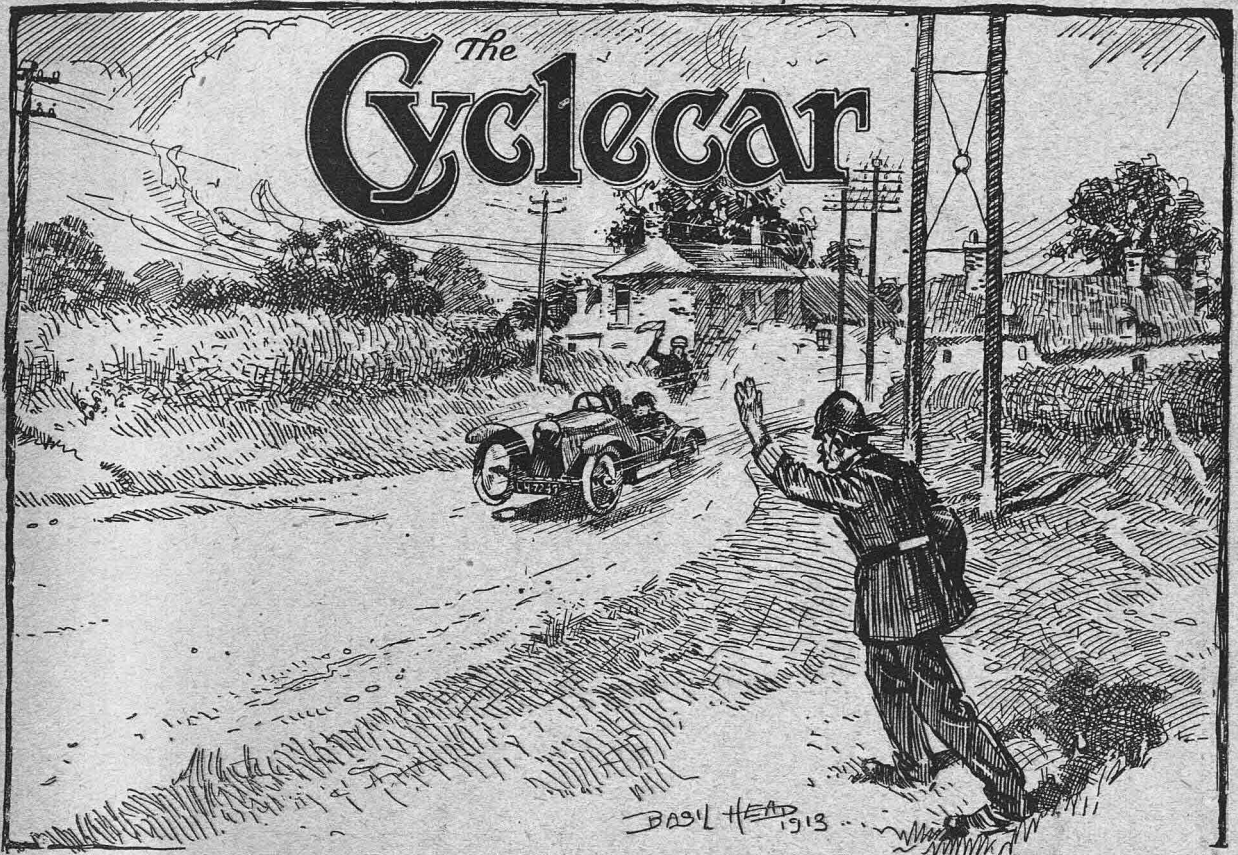




THE GENTLEMEN IN MUFTI, And Their Interesting Operations with "Stop Watches."

AFTER traversing the Portsmouth road—and no doubt some other noted highways in various parts of the country—any fine week-end, it is quite possible to get "police traps" on the brain. Just at present a very large section of the Surrey constabulary is engaged, in plain clothes or in uniform, in suppressing the motor nuisance by the highly profitable system of the trap. Some are quite openly conducted, and it is a marvel that anyone gets caught in them. Others are worked on the time-honoured plan of hiding in the ditches or behind hedgerows, and are not so easily detected, there not being even one pair of "regulations" to give the show away.

Careful examination of the pedal extremities of suspicious loafers is not the most reliable method of determining the commencement of a measured furlong, for some worthy officers are disguised as gentlemen quietly enjoying a rest by the wayside and the solace of the fragrant weed, their bicycles leaning against the side of the road. Most of these individuals, I notice, never look as if they had cycled far; their bicycles are suspiciously clean, and on a hot summer's day they look too cool and comfortable to suggest that they have ridden far enough to really appreciate a laze under the trees or a seat on some neighbouring grassy bank.

One individual in blue overalls whom I have frequently observed conceals the tell-tale boots by depositing his lower extremities in an open manhole on the footpath, sitting uncomfortably on the edge

with just a careless interest in passing traffic. Another has the garb of a village rustic, but his pink and white hands seem strange to the manual labour of the agricultural son of toil. And I always feel suspicious of the bronzed loungeur in mufti who selects the side of the road for studying the latest news.

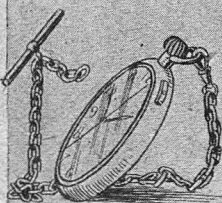
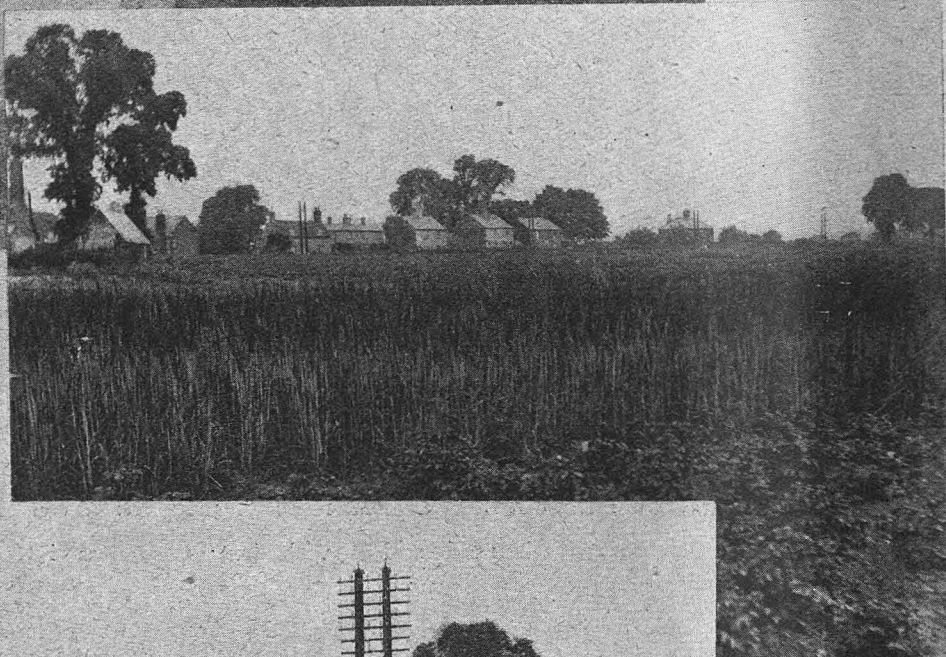
Before a "trap" is worked the 220 yards have to be carefully measured by a responsible official, and are sometimes staked out for future guidance. It is not at all a bad plan, when caught, to make the officers indicate the exact beginning and termination of the "trap," and mentally to note the spot, for the measured distance, having been obtained at some trouble, is not frequently changed.

"Traps" are usually worked on stretches of road that favour high speed, and rarely in parts of the highway that are frequently congested with traffic, to go fast through which is to deserve a summons for driving to the common danger. When they are worked in both directions a police officer in uniform is stationed at each end.

Country police knock off work at 8 p.m., and the Metropolitan police are changed at 10 o'clock, but there are such things as flashlight traps, which are frequently worked on certain main roads. And many traps are worked in the early hours of the morning, so that the man who really wants to go fast and to preserve a clean licence should select a district as remote as a Sahara and with a reputation for leaving motorists alone. And in that county let him spend his money.

J.G., JNR.

HOW A POLICE TRAP IS WORKED



The illustrations show how a "police trap" is sometimes worked. It is one that would be difficult to work in the case of a low-built vehicle like a cyclecar. The constable and a plain-clothes sergeant are concealed behind the hoarding, and their view of the road is shown in the second illustration, the beginning of the trap being one of the telegraph posts shown in the bottom photo, the cross marking the other end. Their view of passing traffic is confined to the heads of motorcyclists, while cyclecars probably would be invisible. The trap is at Buckden, on the Great North Road.

ALL ON A BROAD HIGHWAY.

Being Some Tales of the Road, as Related by Frank Thomas.

YEARS ago The Road was nothing but a great white strip of adventure and romance—stage coaches up to their axles in quagmires; the family barouche held up by highwaymen; an elopement—the fair maiden seated pillion behind her lover, etc.

In the early days of the self-propelled vehicle, the ball was kept merrily rolling; but with the advent of the up-to-date automobile romance and adventure died. How could romance live in the same street with electric self-starters? The hero in search of adventure would not dream of going down to tea at the Peach in Bloom on a Slumph and sidecar (in those matter-of-fact days written Slumph and s.c.). True the pillion seat was still popular, but it is improbable that it was used exclusively for elopements, the Dover-Calais method being more frequently employed for this form of recreation.

Now, however, what a change is noticeable to the discerning devotee of the road! Budding little romances and sprightly young adventures peep out from every hedgerow. What has brought about this most remarkable change? Anyone "in the know" will tell you "cyclecarring."

Let an unbeliever borrow a ride on one of these little joy-wheels and then put pen to paper and give the world an advance proof of the yarns that will go the round of his friends' smoking-rooms: where the fifteenth man who asked if the belts ever slip is buried; how he got the "Glad Eye" from the pupil teacher at a blind school; if—but that is enough. He will buy a cyclecar of his own, cultivate an appreciation of the utterly absurd, and begin to enjoy an existence which he has not appreciated before.

Our big brother, Car Owner, Esq., is apt to look down on the whipper-snapper of the family and occasionally rather to patronize him. I strongly advise a notch or two of the throttle as a corrective.

One day, when coming out of a popular wayside hostelry, after lunch, I espied an austere old lady studying my very dusty little conveyance through her lorgnettes. Presently she sent her chauffeur across the yard to inquire what might be the use of such an absurd little vehicle.

