona fide readers of "THE MOTOR," and trade letters containing veiled advertisements are not admitted. The Editor is not responsible for opinions expressed by correspondents in this section.

Locating Small Punctures.

Sir,—I recommend E.B. (Sheffield) to try Rowley's Puncture Locater for his puncture. Even if it does not show him where the puncture is it will stop it. I have used it for years in my inner tubes and it does not hurt them.

The simplest way to get it into an inner tube is to screw a hand pump on to the valve, take out the plunger, pour about one-third contents of bottle into the pump barrel, replace the plunger and pump up. I have no interest in its sale. Has not J.B. (Birmingham) got gauze in the inlet valve pipe? It is my experience that he ought to have at least two layers.—Yours faithfully,

C. H. LAMBERT, H19.

Re-starting Difficulty with Beeston-Humber Motorcycle.

Sir,—In reply to P1225 (Kingston) I may mention that I have experienced the same difficulty, viz.: sudden stopping of the motor when running down a hill free-wheeling, and then letting the clutch in, but found the chief cause was want of lubricating oil, and also waiting till the machine had run too far down the hill before I put the clutch in. He will find if he lets the clutch in when going at, say, about twelve miles an hour down hill, the engine cannot help but pick up. Of course a valve lifter would make it easier, but in my opinion it is, despite this, a needless expense.—Yours faithfully,

W. BROWN.

Sir,—In reply to "P1225," I also found great difficulty in restarting a 2¾ h.p. Beeston-Humber motorcycle when once the motor was allowed to stop, as in coasting down hill. In nine cases out of ten it meant a hasty dismount to save a nasty fall, as the clutch (though gradually put in and the engine at half compression) would suddenly put a sort of powerful brake on, causing the cycle to draw up at once. The only way I could restart the engine was by using the handle, as the motor was too heavy to pedal against the clutch, even down hill.

I found the back firing when switching off in traffic troublesome, as one has not always the presence of mind or time when in a "tight corner" to think of bringing the engine to half compression before switching on again. True, one is supposed to ride in traffic with the lever at half compression, but I like to advance the sparking a little farther and throttle down, and thus get a more silent running machine.

The remedy in my opinion is to have a valve lifter fitted and clutch overhauled.—Yours faithfully, "BRIGHTONIAN."

B 20

The Dog Nuisance.

Sir,—It is surprising that this danger is not met in a simple way, viz., by fitting an outlet to the exhaust ready at hand, to be knocked open on the approach of a dog. I don't think one dog in a thousand would face a motor without a silencer. The "Torpedo" is fitted with an exhaust relief, and it would be interesting to know if the Editor has used this as a "maxim" reception for these terrors, and if so, how it acts. The thing is simple enough; there's no patent about it, and every maker is free to fix it. Of course, it has another use, viz., to admit of indulging in a bit of extra speed when clear away from everything.—Yours faithfully,

C.R.G.

Engine Running Better at Night.

Sir,—Noticing a short time ago in your Bureau a query from a correspondent who owns a 5 h.p. Humberette, which runs well in the evening but not in the daytime, I should like to give you my experiences, which are somewhat similar. The phenomenon (it was nothing less) took the shape of persistent misfiring during the day, but absolutely perfect running in the evening. Like your correspondent, I put this down to a wrong mixture, but the carburation was perfect. The only way the motor would run at all was with the extra air inlet half open. Giving more or less air stopped the engine. As the carburetter was a Longuemare, and the machine a 2¾ h.p. Pebok (A.I.V.), which had previously given me every satisfaction, I was, and am still, puzzled. Perhaps some of your readers may have had similar troubles, and discovered the cause, in which case I feel sure the solution would interest others who, like myself, have not been so successful. I should also be obliged if one of your readers would give his experiences (not criticisms) of the Binks four-cylinder motorcycle.—Yours faithfully, R.S.S.

The Riley Tri-Car.

Sir,—I see in your issue of July 12th an inquiry by "X.Y.Z." re the above. I purchased one about three months ago, and must say that it has given me entire satisfaction. I have found it a very powerful and fast machine, a splendid hill-climber, and withal very comfortable, both for passenger and driver. The driving and braking is not too complicated, and I find it is very easy to start, requiring, as a rule, only one turn of the starting handle. I should also like to add my appreciation of the knowledge and interesting reading I have derived from your columns. I may say that I am in no way connected with, nor interested in, the Riley firm.—Yours faithfully,

W. WRIGHT.

The Small-Powered Motor.

Sir,—I am the possessor of a 1¾ two-speed gear chain drive motorcycle of similar make to "CD19," and can thoroughly endorse every word that he and "A2144" say on the matter.

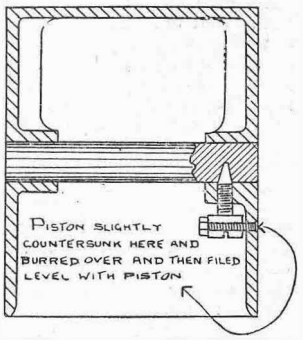
I have owned two heavy machines, one of them a 2¾ h.p. and the other a 3 h.p. of a foreign well-known and advertised make, but, needless to say, I did not keep either of them for over a fortnight, and got rid of them and fell back on my old love.

I have had the 1¾ h.p. machine in use for over a year, and it has never given me any trouble. I have had no occasion to nearly break my heart in getting a start; it is in my opinion quite as powerful as an ordinary single geared 2 h.p. motorcycle, it is light on tyres, light on petrol, light to carry up steps; in fact, it is light in every way, and most reliable and handy. If I come to a hill that is a little too much for the motor, a light touch of the pedals sends her forward at once. This is very different to a heavy machine, which, when it does jib at a hill, no amount of pedalling will get it up. It will draw a 10 stone passenger in a trailer easily at 12 to 15 m.p.h. on the flat, and I have taken a hill of about 1 in 8 of about 300 yards in length with the passenger in trailer, on the low gear with a little brisk pedalling. "A2144" has hit the mark when he says the carburetter should be thoroughly understood. I find the air lever requires very careful adjusting each time the throttle is opened or closed in order to get the most power out of the engine. Although I reside in the same town as "CD19" has registered in, I have not the pleasure of his acquaintance, neither am I connected with the motor trade in any way. Hoping this will be of sufficient interest to publish.—Yours faithfully, "CD91."

O.P.U.

To Secure the Gudgeon Pin.