I rose to the occasion and told a harrowing tale of how I used to drive an enormous car of prodigious

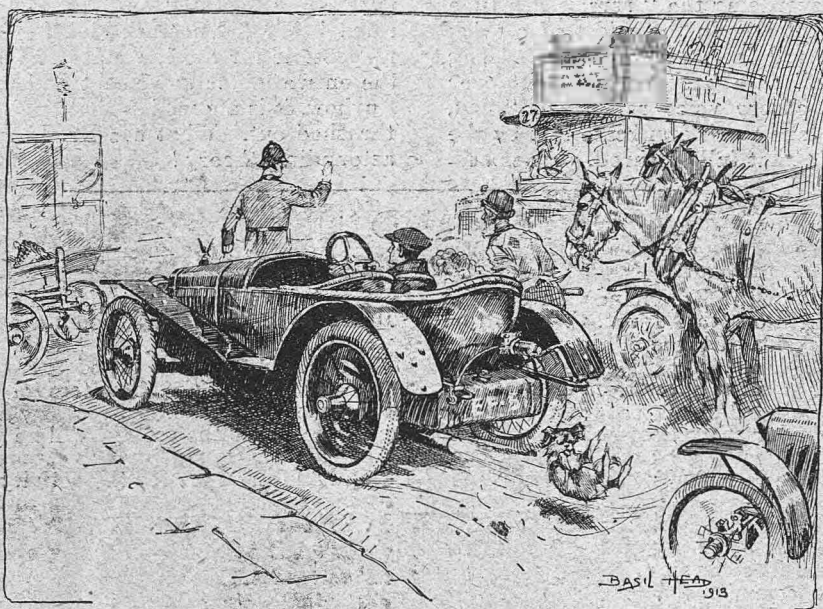
horse-power; how all the tyres burst at once when travelling at some colossal speed; how the car "looped the loop" several times, and of my miraculous escape; how, alas! I had lost all my nerve, and now only dared drive this species of self-propelled bath chair at something less than the speed of a respectable perambulator!

I hope the old lady was duly impressed; anyhow, when I passed her a few miles up the road, going all out, she was gasping for breath, and her chauffeur was trying awfully hard not to smile.

During the Six Days Trial last year, I drove on a road near Taunton, along which the competitors were due to pass, so I drew up to await their arrival. Whilst seated quietly smoking, a fellow traveller—to

wit a tramp—approached and asked me in a most melancholy voice for "a half-penny to buy half a cup of tea." Although I make a rule of not encouraging these people, such rare modesty could not go unrewarded. I have always regretted, however, not having had sufficient pluck to offer the exact amount for which he asked.

While on the subject of tramps, I will relate how when a friend was returning to town from the West



"The poor little bow-wow was wafted right off his feet."

Country, he saw a very old and decidedly lame specimen limping wearily towards Oxford, some four miles distant. Being by himself, he slowed up and offered the gentleman a lift, which was gladly accepted. They attracted considerable attention whilst driving through the town, and one policeman seemed in two minds about stopping them to make inquiries. My friend's confusion was complete, however, when his passenger asked to be put down just by one of the best hotels. In fact, everyone, other than "the good Samaritan," was highly pleased with the episode.

It is a generally accepted axiom that "lookers-on see most of the game," and a cyclecar, owing to its low build, is an excellent vantage point from which to study the lives and habits of the lesser animals. My machine was held up in the West-end the other day by an imperious limb of the law, and in front of me was a racy-looking Hispano-Suiza, with a large exhaust pipe fitted very close to the ground. One of those fluffy little dogs that ought to be kept in a bird-cage happened to toddle past the end of the exhaust pipe just as the policeman dropped his arm

ALL ON A BROAD HIGHWAY (contd.).

and the Hispano-Suiza driver accelerated his engine. The poor little bow-wow was wafted right off his feet, and, having evidently been designed with a view to speed, "revved" several times before pulling up. I was so amused at the dog's unhappy plight, that I stopped my engine, much to the annoyance of the surrounding traffic and the policeman.

Taxi-drivers, the curse of the urban thoroughfares, sometimes provide cause for merriment. It was while driving a machine fitted with an engine designed, and no doubt quite suitable, for motorcycle work, that I obtained a gem from one of the fraternity. The carburettor control levers were fixed about half-way down the steering column, the engine would not run slowly, the traffic was plentiful, and I was quite new to the machine; in fact, I fear I was not converting many of the onlookers to think "cyclecarrily." My one fear was that I should stop the engine, and consequently was rather overdoing the "revs." each time that the clutch was let in. In the midst of a thick traffic block a great red face, with a little red flag inscribed "For hire," as a background, leant over towards me, and a cheery voice remarked, "Say, Mister! You won't 'ave much crankcase left by the time you get 'ome!" That fully-insured, gear-smash-

ing pirate must have been the incarnation of George Stephenson and Dr. Johnson.

A typical crowd of street urchins was standing round my bonnetless little car, and as I stooped to start up the engine, the "expert" of the group remarked, "That's 'lectricity, that is." I pulled, the engine started, the exhaust roared. "Noisy 'lectricity!" jeered the smallest and dirtiest of the assembled throng.

Whilst writing of that most powerful prime mover, the following weighty theory would not be out of place. A friend and myself had lunched at a quaint old inn near Oswestry. At the back was a delightful old-fashioned garden, which mine host took great pride in showing to us, and before departing we had a game of bowls with him. The conversation turned to the abominable weather which we had been experiencing, and "Boniface" gave it as his opinion that the "Hilectricity in the clouds was trying to combine with the hilectricity in them things," pointing to our motor, "and, of course, that makes it rain!" We did not ask him if cyclecars alone were responsible for the low state of the barometer, or if the entire motor movement had to take the blame. Anyhow, it is a question that ought to be thoroughly thrashed out. What has Dr. Low to say about this astounding theory?

NOTES AND NEWS.

Brooklands New Regulations.

At the next meeting of the Brooklands Automobile Racing Club, to be held on 4th August, there will be a cyclecar handicap over a distance of about 3 miles. The entrance fee is 10s. 6d., and all entries close at 12 noon on 21st July. On the entry form competitors will have to state whether their cylinders are drilled or whether auxiliary exhaust ports are being used. A male passenger may be carried at option. The last race on the programme is a "Winners' Handicap" about 5½ miles, and the winner of the cyclecar race is entitled to enter.

Owing to the fact that benzole has now been firmly established as an alternative fuel, the committee has altered the Supplementary Regulation No. 20, which now reads: "Except where specially provided in the race proposition, any fuel which is commercially obtainable may be used in internal-combustion engines," etc. Every competing machine which is provided with a bonnet must now have a leather strap not less than 1½ in. wide and ½ in. thick firmly secured at both ends and holding the centre of the bonnet.

Justice is—Bored!

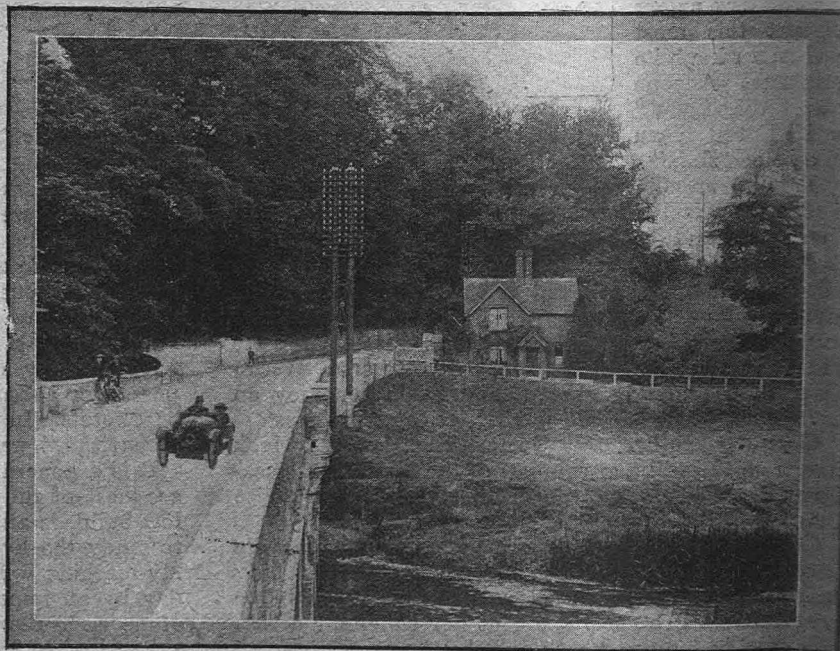
"So many motorists were fined at Kingston to-day that the chairman got tired of saying 'Two pounds and costs,' and contented himself with saying 'Two and costs.'"—London "Evening News."

Myopic.

"By the way, the cyclecar seems to be disappearing from the roads," writes a myopic sufferer in a bitty journal. And he notices that the numbers grow beautifully less week by week.

A Dangerous Spot.

The bridge at the foot of Pain's Hill on the Ripley Road, at present narrowed by a cottage, is to be widened, writes Mr. C. A. Smith, of the White Lion Hotel, Cobham, who urged this improvement some two years ago, the Countess of Ellesmere having consented to give the necessary land to make this possible, while the cottage will be pulled down. This will give a wide and straight approach to the village—and another spot for the activity of the police.



How a dangerous bridge will be widened. The bridge across the Mole at the foot of Pain's Hill, Cobham, on the Ripley road is to be widened, by taking in the land and the cottage on the right-hand side.

TESTING CARBURATION CONDITIONS.

Some Practical Methods of Determining Mixture Strengths. Little-known Facts and Interesting Experiments.

By A. W. JUDGE, A.R.C.Sc., Wh.Sc., etc.

IN dealing with the subject of carburation in the recent series of articles appearing in THE CYCLECAR under the title of "Obtaining Increased Power," the most suitable conditions of mixture strength for various running conditions were emphasized, both from the points of view of power and of fuel economy, but space would not permit of any detailed mention of the more practical methods of actually testing the mixture strength, and of regulating it to any desired conditions.

It is all very well to drum it into the average cyclist that he should theoretically use such and such a mixture, but it is quite a different matter to indicate to him the ways and means for adjusting his carburettor to give these carburation conditions, and for telling easily when he has attained the desired end. If a petrol engine ran upon only a small range of mixtures no difficulty would be experienced in adjusting the air and petrol conditions, but actually the engine can work upon a fairly wide range of mixtures, and this is the chief cause of mixture troubles, for the amateur works more or less in the dark when adjusting his control levers, except in the more perfect automatic types, which are few and far between. Thus, although the engine will work upon a mixture composed of about 8 parts of air to 1 of petrol, it will also work at the other end of the range upon mixtures as weak as 22 parts of air to 1 part of petrol, but, of course, not nearly so well as upon the proper mixture of about 15 to 1.

The Most Suitable Mixtures.

Before proceeding to the question of suitable methods of observation of mixture strength, etc., it might be of interest to state the most suitable mixtures for different purposes. Thus, for complete combustion, which gives the greatest speed of flame travel and very nearly maximum power, a mixture of about 15 to 1 is to be sought. Owing to exhaust gas dilution and one or two causes of theoretical interest only, it has been found that a somewhat richer mixture strength of about 12 to 1 is desirable for maximum power and acceleration, such as for speed bursts, hill-climbs, etc. On the other hand, if fuel economy is the ruling factor, the most suitable mixture is about 17 to 18, but this maximum fuel economy is obtained at the expense of a falling off in the power by about 10 to 15 per cent.—not a very serious factor where surplus power is provided, and where fuel economy is the first consideration. Mixtures, weaker or richer than those above mentioned, are unsuitable for use in the petrol engine, when power, economy, freedom from sooting, or "popping" in the carburettor, explosions in the silencer, etc., are the desired ends. However, it is quite a simple

matter for an amateur to adjust and observe his carburettor's working to any ordinary degree of accuracy in order to obtain the best results.