Sir,—In a recent issue of your admirable paper there is yet another account of loose gudgeon pin screws, so I am sending you a sketch of an arrangement which I have found to be entirely satisfactory after prolonged use. The idea consists in tapping the hole in the gudgeon pin screw for another suitable screw, say ⅛ in. Brit. Assoc. thread, and then file or grind the gudgeon pin at the tapered end until the hole which has just been tapped is right opposite the side of the piston wall when the screw is right home. Then drill a small hole through the piston wall to let the second screw come through and slightly countersink it on the outside so the screw can be slightly burred over and then filed flush with the piston. Up to the present time I have ridden between 5,000 and 6,000 miles since effecting this alteration, and there is not the slightest sign of the screws working loose.—Yours faithfully, A. J. WRIGHT, JUN.



Illustrating letter from A. J. Wright, Jun.

Pedals or No Pedals.

Sir,—"Q. Rios'" letter may appear plausible to others as well as himself, though it is clear that his argument does not fully convince him. The reason for this is evident towards the close of his letter when he says, "the weight (i.e., the power)." Now weight and power, or better, weight and energy, are not one and the same. Weight, in itself, has no energy. It is only when weight is free to fall that it possesses energy, and this energy is termed "potential," while the work done is termed "kinetic energy," and in any given case these two exactly balance each other, and are mutually convertible, the weight remaining the same. Thus, the man on the large wheel is only doing work because he is free to fall; in other words he has potential energy, and to keep moving he must climb up as he falls, and so preserve his power to fall. Again, this power is constantly being changed into movement, and the wheel is kept rolling. In a pendulum at its highest point all its energy is potential, at its lowest point kinetic; the latter sends the pendulum up again, and when it reaches its highest power is again all potential. If there were no friction or air resistance, it would keep on for ever. It is, therefore, evident that it is not the weight of the rider which diminishes, but his potential energy, and it is to preserve this that he has to raise his feet at the return of the pedals. I think this will puzzle no one if looked at in the following way: How does the 150lb. motorcycle and 150lb. rider regain their lost weight when both come to rest? Perhaps "Q. Rios" will explain.—Yours faithfully, "KI14."

Pedals or No Pedals.

Sir,—I have read the letter, "Pedals or no Pedals," in your issue of July 12th, and should like to answer it. If the weight of the rider is on the pedals when he is pedalling, surely it is on the saddle when he is not, and in each case the weight of the rider and machine is the same; and the weight carried by the spindles will be the same. For, supposing "Q. Rios'" contention to be correct, if a rider on a light machine, pedalling up a hill, puts more than his own weight on the pedals (most cyclists do this by pulling on the handlebars), he would eventually raise the machine right off the ground. Of course, this is carrying the thing very far, but it is the logical outcome of "Q. Rios'" arguments, and in addition some of the weight is relieved by the upward pull on the handlebars. It is quite possible to prove mathematically that the weight on the spindles is absolutely the same in both cases, but my letter is already long enough.—Yours faithfully,

C. E. SQUIRE.

52, Harcourt Road, Sheffield.

Paraffin Carburetters.

Sir,—With reference to my letter in the issue of June 14th, also in reply to letter from the U.M.I., Ltd., in issue July 12th, in the first place what I wished to show in that letter (and what I think I did show) is that there is no necessity to wait until the carburetter is warm before turning on paraffin. Now if the U.M.I., Ltd., will only read carefully my remarks in the June 14th issue they will find I made no such statement that I could start engine on either a cold or hot carburetter with paraffin. What I did state I can prove, and if any one interested cares to call on me I shall be glad to show them engine running and saving 8d per hour by using "The Trusty" carburetter. I have no interest in it and no wish to puff it. I simply state facts. For the information of any one interested I give them the figures of three separate days running (from cold) of one hour each or thereabouts. They are simply figures of work done in one hour or so on 1 gall. of benzoline or paraffin:—First day running on benzoline 1 gall., 1 hour; load 25 amperes, volts 125. Second day, after starting up on benzoline and running for 10 mins., turned on paraffin: 1 gall., 1 hr. 10 mins., load 25 amperes, 125 volts. This was run with carburetter air pipe in a clamp on exhaust pipe. Third day, running on benzoline 10 mins., then on paraffin: 1 gall. 1 hour 10 mins., load 25 amperes, 125 volts. This run was made with air pipe taken out of clamp and stuck up in the air. My exhaust valve has not been taken out for more than three months and is quite clean. Of course, I get a little more smoke from exhaust pipe outside from paraffin than from benzoline, but there is no doubt about the economy. I may say here that after running on benzoline one hour the top of carburetter was as cold as ice. When running on paraffin, of course, it is soon warm when air pipe is in clamp on exhaust pipe, yet I fail to see any difference in the three runs made as to work done. I might mention that the load on the motor cited in the above instances is obtained by driving a dynamo, and noting the output in Watts. Trusting this is as interesting to the U.M.I., Ltd., as the June 14th issue.—Yours faithfully, TALBOT CLIFTON.

Improves a De Dion Plug.

Sir,—It may interest your readers to know that I have got an old De Dion sparking plug, and have put a piece of platinum wire down the porcelain insulation in place of that which was fitted, and another piece in place of the projecting wire on the metal shell. I find that I can now run the motor on three volts quite well, and without the trace of a misfire; the only thing against this method is the initial cost of the platinum, about 15s., but this I consider soon repays itself, as I can run about 800 miles without recharging my batteries.—Yours faithfully,

"CE105."

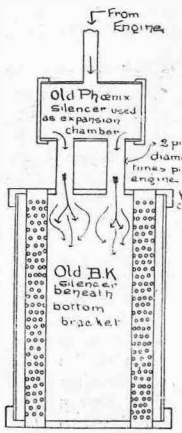
[We have never found any special advantage ourselves in using platinum instead of nickel wire for the sparking points of a plug, and it is difficult to find any technical explanation why it should be possible to get better sparking with platinum points, unless it is because they become hotter by catalytic action, and thus burn off any carbon that might accumulate. It is quite possible to get sparking by using 3 volts, with any plug, if the risk of a very small spark gap is taken. The danger in this case is that a very small particle of carbon getting wedged in the gap will short circuit it and stop the sparking. It would not be necessary to use anything like 15s. worth of platinum to try an experiment, as small sparking points could be rivited on to nickel wires.—ED.]

Silencing.