There are several practical ways of attaining this desired end, either by making certain alterations to the carburettor and observing the results, by brake tests, acceleration tests, by observations of the explosion flame colour, or by observing or analysing the exhaust gases. These will be briefly dealt with in the order mentioned, it being noted that the rougher methods are the first in order, and the more accurate ones placed last.

A Simple Test.

Considering the carburettor method, and assuming that one wishes, in the first place, to know whether the engine, on the road or bench, is running upon too weak a mixture, all that is necessary is to depress the float "tickler" so as to flood the jet. If the engine picks up in speed or shows increased power without overheating or other bad symptoms, then it can be safely concluded that the ordinary mixture is too weak, and a change of jet, or choke tube, may be needed. On the other hand, if the flooding produces no speed or power increase but causes over-

heating troubles, the mixture is, of course, normally on the rich side, and this can be verified by shutting the petrol tap off and noting whether the engine picks up speed as the level in the jet and float chamber falls. In these tests it is, of course, assumed that the extra air supply (if any) is suitably set to the ordinary running positions, and unaltered during the experiments. In the case of automatic carburettors, a too weak mixture can be detected by partially

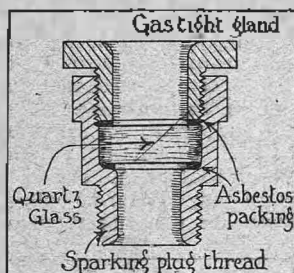


Diagram 1.—The construction of the inspection window in a plug for observing the explosions.

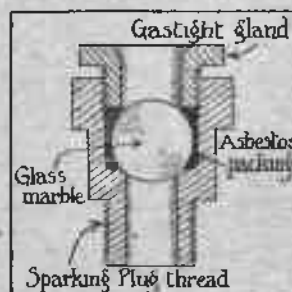


Diagram 2.—Method of making the window from a glass marble.

covering up the air supply passage, and noting whether the engine accelerates as a result.

Coming next to the second method enumerated, this is of more interest to manufacturers, and to those who can affix test brakes upon their engines in order to absorb the power. The procedure, in these cases, is usually to note the power output of the engine from the brake readings, and to adjust the carburettor until this, at any working speed, is a maximum. The mixture will then be somewhat richer than is necessary for complete combustion, but suitable for best power results. The same method can be applied to the case of a cyclecar upon the road, either by adjusting the carburettor for a given throttle position and spark advance, so that the greatest speed is attained without ill effects, or for the greatest power at a set speedometer reading, such as when hill-climbing.

Acceleration Tests.

Acceleration tests are interesting and helpful in indicating the mixture setting. If the engine accelerates much better when the petrol supply is increased

CARBURETTER CONDITIONS (contd.).

relatively to the air, it is a proof that the mixture is normally too weak for the best power results. If, on the other hand, no difference in the acceleration of the cyclecar is noticed upon flooding the jet, or restricting the air supply, the mixture may be normally correct for best power purposes.

Another practical method is to note the petrol consumption with different carburetter alterations, and to adjust the latter until the best economy in petrol is shown, with no noticeable falling off in the power of the engine, for the same conditions of throttle opening and spark advance. These tests can be easily made in the ordinary course of a run, over a familiar road.

Proceeding next to more accurate and definite ways of noting the carburation conditions, we come to the method of observing the colour of the explosions in the cylinder by means of a transparent quartz-

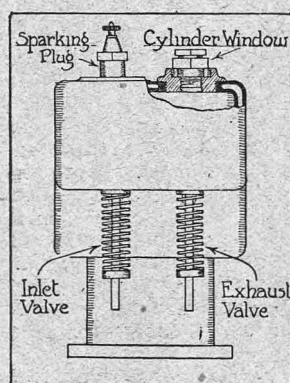


Diagram 3.—Showing the best position for the cylinder window over the exhaust valve.

marble, used in place of the quartz, and which is stated to give better results on account of its action as a kind of lens in concentrating the light rays. This plug is placed in the combustion chamber walls, preferably as shown in Diagram 3, over the exhaust valve, where it can be easily observed.

The Colours of Combustion.

As to its utility, the writer has made some mixture strength measurements corresponding to different flame colours, and from these it is shown that mixtures weaker than are required for complete combustion, such as the more economical mixtures mentioned earlier, give a very definite whitish-blue flame during explosion, whereas the perfect combustion flame is a dazzling light-blue colour. The mixtures giving the maximum power results (but not so economical in fuel) are characterized by a slight yellowish-tinged colour. Very rich mixtures show a dazzling yellow flame colour, and the richest of all upon which the engine will fire temporarily is of an orange colour, with copious deposits of soot upon the window. Many interesting combustion phenomena have been investigated by means of this window in co-operation with other instruments and apparatus for obtaining data.

It is a fairly easy matter, then, to fit such a plug to each cylinder, and to observe the colour of the flame whilst running, and to deduce instantly the mixture conditions. It is even feasible to observe, by means of reflectors, or directly, the flame colour whilst upon the road, and to adjust the carburetter controls accordingly. The writer has employed, per-

manently, such a plug upon a petrol engine as an indicator of mixture strength when running upon other liquid fuels, and coal gas. It might be mentioned that some time since a French make of spark-plug with a small quartz window inserted was upon the market, and also the C.A.V. quartz-bodied plug, which, to a certain extent, fulfilled the same purpose as the observation window described.

Turning finally to the exhaust as an indicator of carburation conditions, some observations of its colour, smell and sound can be taken as rough indications of the mixture strength. Thus, upon a light background, the best mixtures show a faint light-brown tinge, whereas the richer mixtures show a distinctly darker colour, due to finely graded carbon particles. Again, the pungent odour of the ultra rich mixture exhaust is quite characteristic and distinct from less rich mixtures.

The actual sound of the exhaust, with a little practice, can be taken as a sure guide to the carburetter's action, for there is no mistaking the healthy note of the proper mixtures, compared with the partially muffled and prolonged exhaust beats in the case of rich or weak mixtures in any given engine, other conditions remaining the same.

Exhaust Gas Analysis.

Finally, to those desirous of more accurate indications of air-petrol proportions than the foregoing, the alternative of exhaust gas analysis is open, but it should be here mentioned that the methods given are sufficiently accurate for all purposes to the cyclecarist. However, as a point of interest it might be added that, if one has an analytical chemist friend, it is an easy matter to collect a sample of exhaust gases from the exhaust pipe and to analyse it. The rich

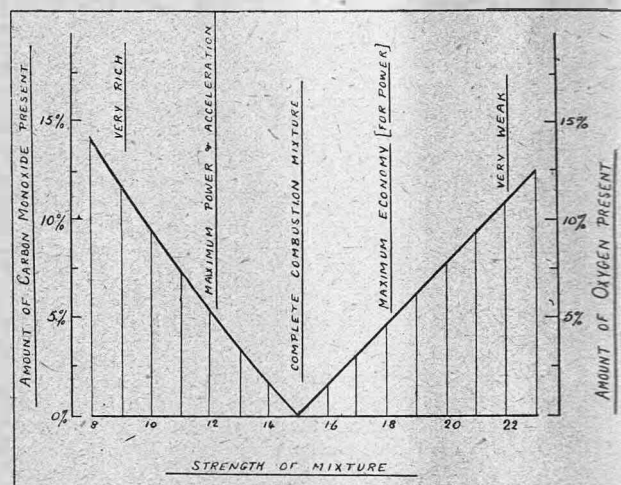


Diagram 4.—Showing how the constitution of the mixture can be deduced from the exhaust gas proportions.

mixtures show an increasing quantity of the gas called carbon-monoxide and a complete absence of oxygen, whereas with the weak mixtures exactly the reverse is the case, as illustrated in Diagram 4, which shows the quantities of the gases present by the vertical heights of the lines at the mixtures mentioned. It will be noticed that in the case of the ideal mixture, indicated at 15, none of the above two gases is appreciably present, and this is the true test for the correct proportions of the mixture.

In conclusion, it is hoped that the above brief notes may be of some guidance and assistance to those desirous of improving the carburation, and as an aid towards obtaining the best economy in fuel consumption for given power conditions.



ON THE DYKE — VOLENDAM

SUGGESTED CONTINENTAL TOURS.

THE charm of touring is unknown to the motorist who only uses his vehicle for short drives. The feeling of independence created by the sight of luggage strapped ready on the car, the feeling that with the car you can go any-

where, self-contained, that you can cut yourself off from all worries and live a free life, is one of the emotions which only motorists and gipsies can enjoy.

The question now arises, where shall we go to obtain these delights? For a complete change and really to appreciate touring at its best there is no better way than to go where English is not spoken, where different food is eaten, different dress worn and different customs followed. To do this entails crossing the sea, but once on the other side of the Channel one is immediately plunged as it were into almost another world. A day's run from London, including a short sea passage, and you have the whole continent of Europe before you. Roads lead from the landing stage to all the famous places renowned in history and art.

Customs Deposits.

With the idea of helping other travellers to enjoy the pleasures to be obtained from foreign motor touring I propose to describe some happy touring grounds, which, at one time or another, I have visited by motorcar or push-bicycle, suitable for the rather limited horse-power of a cyclecar and the probably rather limited purse of the owner. To begin with, a few directions on what to do before leaving England may not be out of place. The first thing to do is to get triptychs or touring passes from the A.A. and M.U. or other motor club. By this means trouble on landing and on crossing frontiers is largely avoided. The procedure is very simple. A deposit is made with the Club of a sum of money, depending on the weight or value of the car, for each different

country which it is intended to visit. This sum is given back on the return of the car to England. A further payment of one guinea obtains the international driving licence for all European countries, together with the necessary extra number plate and identification plate with h.p. of engine and makers name engraved on it. The sum to be deposited for the Customs duties is for France 50 francs for 100 kilos., or, roughly, 21s. per hundredweight, so for a light vehicle like a cyclecar this charge will not be excessive. For Holland a duty of five per cent. of the declared value of the car is levied, with the option of buying the car at that price should this appear ridiculously low. In Belgium the tax is 12 per cent.

Before starting a general examination of the car should be made, brakes adjusted, valves ground, and tyres renewed if worn, as nothing detracts from the pleasures of a tour so much as repeated road stops or tinkering before starting in the morning. Spare parts should be taken to replace any breakages, but tyres can be purchased en route, Michelin and Continental makes being obtainable in every town. Luggage should be as compact as possible. It is not necessary to take much clothing, as one spare suit is quite sufficient.

Cost of Touring.