Sir,—During my stay in England I have asked many men why they don't go in for motorcycles. The answer often is, "Because they are so noisy." My experience bears this out. Quite nine out of every ten machines pop away just like a .303 Maxim. When I got my Trimo the noise of the exhaust of the 3½ h.p. Minerva was intolerable to me, and no doubt annoying to everybody I passed, so I bought a B.K. silencer. This silenced the engine, but made it run hot. I therefore refitted the old Phœnix silencer, having previously removed internal cylinders. I took all the baffle plates out of the B.K. and fixed it beneath the bottom bracket. Two 1-inch pipes lead from one to the other, and the exit is from two pipes, which are continued through the B.K. and perforated with numerous 1-12th inch holes. The result is perfect, there is absolutely no throttling of the exhaust, the noise is inaudible from the saddle at ordinary speeds, and there is no need for an accessory cut out, as the engine runs as cool as it would without an exhaust pipe at all. Couldn't the makers fit something on these lines, viz., an expansion chamber as well as a silencer. I am convinced that this would be a step in the direction of better trade.—Yours faithfully,

"COLONIST."

823



Illustrating letter from "Colonist."

O.P.U.

Starting the Humber Cycle.

Sir,—In reply to P1225 in a recent issue of THE MOTOR, I am glad to be able to give him the "wrinkle" he asks for.

A friend and myself bought Beeston Humbers in March last, and though we made frequent attempts we rode our machines for two months before either of us got the knack of starting our machines without the handle; once acquired, we never use the handle except for starting uphill. To "coast" down hill pull back the ignition lever to half compression, shut off the petrol, and release the clutch, then push forward the petrol lever and "coast." When near the bottom of the incline put in the clutch pretty firmly and simultaneously give one good turn of the pedals to pull the engine over the compression and it will never fail to start at once. Put forward the ignition, pull back the petrol lever, and off it goes. In doing this be careful, however, that the machine is not going too fast, or the sudden pull up that is caused by the introduction of the clutch might throw the rider. A little care will soon enable one to judge the safe pace to do it perfectly.—Yours faithfully, "F752."

Chingford.

Hill-Climbing Tests.

Sir,—To those of your readers who are not personally acquainted with Westerham Hill, it would be interesting to know what the gradient of that famous hill really is.

One reads of 3 h.p. motorcycles climbing hills of 1 in 5 at 25 miles an hour, but since I have had a motor myself and tried to climb steep hills (and failed), I have come to the conclusion that there is something wrong about these recorded performances.

Let us take the case of a machine which, with rider, weighs 300 lbs. (a very moderate weight) going up a 1 in 5 grade at 20 miles per hour. In one minute it will have travelled 1,760 feet up the hypothenuse of the diagram, and in doing so the weight will have been raised 350 feet vertically. 300 lbs. × 350 feet = 105,000 foot lbs. of work. Divide this by 33,000 and we get 3 1-5th horse power. Professor Callendar has demonstrated that about another h.p. would be required to overcome road and other resistances and about 30 per cent. has to be added to the whole for transmission losses, so that considerably over 5 brake h.p. would be required to propel a machine weighing only 300 lbs., including rider, up a 1 in 5 at 20 m.p.h.

A heavy rider with a heavy machine would require at least 3 h.p. to propel him up a 1 in 10 at 20 m.p.h.

At 14 m.p.h. on a grade of 1 in 5 the power required would propably not be more than 3¼ b.h.p., but most cycle engines would have to run at 1,500 revs. per minute to develop that power, and a 28 inch road wheel would, at that pace, be only revolving at 168 revs. per minute, or a gear ratio of about 1 to 9. Where is the belt gear that will transmit 3¼ b.h.p. direct at this ratio?

A two-speed gear and an efficient method of cooling will have to be perfected before motorcycles can be satisfactory in a country where hills steeper than 1 in 12 are common.

Perhaps the grades are measured by the eye without the assistance of a dumpy level. We have some real 1 in 5 grades out here.—Yours faithfully,

"ONE IN FIVE."

Natal, South Africa.

A Dangerous Road.

Sir,—As a constant reader of "THE MOTOR," I trust you will find room for the following caution, especially now the holiday season is in full swing. Travelling on a recent Thursday on the Poole to Winchester road, I got my Rexette badly smashed at Bright's Corner, two miles out of Romsey. The corner is nearly "U" shaped; and if one is not expecting the second bend it is impossible to get round. From enquiries I learnt that two other accidents had already occurred at this spot. Nearer London one finds notice boards at dangerous corners. After waiting some hours, I was taken in hand by Mitchell Brothers, of Romsey, who worked well into the night in order that I might proceed on my journey with as little delay as possible, and to their energy and ability I was able to keep an appointment without taking train.—Yours faithfully,

T. WILLIAMS.

Advantages of the Outside Fly-wheel.

Sir,—In reply to the letter from "E. Bull," on the outside fly-wheel, I may say there are several important advantages he has overlooked. The length of bearing is much greater than can ever be in the enclosed type of construction, as the cylinder, when the fly-wheel is outside, is generally placed to one side of the frame, being balanced by the fly-wheel on the opposite side. Thus, the cylinder is not sheltered by frame tubes or mudguard, but catches the air much better, which is a most important advantage. The engine can be tested for compression by turning the fly-wheel, and can be started and run without the need of a stand. The belt is less likely to jump the pulleys, and owing to the very long main bearing no oil escapes on to the belt. The fly-wheel, if placed low in the frame, is liable to throw mud, unless fitted with a guard; and some people do not like the look of a revolving fly-wheel. Personally, I have had so much trouble with the crank pins of enclosed engines that I intend to use nothing but the outside type in future.—Yours faithfully, "ALGY."

In Defence of Internal Fly-wheels.

Sir,—In reply to "Dynamic," who states that not one maker in ten can give a satisfactory explanation why internal fly-wheels are fitted instead of one outside, I claim that the combination fly-wheel of my design and patent, of which a description appeared on the invention page of the first issue of your valuable paper, contradicts the statement as to the complex and expensive method of assembling the nuts, pins, shafts, etc., and brings it down to one joint, the same as the one piece crank-shaft and outside fly-wheel, only without the disadvantage of the split connecting rod and two bolts and nuts. "Dynamic" states that all motorcycle makers follow the De Dion pattern fly-wheels, but I think he will find the following a few makers who use the steel fly-wheels solid with their pins:—F. N., Ariel, Hamilton Motor Co., Princeps, etc. Re the remark about excessive weight in the rim, I take it that one of the first elements of engineering is to have the weight of a fly-wheel in the rim, and by constructing them with their pins of steel it is possible to make very light, though strong centres, and abolish the old bosses, which often cracked, and is really surplus weight on the motor. His objections re lubrication do not count at all, as instead of a minimum of oil reaching the piston, etc., baffle plates are fitted to prevent over-lubrication or an excess reaching the piston.

Now for my objections re fitting an outside fly-wheel to a motorcycle.

(1) In case of a fall a large fly-wheel would be the first thing to receive the blow, and bend the shaft, so would run untrue.

(2) Extra weight of connecting rod—big end—on a high speed motor.

(3) Extra expense in manufacturing a split rod, half bearings, bolts, etc., and possibility of their being insecurely fixed by amateurs.

(4) If shaft and balance weight are one forging, the cost of machining prohibitive on present-day prices of motorcycles.

(5) If balance weight is fitted to crank shaft, the danger of it coming loose at, say 2,500 per min.

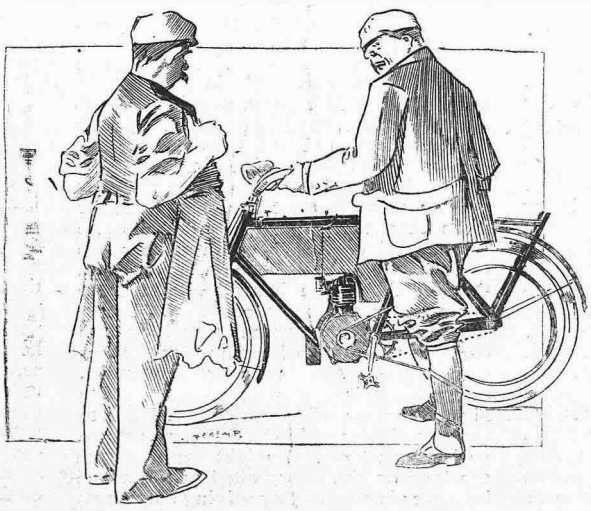
(6) If one take the centre line of cycle, it is impossible to have equal fly-wheel weight on each side of centre line.

(7) As bicycle motors are designed to run over 2,000 revolutions per minute, the factor of safety prevents the rim being much larger than at present, and most of the vertical engines come within 3 in. of the ground. It would require the engine high in the frame.

(8) Dirtiness from mud and oil.

The patent mentioned, through financial reasons, has elapsed, so that anyone can use steel wheels and pins instead of cast iron ones with their pins fitted.—Yours faithfully,

W. L. ADAMS.



THE DIFFERENCE

"You assured me this machine was an excellent hill climber. Why—!!—!!!"

"Beg parding, sir. I distinctly said it's an ill climber, sir. Them were my words."

O.P.U.

The Weight Question and the Future of the Motor-bicycle.

Sir,—With reference to the article on above subject in a recent issue of "THE MOTOR," I am sure I am not alone in thinking so when I say that never before has this matter been so clearly explained as now. I am quite in accord with what is said; and the fact of successful experiments in producing a lighter machine having been already made, goes to prove only too well that the majority of the present day motorcycles are very much overweighted. The first point that must be tackled is the engine; there is not the slightest doubt that this can be made a great deal lighter. It is surely possible to manufacture a small, light, but *efficient* engine, with higher compression, and running at a much higher number of revolutions per minute, developing full 2 b.h.p., for that is what is urgently needed. Then again, as stated, the fittings can be made of lighter material. Those items which require special attention are the quite unnecessarily heavy coil, accumulators, petrol tank. A light torpedo-shaped tank should take the place of the heavy patterns now in use. A number of fittings, such as tank, carburetter, silencer, handles, mudguards, etc., should be made of the lightest metal possible to withstand the everyday wear and tear. Why is not aluminium more used? Is it because it is expensive to manufacture, and unsuited to stand vibration? The frame could be made lighter without fear of weakening it, and the other bicycle fittings, such as chain wheel, chain, hubs, rims, etc., could also be made proportionately lighter. As regards tyres, a lighter machine could be safely fitted with lighter and more resilient tyres, and makers should realise that these suggestions are well worth their careful consideration.

I fully endorse the opinion that an ideal light machine should not at the outside weigh more than 70 lbs., and yet be fitted with an engine of fully 2 h.p. A machine of this description should command a ready sale, fulfilling as it would an easy means of transition from cycling to motorcycling, for it is certain that there are numbers of cyclists who, although deeply interested in motorcycling matters, yet do not take the step, owing to the want of a really efficient light machine, that could be used for everyday and touring purposes. It would be interesting to see a comparative return of the sales of motorcycles, say, for the last two years; somehow it seems that the supply of motorcycles is much in excess of the demand. Have we come to that stage when customers are becoming fewer and fewer owing to the class of machines now being offered being quite unsuited for the fresh converts to motorcycling? Are there not thousands only waiting for a really efficient, light machine to become motorcyclists themselves? A number of these, after a year or so of experience with a light machine, would then go in for higher powered mounts, and these, too, can be made far lighter than at present, so that makers would not lose but gain by the subsequent increasing sales. Does it not show conclusively that many manufacturers are aware of the feeling against very heavy machines by their sending them out with weight shown to be considerably less than when one comes to *actually weigh them*? This is surely only increasing the evil, and can do no good.