The cost of touring abroad is often greatly exaggerated. Except that petrol is a little dearer than in England, expenses are no more and are often less. A comfortable room with attendance can be obtained in small hotels from 2 francs a night, while a good table d'hôte dinner, perfectly cooked, can be had for 2 francs 50. Small hotels in France are better and cleaner than those of the same class at home.

With regard to maps and guide books, no great expense need be gone to. The excellent combined maps and road books given gratis by the Michelin Co. will guide the traveller both in regard to directions, distances and principal sights, as well as tariffs at hotels. Besides this the Touring Club de France, which can be joined through the A.A. and M.U. for 6s., supply handbooks of hotels of a rather less pretentious but quite comfortable character.

Old Fisher Types
at VOLENDAM

Bringing in the Milk at VOLENDAM

Both these guides give the price of each meal at the hotels mentioned in them, so saving any dispute between mine host and his guest on leaving. The T.C.F. do excellent work for all classes of travellers in France. Their representatives pay surprise visits to hotels on their lists, and unless a certain standard is found the offender is struck off. In some of the small inns the sanitary arrangements are installed by the club, while prizes are given for the most comfortable hotel in each district.

Coming now to a description of the parts most suitable for touring I will begin with Brittany.

Brittany.

The best route to Brittany is via Southampton and St. Malo. Although the sea voyage is long, about six hours, the landing is made at a very convenient place to start the tour. Boats leave Southampton between 4 p.m. and 12.45 (midnight) every day except Sunday in the summer and on alternate week days during the rest of the year. The cost of shipping the cyclecar is 20s. for a three-wheeler not exceeding 7 cwt., and 35s. for a four-wheeler under 10 cwt. A first-class ticket costs £1 16s. 8d. return and a second-class £1 6s. 8d.

Brittany is the home of a hardy seafaring race, large of stature, speaking a strange tongue, Breton, as unlike French as possible. The country is rather desolate looking, and the sky is usually overcast and grey. The most interesting parts of the province are near the sea coast, the numerous little fishing villages being very picturesque and peopled by stalwart men in black felt hats with streamers, and fisherwives in black dress and white cap. The caps, called "coifs," differ in each district, and by her coif one can tell the home of the wearer. Perhaps the prettiest head-dress is that worn at Pont Aven, a charming little town on an estuary, the scene of Mr. Vachell's book "The Face of Clay." Artists congregate here to find models, and have left tributes on the walls of the Hotel Julie to the kindness of their hostess. One chief industry in these sea towns is the sardine fishery and packing. The nets used for catching the so-called sardine (they are really young pilchards, I believe)

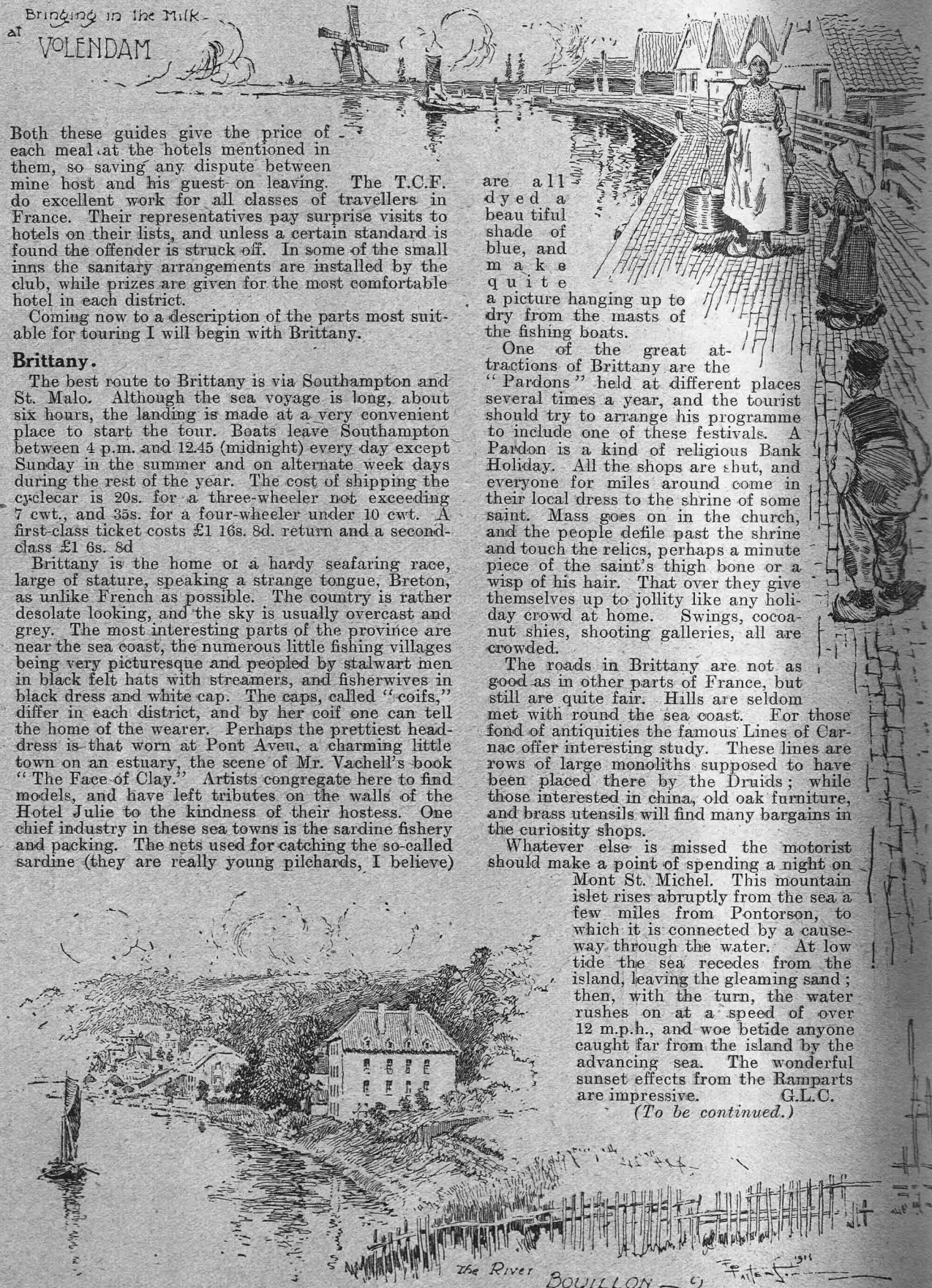
are all dyed a beautiful shade of blue, and make quite a picture hanging up to dry from the masts of the fishing boats.

One of the great attractions of Brittany are the "Pardons" held at different places several times a year, and the tourist should try to arrange his programme to include one of these festivals. A Pardon is a kind of religious Bank Holiday. All the shops are shut, and everyone for miles around come in their local dress to the shrine of some saint. Mass goes on in the church, and the people defile past the shrine and touch the relics, perhaps a minute piece of the saint's thigh bone or a wisp of his hair. That over they give themselves up to jollity like any holiday crowd at home. Swings, coconut shies, shooting galleries, all are crowded.

The roads in Brittany are not as good as in other parts of France, but still are quite fair. Hills are seldom met with round the sea coast. For those fond of antiquities the famous Lines of Carnac offer interesting study. These lines are rows of large monoliths supposed to have been placed there by the Druids; while those interested in china, old oak furniture, and brass utensils will find many bargains in the curiosity shops.

Whatever else is missed the motorist should make a point of spending a night on Mont St. Michel. This mountain islet rises abruptly from the sea a few miles from Pontorson, to which it is connected by a causeway through the water. At low tide the sea recedes from the island, leaving the gleaming sand; then, with the turn, the water rushes on at a speed of over 12 m.p.h., and woe betide anyone caught far from the island by the advancing sea. The wonderful sunset effects from the Ramparts are impressive. G.L.C.

(To be continued.)



The River

BOUILLON

THE J.B.S. CYCLECAR.

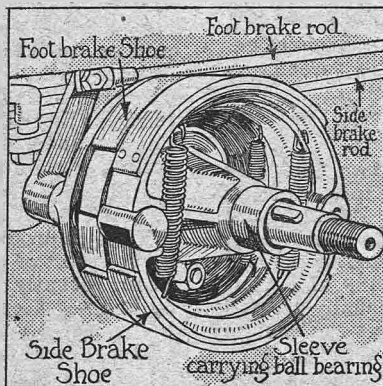
Four Speeds and a Reverse and an Air-cooled Engine.

A CYCLECAR of which little has been heard so far, but which has been on the road for a considerable time, is the J.B.S., made by Messrs. J. Bagshaw and Sons, of Batley, Yorks. The manufacturers have an engineering experience which covers a period of nearly a century, and before being offered to the public the machine has been undergoing a severe testing in the Lake District.

The J.B.S. has a pleasing appearance, and the body is particularly wide, giving ample room for two passengers, whilst behind there is a large locker for spares. It is built on car lines, but with an 8 h.p. air-cooled J.A.P. engine, set across the frame, with a starting handle in the front, and with a large belt-driven fan to assist the cooling, whilst a chain-driven Bosch magneto supplies the ignition.

The frame is of $1\frac{1}{2}$ in. 8 gauge steel tubing carried on the axles by semi-elliptic springs. Detachable wheels of 650 mm. by 65 mm. size and Palmer tyres are fitted.

Double internal expanding brakes are fitted to the rear hubs, operated by a hand lever and by a pedal through a compensating device. The gearbox is cast in one piece with a large cover, and provides four speeds and a reverse, the gear ratios being top (direct) $4\frac{1}{2}$ to 1; third, $6\frac{1}{2}$ to 1; second, 9 to 1; and first, 14 to 1. The reverse (14 to 1) is operated by a separate lever, the pinion being carried in an eccentric bearing by which it is held out of engagement when not in use. With the specially-designed gear quadrant it is impossible to overrun a gear, and, in addition, the sliding shaft of the gearbox has notches

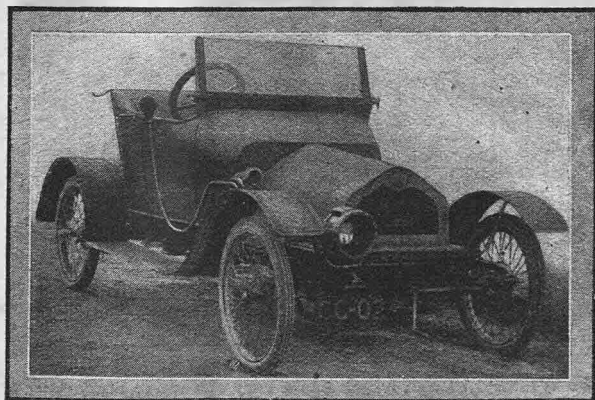


The two sets of internal brakes in each rear wheel of the J.B.S.