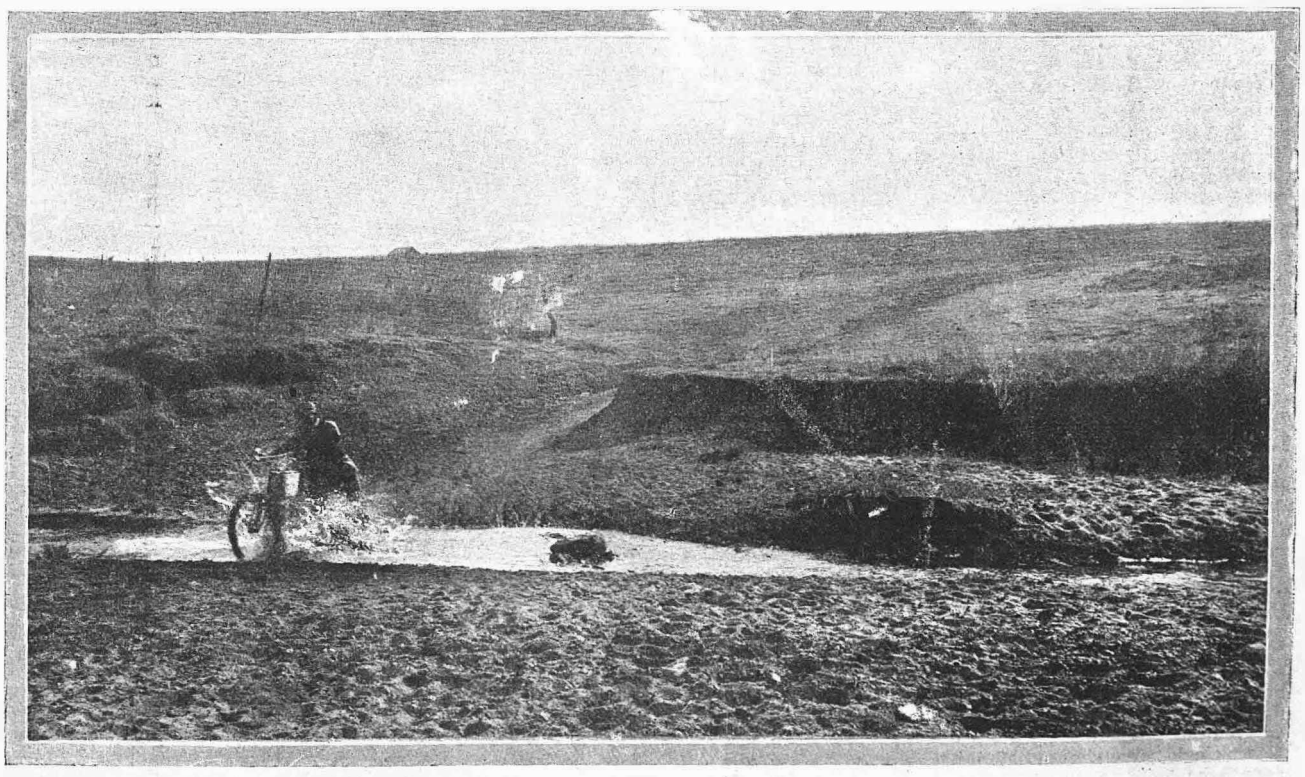
There are, of course, those motorists who are in favour of heavy machines, but the pros and cons of these I am not going to discuss, but if we are to increase the sales of motorcycles and make them a commercial success, every means must be taken to study the requirements of the public.

Every manufacturer should make a speciality of a standard light machine as suggested, and they should be in design very little different to the present styles, for we do not want machines of the freak type.

It is very certain that those manufacturers who for lack of enterprise do not encourage the growing demand for a lighter mount will not be likely to hold their own in these days of strenuous competition.—Yours faithfully, R. G. PRIEST.

Aluminium Carburetters.

Sir,—There have lately appeared several letters in "O.P.V." on the subject of deposits in aluminium carburetters. At the same time other writers, who have made exhaustive experiments on the subject, contend that there is no chemical action between aluminium and petrol. I think, however, that, although there is no immediate action, under certain circumstances aluminium acts catalytically; that is to say, some of the homogeneous constituents of petrol re-act with the formation of their corresponding derivatives. These re-act slightly on the aluminium. It is necessary that a relatively large quantity of the metal is in contact with the petrol, otherwise the catalytic action between the re-agents is not induced. I think this accounts for carburetter deposits.—Yours faithfully, A. M. BEATSON.



A TYPICAL VELDT SCENE.
The picture conveys an excellent idea of the difficulties of motor-cycling in South Africa.

OUR INFORMATION BUREAU

SPECIAL NOTICE.

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

1. Plain writing. Type writing for preference.

2. All letters to be written on one side of the paper only.

3. Questions to be clear, terse, and to the point, without tedious preamble or needless flattery.

4. Should an immediate reply be required, an envelope must be enclosed bearing a penny stamp, and the name and full address of the sender. NOT a stamped undirected envelope.

Can any reader, who rides a Lamaudiere motor-bicycle, inform J.J.H. (Fulham) the dimensions of the fly-wheel of the engine?

J.L. (Birmingham).—The cylinder dimensions of the 6 h.p. De Dion engine are 90 by 110 millimetres, and the 8 h.p. 100 by 120 millimetres.

H. Cleary (Dunedin, New Zealand).—Subscription to hand, for which please accept our best thanks. Glad to hear you find "The Motor" so useful.

O. S. Little (Salisbury).—We can mention the following cars as coming within your scope:—Wolseley, Humber, Brown, Gamage, Simms, Mobile, Canterbury, Highgate, Achilles, Clyde, Horbick.

J. B. van Gyen (Driebergen).—Your best plan would be to write the Clement-Garrard Co., Ryland Street, Birmingham, for particulars of their special four-cylinder machine. From what we know of it, it is intended more as a speed machine for track work than for road purposes. The C.G. two-cylinder, however, is now made as a touring mount.

The Dust Problem.

G.D. (Wallington) writes:—(1) Is the dust which a car raises on a dry road chiefly due to the tyres or the rush of air under the car? (2) Why is it that most cars, especially those driven by propeller shaft, appear to have their back wheels bearing inwards at the top?—(1) Undoubtedly due to the tyres chiefly, the dust particles being shot out by the effect of the driving strain. You can see this by observing the back wheel of a motor-bicycle. (2) We do not think you will find a really good car has its back wheels splayed out. Where it is so the cause is a weak axle. We should say the wheels should be quite vertical. Front wheels are, on some cars, set so as to have an inward cant.

J. H. Miller (Lucknow, India).—Subscription to hand, for which please accept our best thanks. We note your comments re neglect of orders by English makers.

H. T. Burbury (Wakefield).—A "Bentinck" turbine fan would suit you best. Have it arranged so that the blast is directed on the exhaust valve side of the head—this of course being the hottest part.

G. E. Nixon (Sheffield).—If you illuminate the front plate of your machine it will suffice. The trailer, however, must have a number plate for day time. For your own safety it would be well to carry a red tail light.

W. Cragg (London).—The blow back into carburetter must be due to premature ignition through overheating. There can be no other reason as you are certain the inlet valve is in good order. (2) To stop petrol leakage grind in the needle valve carefully.

R. G. Woodward (Worksop).—It is a very awkward matter to obtain a spare combustion head for an obsolete pattern motor. We should advise you to try and get one through an advertisement in "The Motor," and, failing this, try and get one adapted. Perhaps the London Auto-Car Co., Gray's Inn Road, London, E.C., would have a head that could, with a certain amount of machining, be adapted to your cylinder. We know they have a stock of odd parts in this line.

No Voltage.

A. Greenwood (Corby).—It is impossible that the accumulators can be charged and yet fall to 1½ volts per cell immediately when connected to the coil. Moreover, your voltmeter cannot be accurate to show 4½ volts. The cells would have to be very well charged to show this, and it is quite evident that the plates merely get a surface charge, and this disappears immediately current is taken from them. Possibly the solutions in your Fuller battery require renewal. On the other hand, if the plates show signs of sulphating it would account for the charge vanishing. (2) The needle valve of your Longuemare carburetter cannot be tight if the petrol drips continually.

S.W.G. (Holloway, N.).—Thanks for submitting sketch. We regret we cannot make use of same.

"Tourist." You would do well to get our road map of England and trace out the route, which is somewhat difficult to find otherwise. The distances are approximately 140 miles via Norwich, and 165 via Thetford.

W. R. Read (Petersfield).—(1) We think you could safely get a 3½ h.p. Minerva engine in place of your 2¾ h.p. as the difference in weight is not considerable. (2) It would certainly be an advantage to get a 2¼ inch tyre to fit your present rim. (3) The surface carburetter you have should easily supply enough gas for the larger engine.

A. E. Rogers (Homerton).—Your best plan is to investigate for the usual causes for loss of power, viz.:—Weak compression, overheating through defective water circulation, misfiring through imperfect carburation or no spark. The two 2¾ by 5 cylinders should give about 10 h.p., and the compression approximately would be 50 lbs. per square inch.

T. Hinds (Dover).—(1) Strictly speaking you should re-register because the number on your other machine could have been transferred to the new owner at a cost of 1s. Thus he would have saved on the transaction. (2) Difficult to say what is wrong with your accumulator if it has not sulphated through being left uncharged for a long period.

Quad Missing Fire.

J. A. Dixon (Bury) writes: I am somewhat puzzled by the engine of my Quad, a 2¾ h.p. licensed De Dion, made by the M.M.C. If I advance the spark more than a fraction of an inch it slows down. On the other hand if the machine is travelling down hill the engine misfires as soon as the pace increases with consequent explosion in the silencer. I cannot get above 12 or 14 miles an hour on the level or down a slight decline. The gear is about 9 to 1. Would it do to have a two-speed gear fitted giving, say, 12 to 1 and 6 to 1? Would the 12 to 1 gear be too low and cause the engine to overheat considerably on hills?—This looks very like something wrong with the sparking. If the contacts were properly adjusted and your accumulator well up the engine should respond to the advance and not miss when descending hills. Are you sure that the carburetter acts well? The 9 to 1 gear is very low, and you can hardly expect to get more than 15 miles per hour with the engine working at its best. You could have a two-speed gear fitted of course, although you may have difficulty in finding a suitable one. In this case a fan for cooling the head would be a necessity. Otherwise you would not get up the hills at all. Another alternative is to have a water-cooled head fitted, but this means carrying water, radiators and tank

BUREAU.

Ug6 (Castleford).—(1) It will be necessary to have a duplicate number on the back of the trailer. (2) There is a 15s. revenue tax payable on a trailer.

A.J.S.—We would suggest that the difference in the running of the two machines having identical engines was due to the carburetters more than the coil. You do not say if the gears are the same, and also the total weight propelled. This is important.

Tyro (London, N.).—We should say the best thing to do in the event of a tyre bursting—that is through the outer cover, and assuming you had no prepared fabric to patch it from the inside, would be to cut a number of strips from a piece of linen rag and bind these over the burst. This would certainly last a few miles if you did not drive fast.

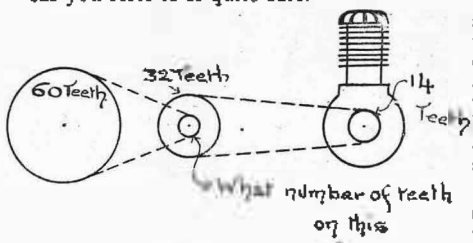
Thermo (Sutton).—(1) A good plan to adopt to remove any deposits in the water jacket and radiators is to use a strong solution of soda instead of water for a few hours with the engine running, then flush this out and fill up with clean water. (2) Do not have your radiators below the cylinder head, and also note that the return into the tank enters about two-thirds way up. That is, presuming you are not using a pump and rely on natural circulation.

S. Couchman (Mangalore, India).—We should advise you to make certain of the polarity of charging dynamo by connecting two strips of clean lead to the wires and dipping into some dilute sulphuric acid. Keep the strips half an inch apart and note the terminal, which turns one plate chocolate colour; that is positive. You seem to have got the magnets of machine reversed in polarity, and this would account for the cells not charging. If the machine only gives 10 volts you would do better by connecting the two sets of cells in parallel as shown p. 29 of the Manual. The only difference would be that you would take more amperes out of the machine.

Calculating a Gear.

J.B.H. (London, S.W.) writes: I have a chain driven motor-tricycle. The gearing is as follows: the engine has a 14-tooth cog, and this drives on to a 32-tooth sprocket, the rear wheel has a 60-tooth sprocket and is driven from a small cog on the countershaft. What I wish to know is how many teeth must this small cog have to produce a gear of 1 to 8 ratio between engine and road wheel.—The simplest method to determine this would be to consider the number of revolutions of counter shaft and main sprocket as inversely proportional to the diameters; imagine engine making 32 revolutions per minute, then the countershaft will make 14 revolutions, or in the proportion of 14 to 32. Now to get a gear of 1 to 8 you require rear sprocket to make one-eighth number of revolutions of engine shaft, that is, four revolutions. To get this the 60-toothed wheel must be 3½ times the diameter of the small wheel on countershaft, hence a 17-tooth wheel will give you approximately the gear you want. The number of teeth of a given pitch on a wheel is of course directly proportional to the diameter.

C.R.O. (Barnes).—(1) The 3 h.p. Fafnir engine would suit you well, but you will have to gear rather low, say not less than 1 to 6, to be able to surmount Handcross with side car and full load. (2) The side car you refer to is quite safe.

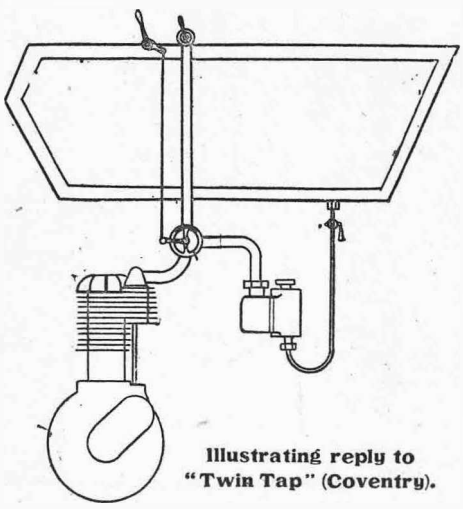


Illustrating reply to J.B.H. (London).