A universally-jointed shaft transmits the power from the gearbox to the rear axle, while the clutch is an 11 in. leather-to-metal cone which acts as an additional flywheel. Rack and pinion steering is provided, and the petrol and oil tanks are carried in the arch of the scuttle dash. Lubrication is by the J.A.P. automatic lubricator, and an additional hand pump is provided. A foot-controlled Solex carburettor is fitted, and the ignition is varied by a Bowden wire from the steering wheel. The clutch and brake pedals are in convenient positions, and the gear-change, brake and reverse levers are situated within the body. A speedometer is fitted driven by a flat belt from the propeller shaft, which is a novel type of speed indicator drive for cyclecars.

An extended road trial proved the efficiency of the transmission and the general comfort of the suspension. After a run of 60 miles over hilly country at an average speed of 22 m.p.h., the J.B.S. was taken to a hill over $1\frac{1}{2}$ mile long, which included a gradient of 1 in 5 and a bad S bend. Before reaching this hill, a long ascent of over a mile had to be negotiated, so that by the time the actual test hill was reached the engine was considerably hotter than under ordinary conditions. Top gear was sufficient for the first portion of 1 in 13, and as the gradient increased the third and second speeds were called into action. The 1 in 5 gradient, which included the S bend, was taken easily on the second speed, after which there was a long straight rise of from 1 in 7 to 1 in 14. As the engine began to show signs of slowing the last gear was engaged over 200 yards until the gradient eased sufficiently to allow of a higher gear. When pulling on the low gear there was evidence of a reserve of power, showing that even freak hills can be easily negotiated.

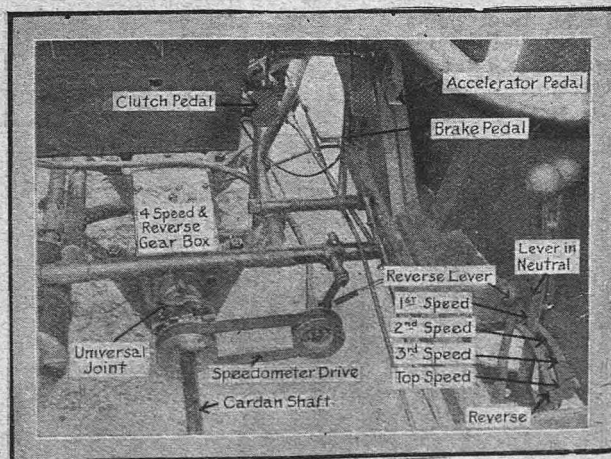
The machine runs very sweetly on top gear, and the indirect speeds do not cause an excessive amount of vibration. The springing and the upholstered seating make the J.B.S. exceedingly comfortable. The gear changes are simple and silent, and the steering is quite easy, while the machine holds the road well



The J.B.S. cyclecar, showing the roomy body and neat bonnet.

cut corresponding to each gear, into which a spring plunger drops when the teeth are correctly engaged. Ball bearings are provided throughout the gearbox.

The differential is of the bevel type, and is also carried on ball bearings, whilst the small bevel runs on combined ball and plain bearings. It is enclosed in an easily-detachable cage, and the back axle and differential rotate in an aluminium case, the extremities of which consist of malleable iron castings strengthened to carry the springs, whilst the road wheels run on ball bearings on the axle sleeves.



The transmission of the J.B.S. The speedometer drive off the propeller shaft should be noted.

NEW CYCLECARS (contd.).

at all speeds. A speed of 45 m.p.h. is about the maximum, but reliability rather than excessive speed has been the main object of the manufacturers. Between 25 and 28 m.p.h. appears to be the best running speed, as then the engine vibration and road shocks are least noticeable.

The brakes were tested when descending a hill, and on the 1 in 4 portion the machine was pulled up dead in a very few yards; very little pressure is required on the brakes, if the low gear is engaged, as the compression of the engine is thus utilized.

The finish of the mechanism is particularly good, and the ample proportions of all the wearing parts are apparent. It appears to be the maker's aim to turn out a machine that will last and give long service on the road, whilst accessibility is a strong feature, and altogether the J.B.S. appears to be a very substantially made and satisfactory production. The selling price is £120, and a hood and screen can be supplied at an extra cost of £7.

A Double Sidecar Cyclecar.

A CYCLECAR, which is really two sidecars mounted side by side, is a description of the Norton. The machine looks somewhat freakish, but it is claimed that its design minimizes the dust raised, even when the machine is driven at speed, a current of air passing between the passengers, and thus breaking up the partial vacuum that is usually created behind a moving vehicle. We think the public generally would prefer a cyclecar body, however.

The machine has a 50 degrees air-cooled twin-cylinder engine, the bore and stroke both being 85 mm. Adjustable tappets and an Amac carburettor are provided, whilst the magneto is placed at the rear of the engine in a protected position. Epicyclic gears, operated by pedals and giving two speeds forward, are fitted, the final drive being by cardan shaft to the bevel-driven back axle which is provided with a spur type of differential. The underslung frame is tubular, and is insulated from road shocks in front by a single transverse semi-elliptical spring, shackled at both ends, and at the rear by quarter-elliptical springs. Geared-down steering is employed, whilst two sets of brakes, both operating on the rear wheels, are fitted. The wheelbase is 6 ft. 6 ins., the track 3 ft. 10½ ins., whilst the overall length and width are 9 ft. and 4 ft. 6 ins. respectively. The weight of the machine complete is 6 cwt. The petrol tank holds 4½ gallons, and the capacity of the oil tank is ½ gallon. Wire wheels, shod with 650 mm. by 65 mm. tyres, and having heavy gauge spokes

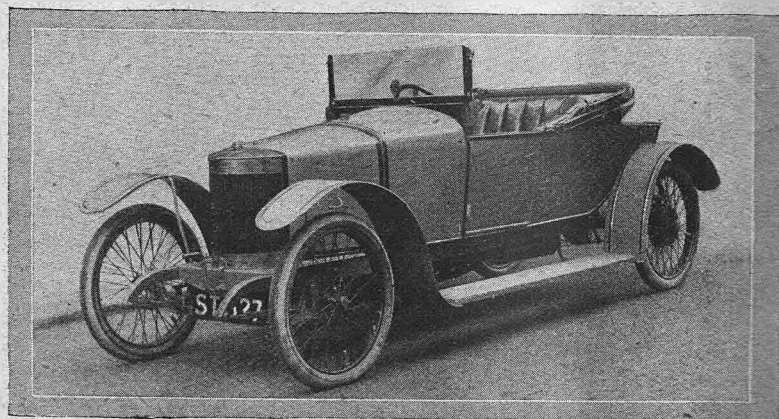
and combined steel and wood rims, are fitted. Lubrication is by hand pump, but sight-feed drips are also provided. The manufacturers, Messrs. Tom Norton, Ltd., Llandrindod Wells, have not yet decided upon the price at which the machine will be sold.

The Latest Carden Monocar.

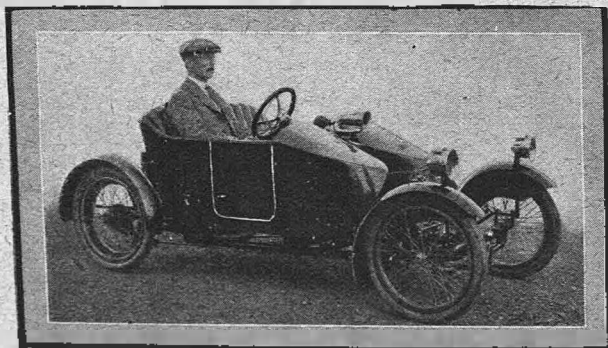
THERE have been a few modifications of the Carden monocar since it was described in THE CYCLECAR. The rear springing has been altered, and the combined petrol and oil tank is now situated behind the driver. Efficient mudguards have been fitted, and the completely equipped machine has a very pleasing appearance. The main design remains the same, with a 4 h.p. J.A.P. engine mounted behind the rear axle. A single roller chain drives the axle, in which is incorporated a multiple-disc clutch. The axle is solid, no differential being fitted. The engine is now provided with a starting handle and a decompressor, so that the machine can be started in the ordinary way. Two independent brakes are provided, operated by foot and hand. An automatic Amac carburettor and U.H. magneto are also fitted. The Carden Engineering Co., Ltd., of Farnham, Surrey, are selling these machines for £55.

The Wilton Cyclecar.

WE reproduce this week an illustration of the Wilton cyclecar, the first model of which has been recently completed. The engine is a four-cylinder water-cooled one, the bore and stroke being 59 mm. and 100 mm. respectively. Three speeds and a reverse are provided, the gear lever working in a gate. The clutch is bolted direct to the large fly-wheel and is of the multiple-disc type. Two special sliding couplings are fitted between the gearbox and the rear axle, which is bevel-driven. The latter is easily dismountable, whilst six sets of M.A.B. annular ball bearings of large diameter are fitted to the differential and driving pinion. The frame is of in-



The Wilton cyclecar, which has a very attractive body design.



The Norton, a cyclecar with a double sidecar body.
B14

verted "U" section, pressed steel, and is supported on the axles by semi-elliptical springs in front and by three-quarter elliptical springs at the rear. The steering is of the worm-and-segment type, and it is claimed to be absolutely irreversible. 750 mm. by 75 mm. tyres are fitted, while the wheelbase is 9 ft. and the track 3 ft. 10 ins. Two sets of independent brakes are provided, both working in the rear wheels.

A neat two-seated body is provided, the overall width of which is 43 ins. The machine has done very well in all competitions in which it has been entered. It sells, complete with hood, screen, and lamps, at £185, and is manufactured by the Wilton Cycle and Motor Co., 110, Wilton Road, London, S.W.

THE CYCLECAR WORLD.

Notes, News and Gossip of The New Motoring.

"The hottest thing on wheels" is hardly a happy phrase in an advertisement of a water-cooled cyclecar.

The price of the Sampson inner tube repair kit, which was described and illustrated in last week's issue, is 12s. 6d., not 2s. 6d. as previously stated.

The cover picture this week was taken while the two G.N.s were out in the early morning practising for the Grand Prix, the front machine being Mr. Nash's.

The Local Government Board are still considering a speed limit at Hyde Park Corner. The police will find it almost impossible to work it, let alone trap motorists who exceed it.

The Cyclecar Club have a run on Sunday next to Hastings (lunch at Waverley Hotel), meeting at the top of Pol Hill, on the Sevenoaks road, at 9 a.m. It is not intended to leave Hastings until after tea, taking advantage of the long evenings.

The S.M.M.T. are considering standardized rim sizes for cars. It is to be hoped that similar standardization will be adopted for cyclecar rims, and Mr. T. H. Woollen, who has placed valuable information on rim sizes before the committee, is also going into this matter. At present the different makes of 650 by 65 rims vary considerably.

The West Surrey branch of the Roads Improvement Association has been formed, and in addition to schemes for a relief road at Kingston Hill, and improvements on the road from Guildford to Reigate which they propose developing, we can recommend schemes for restoring the old Epsom road at Guildford, and the ancient Ermin Street at Leatherhead.

When the Grand Prix cyclecar race is referred to as the Light Car Grand Prix it makes us smile. The light car event takes place on Tuesday, 29th July. It is curious how some people seem utterly unable to comprehend that a cyclecar is not a light car, and that the two types of machines are quite distinct, a fact which is recognized by the French A.C., which is organizing the two events.