B. Waylett (Thundersley).—Most probably the reason for the sudden loss of compression is the failure of one of the valves. The inlet valve not moving points to it being stuck. If you go carefully over the engine you should have no difficulty in locating the leakage.

Two Carburetters on one machine.

"Twin Tap" (Coventry) writes: I have a surface carburetter machine which in most instances goes well providing I always use light spirit. I am very anxious to fit a spray carburetter to the machine in addition to the surface, and the special feature I wish for is to be able to use either pattern of carburetter at will. Is this feasible? and if so could you give a diagram of the method, as I am sure it would interest other readers.—The idea is quite practicable, in fact something on these lines was described by a correspondent some time ago in "O.P.V." All you have to do is to fit your spray carburetter under the tank and make a connection for the petrol supply with a tap for regulation. From the gas outlet you will have to take a pipe to join your existing pipe engine. To do this, a special union piece is required, and having a throttle provided in the conection from spray. To use the surface you would of course have the spray throttle closed and the surface throttle on top of tank open, and if using the spray keep the surface throttle shut and open the other. This would be the simplest way. A more elaborate way would be to have a twin throttle in the union piece. The diagram shows the scheme.



Illustrating reply to "Twin Tap" (Coventry).

IB24 (Armagh).—Our road map of England shows the main route you require. You can obtain petrol and supplies from Jas. Downie and Son, George Street, Stranraer.

C. F. Jackson (Hull).—As you have had so much trouble with your present contact your best plan we think would be to endeavour to fit an E.I.C. contact. We are not sure that the standard pattern would fit, but if you let the Company know the details of size of shaft, clearance, etc., we believe they could make a special one.

J. T. Belchamber (Crawley).—The continual flooding of combustion chamber with burnt oil is due either to the piston rings being a very slack fit in grooves or the cylinder bore is not true. Before you have anything done, however, gradually reduce the charges of lubricating oil and let the latter be a grade such as motorol—a very thick lubricant.

W. (Tottenham).—The connections you require are these. P terminal on coil to that of accumulator, C on coil to brush, M on coil to frame, B on coil to spark plug and negative of accumulator to plug switch. The strange thing about your diagram is that you appear to have a brush contact and a non-trembler coil, a combination which would not work.

Exhaust Valve Troubles.

J.H. (Ballynahinch) writes:—I am riding a Beeston Humber 2¾ h.p., 1904 model, and am greatly troubled with the exhaust valve burning. I drive with as weak a mixture and with as little gas as possible, and have tried several brands of cylinder oil, but all to no effect. The piston rings are right, and the carburetter does not flood. I notice the lift of the exhaust valve (which requires grinding in about once in 200 miles) is only 3-16ths in. Is this sufficient for such a big engine as 79 by 79 mm.?—Possibly due to exhaust throttling. You might effect a remedy by having a number more holes made in silencer. Valve lift should be ¼ inch. Possibly the tappet is worn a trifle and thus the valve does not lift the full extent.

How to Remove a Pulley.

H.W. (London, N.) writes: Please suggest a sure and safe method of removing the belt pulley from a small engine, without having to use special tools, if this be possible. The pulley I have is too large in diameter, and I wish to replace it with a smaller one to reduce the gear.—Unless you use a pulley drawer you may find it an awkward business getting the pulley off. Still you might proceed as follows: Take off the end nut and get someone to grip the pulley with both hands and press it away from the crank case with as much force as possible. Then obtain a strip of sheet brass or copper, hold this on the axle end with one hand and give it one sharp blow with a heavy hammer. Very probably the pulley will slip off. Do not attempt to strike the unprotected end of the shaft or you will burr up the thread and spoil it completely. Should this method not prove successful you will have to cut a set of three hard wood wedges to drive in at equally distant points between the inner face of the pulley and crank case, meanwhile giving an occasional blow to the end of the shaft. This method, although it takes time to accomplish, rarely fails.

BUREAU.

R.J.F. (Abbot's Leigh).—We can tell you how to find the cylinder capacity, but to give a handicapping scheme is rather a tall order. You get the capacity by multiplying the bore by itself, then the result by the stroke, and then by .7854. The Auto-Cycle Club adopted a formula in a hill climb test thus: Weight × cylinder capacity and result divided by time taken to climb the hill. This gives a figure of merit for each machine, and the highest is adjudged the winner.

T.A.E. (Maidstone) writes:—I have a 3½ h.p. standard make of engine on my machine, and I am continually having to fit new piston rings. I have ridden the machine about 4,500 miles, and have fitted three sets. Can you suggest anything to remedy this? Lubrication is all right, and exhaust valve lift also.—You do not say whether the rings break or simply do not fit well and let the compression get past. We rather suspect your cylinder has worn considerably, and requires a special set of rings making—that is to say, they would require to be slightly larger than stock size.

Reboring Cylinder, etc.

A5517 (London) writes: (1) I have a 70 by 75 Ormonde Kelecom engine, 3½ b.h.p., and would like to obtain more power by reboring the cylinder (suitable plant, etc., available). What should be the minimum cylinder wall thickness for safety? I should like to make it 75 by 75. (2) Although the engine, etc., is new, when I advance the spark I hear a distinct knock or clank as if one or both of the connecting rod bushes were worn. Is this right? I think not. And of what material should these bushes be? (3) When I am running I find that, say, once in every 100 times (but quite irregularly) the charge does not fire, the whole machine seems to catch, with a tendency to throw me over the front wheel. The sparking is right, accumulators right, and silencer holes are opened out considerably to reduce any throttling. Can you indicate what is likely to be wrong? (4) On a level country road, or in traffic I find I cannot go slow (if I want to) with my spray carburetter because I cannot throttle between cut off, and too open. What alteration do you advise?—It will not be safe to have less than 2 mm. for cylinder wall thickness. We do not think that the small amount you could take out of the cylinder would make any noticeable improvement. A new piston and set of rings would have to be turned, and the expense would be considerable. (2) The bushes cannot be worn surely, if the engine is new. You can easily tell if this is so by noting if the pulley moves through a small angle without seeming to move the piston; any lost motion is quickly detected. If new bushes are wanted they should be of the hardest bronze you can get. You would do well to make sure that the knocking is not really due to either too much advance on the ignition, the engine overheating, or want of lubrication. (3) Either pre-ignition or piston seizing. (4) Fit an exhaust valve lifter and then you can run as slowly as you want to, but what sort of a throttle valve have you? Maybe you have not a sufficiently fine adjustment.

E. J. Lomas (Stockport).—The connections you enquire about are those used on one of the old De Dion tricycles. They are as follows:—P on coil to positive of accumulator. M on coil to contact screw. The metal band on coil joins to frame and B terminal to spark plug. Negative of accumulator to interrupter plug and handle switch, thence current returns to trembler via frame. The trembler having an insulated terminal, must be joined to engine or frame by a wire.

A Smaller Spray Wanted.

A.M. (London) writes:—My motorcycle (4½ h.p., with large Longuemare carburetter) will only run with gas tap almost shut and air right open at low speeds. It will not run at all at high speed, except with gas tap nearly closed and a large hole for air bored in the gas inlet pipe. Is there no way of supplying extra air to a Longuemare carburetter, or do you think the spraying nozzle has too many slits? It always happens that as soon as I open the gas full the motor stops.—We believe you would find that a smaller size sprayer will overcome the difficulty. It is evident you get too much petrol through at present. At high speed you get such a rich mixture that it will not fire.

The Question of Belts.

H.M. (Nottingham) writes:—I have a 2 h.p. Werner motorcycle fitted with a one-inch flat belt, and am much troubled with belt slipping. I have tried pretty nearly everything on the market to stop this, such as leather rings on the pulley, belt guard, dressing, etc. I am at present using a Dicks' belt, with an all-steel pulley, and find this as satisfactory as anything. I am on the one hand strongly advised by local makers to have V belt transmission fitted, and on the other hand assured by the makers that if properly treated the flat belt is perfectly successful. They are willing, however, to fit a V belt. Do you think I would get a good return for my money in having a V belt fitted, or should I rather consider the trouble lies more with my treatment of the flat belt than with its inefficiency as a mode of power transmission, and that I should persevere with it? Has the V belt very much superiority over the flat belt under the conditions existing in motorcycle work? Judging from the number of machines fitted with V belts, as compared with round or flat belts, there seems no doubt in the mind of makers as to which is the more satisfactory. What are the advantages which have made the V belt thus popular? A few words upon the relative efficiency of the different shapes of belts and their treatment would be very welcome.—A high-class V belt would, in our opinion, undoubtedly give a better drive than a one-inch flat belt. The belt you are using, however, should certainly give you very fair satisfaction if kept well dressed with castor oil, so as to give it as adhesive a driving surface as possible. You probably have a small pulley, and this does not give the flat type of belt a chance. It is entirely a question of whether the machine is worth the expenditure of having a new pulley and belt rim fitted. This is a point you would have to decide for yourself. Of course, there is this to be said: the machine would stand a better chance of sale at any time if it had a V belt fitted. We have ridden a Werner fitted with a flat belt, and can say that we experienced very little trouble with it. Nowadays both the twisted round belt and flat belt are quite obsolete, the main advantage of the V belt being the excellent grip it obtains by its wedging action in the necessarily small pulleys that have to be used on cycle motors. Treatment is simple, it only being a matter of keeping the leather always flexible and quite clean from grit. The effects of grit, however, are especially detrimental to a flat belt, owing to the large surface exposed, and to which the grit adheres.

"Octopus" (Berkhampstead).—(1) We should estimate the maximum h.p. of a 3-ton steam tractor at 12 to 15. (2) A 4½ h.p. De Dion motor fitted to a bicycle would certainly be equal to 40 miles per hour on the road, and 45-50 on the track. (3) Yes, several makes have the contact breaker on the dashboard. (4) Probably a pressure feed pump for petrol tank. (5) The part of the Wolseley chassis you enquire about, as far as we can judge from your sketch, is a bracket carrying the dashboard.

ANSWERS BY POST.

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

Thursday, July 28th.—G. A. Grimble (Wellingboro'), S. Robinson (Salford), J. W. Greenlees (Glasgow), H. Blackiston (Oban), T. W. Beales (Great Yarmouth), W. B. Stanford (Sutton Valence), H. Swinnerton (Madeley Heath), C. Patterson (Lambourn), L. Thompson (Sittingbourne), H. E. Smith (Liscard), G. Lynan (Newcastle, Staffs.), R. Brown (Staplehurst), F. W. Rowley (Tufnell Park), J. Parker (High Wycombe), J. M. Tomlin (Ely), J. W. Dickinson (Newcastle-on-Tyne).

Friday, July 29th.—H. J. Brine (S. Woodford), A. Overing (Settle), J. Horswill (Chester), F. W. Ball (Dover), J. R. Slaney (Knockboyne), B. Harvey-Sellie (Hartlepool), G. A. Taylor (Seven Kings), Neil and Richmond (Glasgow), H. Gould (Portishead), D. Watson (Kelvinhaugh), R. Bent (Dover), A. N. Orr (Preston), T. Cumming-Askin (Woodbridge).

Saturday, July 30th.—E. Batterson (Hertford), F. Hall (Broughton Astley), W. Foulis (Edinburgh), A. Hills (Braintree), W. F. Copeland (Stoke-on-Trent), M. Ryan (Arundel), E. Barnett (Swansea), W. Wood (Carlisle), R. Fry (Abbot's Leigh).

Tuesday, August 2nd.—P. Dewar (Lochwinnoch), A. Barker (Hereford), A. A. Harris (Wolverhampton), C. Langham (Fermanagh), C. J. Timms (Wroxall, I.W.), A. Lister (Harrogate), F. T. Craft (Wigton), R. W. Prickett (Milnthorpe), E. Toepfer (Birmingham), F. Floyd (Kilkeel), H. Brown (Little Sutton), G. Lindsay (Blairgowrie), S. Wood (Wyvenhoe), E. E. Smith (Edinburgh), J. Dickenson (Llandudno), E. Hodgson (Leeds).

Wednesday, August 3rd.—H. Long (Stanstead), H. Kenneth (Holwell Bury), B. V. Frisby (Petersfield), C. Wilson (Armagh), H. G. Innes (Upper Parkstone), A. Smallman (Sholtersbrooke Park), G. Wise (Rotherhithe), R. G. Lavis (Highhampton).