An American Opinion.

"The development of the light and low-cost design that the cyclecar movement calls for may be watched with interest as likely to produce a highly developed type of vehicle in which economy will predominate, and from which the larger and more conventional machine may ultimately gather some improvement. The cyclecar movement is therefore worth observing closely, quite apart from its possibilities in a commercial way."—"Automobile Topics."

The Improbable.

"Probably a majority of the cyclecars on the market do not give the anticipated results," says "The Westminster Gazette" (London). "They are too flimsy in design. The number of breakdowns of one kind or another is high, and the repair bill is inordinately long. The demands on the purse involved in these factors are too much for the man of small means who would be the natural owner of the cyclecar." The probabilities are just the other way about, for if there were any foundation for such a charge we should be inundated with complaints, instead of which only one or two have come to hand in the whole of the last six months, and, on investigation, the trouble has been found due to the type of driving that the most "fool-proof" car would not stand.

Anonymous letters, written on both sides of the paper, find an inevitable grave in the W.P.B. Will readers please note?

Tarring operations are in progress in the Lonsdale Road, Barnes, and London cyclecarists making for Richmond Park will do well to avoid this road for a few days at least.

The interest in cyclecars of the "Young American" is now so thoroughly aroused that "The Motor Age," Chicago, devotes two pages to answering the questions of would-be constructors.

We continue to hear of extraordinary discoveries of short measure in petrol cans. In the case of one motorist who discovered many cans short by one pint, one of the supplying concerns sent a representative, and a can was selected by him. On measuring, the petrol was shown to be $\frac{3}{4}$ ths of a pint short!

After 25th July the "R.A.C. Journal" is only to be posted to members who state definitely that they desire it to be sent them regularly. As many members of different affiliated associations get more than one copy, and not a few recipients aim them into the waste paper basket as soon as received, this new scheme has a great deal to recommend it.

Entries for the Six Hours Race.

The following cyclecars have been entered for the six hours race which takes place at the B.M.C.R.C. meeting at Brooklands to-day (Wednesday). In class F, the Chota, driven by Mr. F. T. Buckingham, is the only entrant. In class K the two Grand Prix Duos are entered, driven by Messrs. L. F. de Peyrecave and A. Francis. In addition there is Mr. Lionel Martin's Singer, and the Wilton, driven by Mr. C. F. Halsall. In class I there is a Morgan, entered by Mr. N. F. Holder, which will race against two sidecar machines. All classes—motor-bicycles, sidecars and cyclecars—will start at 11 a.m., and will continue for six hours.

More Theories.

"I would say do not buy a cyclecar unless it has at least four road wheels, unless it is fitted with a water-cooled engine, and unless it is driven by some form of gear or chain-drive transmission," writes a contributor to the "Liverpool Post." This advice is given after a critical examination of the results of the Cyclecar Club's open hill-climb, but, going carefully into the matter, we find 50 per cent. of the failures were water-cooled machines and only 25 per cent. were belt-driven, and in no case did the belts give trouble.

The Cyclecar Club Hill-climb.

The official results of the open hill-climb on South Harting Hill, successfully held by the Cyclecar Club on 28th June, will be published in THE CYCLECAR next week, after the committee meeting to-night. No official figures have yet been issued. The weights of the machines have not been lost, as implied in a contemporary, but there has been some delay in verifying the chassis weight of certain competitors, and the cubical capacity of some of the engines. Thus, in the case of Mr. Lambert's two-seater, where the cubical capacity was assumed in the preliminary results, a correction of the figure of merit becomes necessary. The published times—or at any rate those given in THE CYCLECAR—are perfectly correct, but the formula result of the Chota in Class III is obviously an error in working out.

Topics of the Day

A Lesson from the Grand Prix.

IF manufacturers learned anything as the result of preparing for a strenuous race like the Grand Prix, it was that more attention must be paid to small details. In the initial practising it was found that, as soon as speeds of 50 m.p.h. were touched, small parts loosened or broke, nuts and bolts were shed, and mechanical troubles appeared that would have been quite sufficient to make success in the race impossible. There was nothing for it but to go over every part, tightening here, securing there, fastening nuts and bolts with lock nuts, split pins, wire, shellac, and insulating tape. That is the sort of work the amateur rarely performs, and yet, in milder degree perhaps, it is not unnecessary. It must be borne in mind that a light vehicle like the cyclecar is designed to travel at a comfortable speed of 25 m.p.h.; anything above this sacrifices comfort and increases the risk of fracture of small parts. If high speeds are contemplated, a corresponding degree of attention to securing parts that can work loose is necessary. Designers of cyclecars who have now had Grand Prix experience will probably pay increasing attention to the effects of high-speed vibration.

Cyclecar Springing.

IN the springing of a motor vehicle designers have to pay considerable attention to the total weight, with a margin to allow for the difference in load when running with and without a passenger. This is a much easier task in the case of a big car, weighing anything up to one-and-a-half ton with full load, than with a cyclecar, the overall weight of which will not exceed half-a-ton. For one thing, there is not the space for elaborate springing, and the weight of the springs is a matter that has to be carefully studied. The greatest difficulty lies, however, in striking a happy compromise where the conditions and the load may vary so greatly proportionately to the total weight. Take the case of a car weighing, fully loaded, 3360 lb. The difference in the load by deducting the weight of two average passengers is only a matter of about 300 lb., or one-eleventh the total weight. Now, take the case of a cyclecar weighing, we will say, with passenger and driver, 1050 lb., a figure which would not be exceeded by the average simple type of cyclecar. To leave out the passenger makes a much more appreciable difference than the reduction of weight on the wheels produced by omitting two passengers on a car, for it amounts to one-seventh of the total. That is why the springing effect of some cyclecars differs so greatly according to whether the passenger is carried or not.

The Demand for the £100 Cyclecar.

SUGGESTIONS are being made that the demand for cyclecars has practically ceased. (Of course, if it ever existed at all!) On the other hand, we are receiving an undiminished flow of requests from readers for recommendation of suitable machines, and the circulation of THE CYCLECAR—more than double the rosier anticipation of what it would settle down to after the first number, of which 100,000 copies were eagerly bought up—indicate that the public are as keenly interested in cyclecars as they were six months ago. Those manufacturers who have tackled the industry seriously are still endeavouring to meet a demand largely in excess of the supply, and an increasing number of cyclecars are seen on the road. Protracted deliveries have, however, caused many orders to be cancelled, for the time being, at any rate. It is difficult to see how the impression that the public are ceasing to take an interest in cyclecars arises, unless it be stimulated by letters, of which we receive a large number each week, asking where can be obtained a cyclecar on simple lines, the cost of which is not to exceed £100, made by one of the big motorcycle manufacturers. We have pointed out several times that the motorcycle trade is missing a most valuable opportunity in ignoring this demand.

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The Cyclecar

Wednesdays—1d.

Conducted by EDWARD DANGERFIELD.

TEMPLE PRESS LIMITED

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"THE MOTOR," &c.)

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196, Deansgate, Manchester.

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Telegrams—"Presswork, Manchester."

LIGHT UP

Next Saturday, 9.6 p.m.

FORTHCOMING EVENTS.

JULY.

19th.—Sutton Coldfield Hill-climb.

20th.—Cyclecar Club Run to Hastings (50 miles).

21st to 26th.—Scottish Six-days Trial.

26th.—Leicester A.C. Hill-climb at Beacon Hill.

AUGUST.

2nd-4th.—Cyclecar Club August Bank Holiday Week-end Tour.

4th.—B.A.R.C. Race Meeting.

9th.—B.M.C.R.C. Race Meeting.

18th to 23rd.—A.C.U. Six-days Trial.

24th.—A.C.U. One-day Trial.

SEPTEMBER.

19th.—B.M.C.R.C. Race Meeting, Brooklands.

24th.—A.C.U. Autumn One-day Trial.

27th.—B.A.R.C. Race Meeting, Brooklands.

NOTICES.

Letters.

EDITORIAL Communications should be addressed to The Editor, "The Cyclecar," 7, 9, 11, 13 and 15, Rosebery Avenue, London, E.C.

Letters relating to ADVERTISEMENTS and PUBLISHING Departments should be addressed to The Manager. SUBSCRIPTIONS should be forwarded to the Manager rate, 6s. 6d. per annum, or pro rata.

Press Times.

IMPORTANT LATE NEWS and Photographs can be accepted up to first post Monday morning for insertion in the following Wednesday's issue.

ADVERTISEMENT COPY, Blocks, &c., should come to hand by Wednesday morning to ensure careful attention and allow time to submit proofs, except when an earlier time is specified.

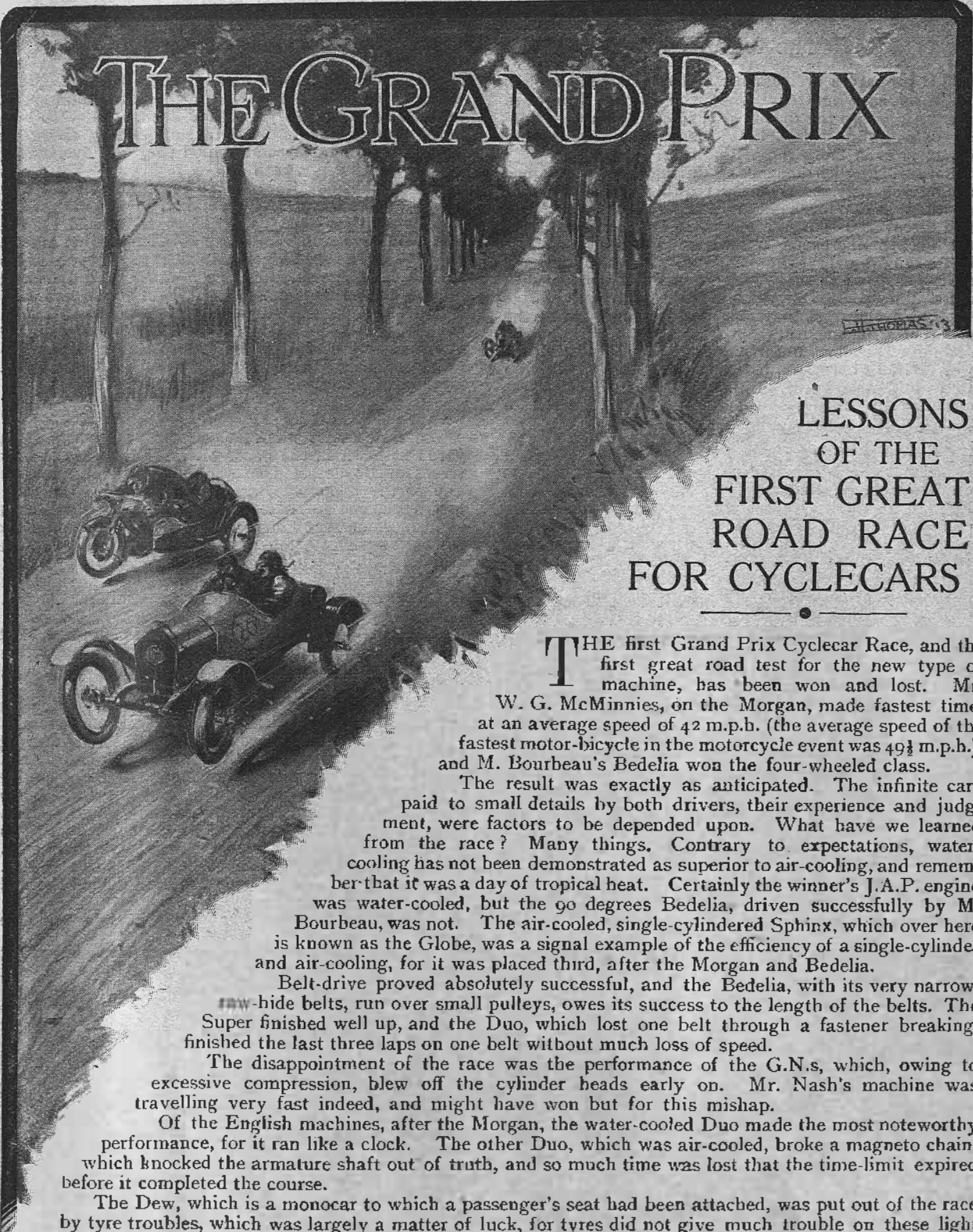
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Advertisements of Cyclecars for Sale, new or second-hand, Sunday Announcements, and Notices for Advertisements will be found amongst the end pages.



THE GRAND PRIX

LESSONS OF THE FIRST GREAT ROAD RACE FOR CYCLECARS

THE first Grand Prix Cyclecar Race, and the first great road test for the new type of machine, has been won and lost. Mr.

W. G. McMinnies, on the Morgan, made fastest time, at an average speed of 42 m.p.h. (the average speed of the fastest motor-bicycle in the motorcycle event was 49½ m.p.h.), and M. Bourbeau's Bedelia won the four-wheeled class.

The result was exactly as anticipated. The infinite care paid to small details by both drivers, their experience and judgment, were factors to be depended upon. What have we learned from the race? Many things. Contrary to expectations, water-cooling has not been demonstrated as superior to air-cooling, and remember that it was a day of tropical heat. Certainly the winner's J.A.P. engine was water-cooled, but the 60 degrees Bedelia, driven successfully by M. Bourbeau, was not. The air-cooled, single-cylindered Sphinx, which over here is known as the Globe, was a signal example of the efficiency of a single-cylinder and air-cooling, for it was placed third, after the Morgan and Bedelia.

Belt-drive proved absolutely successful, and the Bedelia, with its very narrow, raw-hide belts, run over small pulleys, owes its success to the length of the belts. The Super finished well up, and the Duo, which lost one belt through a fastener breaking, finished the last three laps on one belt without much loss of speed.

The disappointment of the race was the performance of the G.N.s, which, owing to excessive compression, blew off the cylinder heads early on. Mr. Nash's machine was travelling very fast indeed, and might have won but for this mishap.

Of the English machines, after the Morgan, the water-cooled Duo made the most noteworthy performance, for it ran like a clock. The other Duo, which was air-cooled, broke a magneto chain, which knocked the armature shaft out of truth, and so much time was lost that the time-limit expired before it completed the course.

The Dew, which is a monocar to which a passenger's seat had been attached, was put out of the race by tyre troubles, which was largely a matter of luck, for tyres did not give much trouble on these light machines. Its driver had probably less experience of racing than any other competitor.

We think it can be said fairly, that the simpler type of machine proved the most reliable.

The absence of a differential made no difference to the steering of the machines. The Ronteix and the Violet-Bogey have chain drive to a solid back axle and took corners faster than any other competitors.

The automatic varying pulleys of the Bedelia proved satisfactory; the long belts (20 ft. in length) gave no trouble, nor was the sliding engine (to tighten the belts) a disadvantage. The race has shown that the adoption of new principles and novel construction was not a bar to success.

BEFORE THE RACE.

The Strange Scenes in "The Cyclecar" Encampment.

TO prepare a cyclecar for a 160 miles road race is no easy matter. Once the engine has been tuned up the driver or "pilote" can then concentrate on securing that measure of reliability which is even more important than speed.

Several English machines during the week preceding the race experienced trouble of one kind or another. Mr. Whitehead did a lap or two at 35 m.p.h. and discovered that his back axle had bent owing to the greatly increased weight of luggage which he had brought over from England. He also broke a spring early on in the week, but a French blacksmith made him up another. One advantage of the simple type of cyclecar is that most repairs are within the scope of a blacksmith.

One of the most unfortunate of the English riders was Mr. de Peyrecave, managing director of the Duo Co., who had to drive, in place of Messervy, who was smashed up during the practising, as reported in THE CYCLECAR last week.

Duo Bad Luck.

We met the Duo party on their arrival at Dieppe on Wednesday, and together with Mr. and Mrs. Morgan, on their Grand Prix racer and a spare machine, conducted them to Boves. The Duo's radiator began to leak badly, as the result of the accident in which Mr. Messervy had been involved in London, and we had to leave Mr. de Peyrecave at a wayside garage. He did not turn up at the camp for two days, and when he did arrive had serious engine trouble, which necessitated the mechanics working all night on the machine. Then the other Duo, with the 90 degrees J.A.P. twin, broke one piston, and then, owing to some careless person moving the machine forward whilst the cylinders were off, the other piston was broken. These troubles very materially lessened the chances of the Duos, which is a pity, because their Grand Prix models are both interesting and promised extremely well.

Mr. Rex Mundy, who arrived late in the week on the Precision-Morgan, complained of a leak in his radiator, which was probably caused by the great lengths of copper piping connecting the water-jackets to the radiator. The latter is an enormous affair—and quite as large as would be used on a 12 h.p. car. The engine is fitted with the Green patent copper water-jackets, but the radiator is separate. A special

feature of the engine is the neat magneto bevel guard, which is made in one casting in the aluminium crankcase. The other Morgans have been fitted with temporary bevel shields, so that, should they encounter stones thrown up by cars which they are overtaking, the motor may not receive any injury.

One of the most interesting machines on the road was the four-wheel Dew racer. The machine might just as well be used as a monocoar, for the tandem seats are arranged very close to each other; indeed, the legs of the passenger almost encircle the driver's seat. A big Precision engine is fitted, and driven by double chains to a countershaft, on which two cone clutches are fitted. Very long final belt drive is used, the change of gear being effected by clutching up one of the engine chains to the countershaft. The transmission system resembles that of the Chota, but the method of operation is somewhat different.

The Dew Monocoar.

The Dew depot was stationed in one of the many yards with which the backs of the houses in the high street of Boves seem to abound. Had one entered any of the principal yards at the back of the cafes last week, one would have been faced with a strange sight in place of the more usual country surroundings. Three, or perhaps four, skeleton-like machines were standing there. On them, over them, and under them were the mechanics, busily engaged in putting the finishing touches to the motors and frames. Around were strewn heaps of spare parts, tyres, tins of petrol and oil. Apparently confusion reigned supreme. Yet slowly but surely all the parts apparently scattered so carelessly were gradually placed in their respective positions, until not one was missing.

It was a strange life that we had been leading for the past few days—a life of petrol, oil, and overalls. It was the machine before everything else. Men forgot their sleep, their meals, their personal comfort, and their friends. It was the machine, and the engine especially, that must come before all else. They tended the engine as carefully as they would a child. They guarded their machines as zealously as a bitch would her puppies. It must never leave their eyes. Yet it was a case of late to bed and early to rise. And especially has this been the case during the last few days at our encampment.

Unfortunately, owing to the Customs and the



Our encampment. About 50 visitors were accommodated under canvas.

BEFORE THE RACE (contd.).

Customs duties, we were not able to install the encampment as early as we should have wished, but as soon as the goods were released at Boves Station, two score of willing hands were forthcoming, and the 1½ ton of baggage was soon transplanted to the camping ground. It was eerie work erecting the tents in a dark field only illuminated by a few candles. In front of us stretched the main road for the circuit. Every now and then great cars with tremendously powerful lamps would hurtle past, the noise of the exhaust, used even on touring models, being terrific. Once a cyclecar passed, making a terrific din, and illuminated with one great red Chinese lantern. However, eventually all the tents were mounted, and, once up, proved a haven of refuge to close on 50 people.

The Measuring.

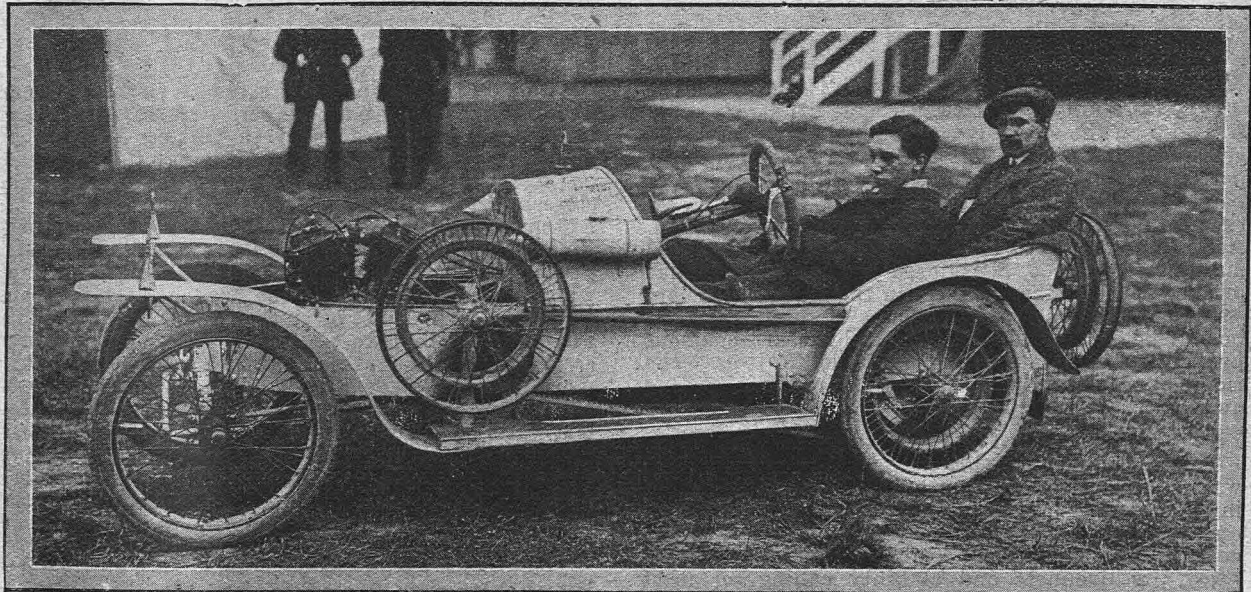
On Friday we received instructions that we had to take the machines to the Tribunes to have the cylinders measured. When we arrived there we found the grand-stands, restaurants, and other depots inseparable from a big Continental motor-race meet, crammed with spectators. There was hardly room

looking Bedelias and Duo racers. The smartest-looking machines of all were undoubtedly the green Grand Prix Morgans. Their colour, in conjunction with the highly-polished brass radiators, caused them to resemble the big English Grand Prix racers. Mr. Morgan's machine was fitted with two copper exhaust pipes, about two feet long, pointing to the rear of the machine, and when he started up the roar of the water-cooled J.A.P. resembled that of many of the Grand Prix racers.

The Jovial Foreigners.

During Saturday night we were sadly disturbed by the songs of a party of Frenchmen who had celebrated Boillot's success in the Grand Prix well but not too wisely. At one or two in the morning this cheerful contingent arrived, and began to celebrate the French victory with shrieks of "Vive Boillot!" "Vive Peugeot!" interspersed with snatches of a popular French song. It was in vain that we tried to quiet them by persuasion. "S'il vous plait!" availed little, and it was not till more strenuous measures were adopted that the undesirable party withdrew.

As we write the motorcycle race is in progress. Within ten yards of our seat at the café motorcycles



Mr. D. Hawkes and the Dew racer. It is really a monocar, with little room for the passenger.

to move. Officials scurried hither and thither amongst the machines. Motor-bicycles, cyclecars, and great racing monsters for the car race snorted and banged on all sides. They all had to go through the formalities, and in the case of the cars they were locked up in sheds of wire network. First, the cylinders had to be measured, whilst the wheels were sealed and the crankcase, cylinders, magneto, carburetter, chassis and petrol tanks were all stamped. Why, we have no idea. Then the machines and their occupants had to be weighed, after which all the papers of the English competitors had to be verified. It was an annoying and tedious proceeding, and by the time that all was done the evening was upon us. The heat during the day had been tremendous, and had it not been for the tent in which we happened to be accommodated, the afternoon's work would have been well-nigh unendurable.

The cyclecars presented a striking contrast to the cars. Weird, spidery machines, with long, flapping belts and grey, shell-shaped bodies predominated. Every type of cyclecar was present, from the Baby-lette Mathis, with its tiny valves, to the strange-

are hurtling through the narrow and winding street of Boves at 50 miles an hour. They started at 6 a.m., a gun which could be heard all over the course being the signal for the start. The Frenchmen are riding with a dash and devil that show they are out to win at all costs. They are taking the bends in Boves in a most remarkable manner. The dust-laying material is acting well, and appears to be none the worse for the gruelling the roads received during the car race yesterday. Soon it will be our turn to make the circuit. Our machine is standing in a little cottage courtyard covered by a tarpaulin and guarded by our trusty and most efficient mechanic, Frank Thomas, of Cyclecar Club fame. The sun is already in the ascendant, and there is every promise of a glorious day. Our race does not start till mid-day, and we yet have a few hours to put the finishing touches to the Grand Prix racer. Time presses, and so, till after the race, there is no more to report.

How the Clément won the small class and the Rudge the big class in the motorcycle race is fully described and illustrated in yesterday's "Motor Cycling."
McM.

HOW THE RACE WAS WON AND LOST.

A Terrific Test of Light Machines.

Mr. W. G. McMinnies, of "The Cyclecar," wins the "Sidecar" Class on the Morgan. No Sidecars finished.

M. Bourbeau wins the Cyclecar Class on the novel Bedelia. Sphinx-Globe Second, Ronteix Third, and Duo Fourth.



Mr. W. G. McMinnies and the winning Morgan.

A FEW minutes before noon all the machines entered in the Cyclecar Grand Prix were lined up on the specially-constructed track, with the grand-stands on their left and the row of tyre and petrol pits immediately on the right. All types of passenger-carrying machines had to run together, thus bringing in motorcycles with sidecars attached. According to the French regulations three-wheel machines are not considered as cyclecars, thus officially putting the Morgans in the sidecar division.

The starts were given in groups of three, the road being sufficiently wide for this, and the arrangement providing a most interesting spectacle, for it gave the riders an opportunity of showing their skill in getting away from a standing start.

The Morgan Quickly Away.

The first three were sidecar machines, one of which was so sluggish in getting off that Mr. McMinnies, in the second group, was quickly after it and passed it on the outer bend leading into the first leg of the course. The Morgan was remarkably quick in getting away, its liveliness and stability calling for most favourable comment. Nos. 7 and 8 Morgans started up at the same instant, the latter machine, driven by Mr. Mundy, getting the advantage as soon as the straightaway was reached. While all was excitement at the starting line, the various types of machines spluttering and the spectators shouting in French and English, further interest was added to the scene at this moment by a Bleriot monoplane effecting a graceful vol plane in a field just beyond the popular enclosure, on the outside of the course.

MM. Darmont and Meuriot, on Zenith and Rene-Gillet sidecars respectively, went away side by side. M. Bourbeau's Bedelia, the first G.N., and the first Duo were in the next group. The long blue Bedelia fell behind the two English machines on the bend, but as soon as they got into the straightaway the Frenchman opened out, raced neck and neck with the two Englishmen for a few yards, and succeeded in getting ahead of them just before they disappeared into the hollow, which was the limit of vision.

In the next group were 16, 17 and 18, Mr. Hawkes's Dew, the Violet-Bogey and the second G.N. The Dew got ahead in the race to the bend, but was passed by the Violet-Bogey on the first few yards of the straightaway.

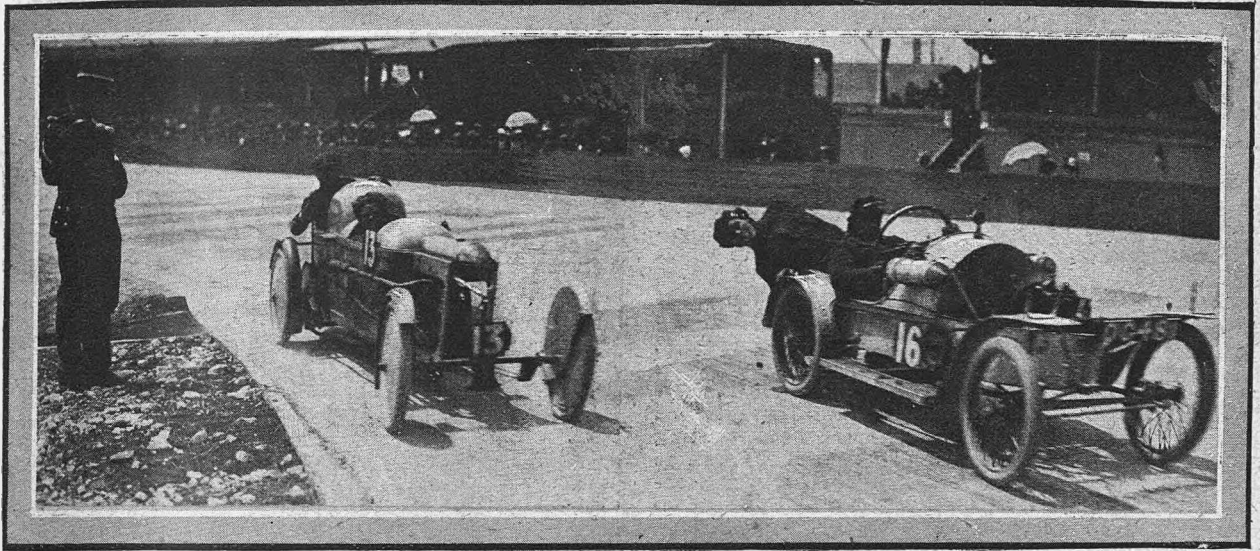
In the 19, 20 and 21 group were the Noel, the

Alsatian red and blue Mathis, built entirely on car lines, and the low-built Super. Of this group the Mathis was the most lively in getting into action. The two Ronteix machines, brightly painted red, went off side by side, with the second of the Duo team close behind. Mr. Samuelson's Marlborough and M. Antony's Violet-Bogey were in the next group, the Bolton-Precision having been withdrawn. Mr. Samuelson carried a lady as his passenger, a fact which appeared to interest the French spectators considerably, for it is not often that a member of the fair sex consents to take part in a race. On the first straightaway the Marlborough had to give way to the more fiery Violet-Bogey. M. Simon's Automobilette and M. Prevot's Bedelia started together. This latter is a water-cooled machine of only 750 c.c. dimensions, being the only one in its class, and was faster than the Automobilette in getting away. M. Canouel's Sphinx-Globe and M. Poulliez's Violet-Bogey were the last pair, the former machine slipping inside and getting into the straight stretch before the Violet.

There must have been some fine sport on this first leg of the course, a perfectly straight stretch three miles in length, first on the level, then downhill, and afterwards a rather stiff rise. This could not be seen from the stands, however, the machines disappearing into a hollow after a run of three-quarters of a mile.

A Front Wheel Collapses.

The last man had hardly disappeared when a bugle-call announced the approach of the first machine to finish the preliminary round. It was that of Mr. McMinnies, who had started fourth and passed the three sidecars on this run of nearly eleven miles. The favourable impression which the machine had created at the start of the race was only strengthened as it came round again. It really took the two turns into and out of the track as if it were on rails and without the passenger performing any acrobatic tricks to keep it on the road. A few minutes later a second Morgan appeared. It was Mr. Rex Mundy, who had passed Mr. Morgan, held up, as it was afterwards learned, with a broken piston, and the Regal-Green sidecar. Mr. Mundy took his first turn nicely, went by the stands at high speed, and just as he was entering the turn into the straightaway his front left wheel collapsed. It was undoubtedly a case of weak construction, for the turn is not a really difficult one and was



Cornering in the race. The Dew racer, with the passenger leaning out, and M. Bourbeau's Bedelia, which won.

not taken at an excessive speed. The Morgan was left by the roadside at a place which very quickly became known as the cemetery.

As a contrast to the excellent way in which the Morgans took the turn, the next machine, a B.S.A. and sidecar, went round with the passenger literally on the back of the driver. A few seconds later a Rene-Gillet sidecar went past, but the passenger on this machine adopted the opposite tactics, leaning as far out to the left as possible. M. Bourbeau handled his Bedelia very nicely on this turn, although he did not give the impression of being quite so fast as the Morgans, but the manner in which he went round the bends was equally good. This machine was the peculiar type with the motor mounted on rails and with a direct drive by very long belts from the engine to the road wheels. M. Bourbeau, who is one of the partners in the Bedelia Company, carried his younger brother as passenger.

The "Coal Heap."

It was fully expected that some of the cyclecar drivers would run into the cinder wall banked up on the outside of this track as a protection for drivers and the public. Those persons who were waiting for sensations were doomed to disappointment, for although every driver went round at a fairly rapid speed, not one shot out wide enough to be really in any danger of disturbing the coal heap, as it was popularly dubbed. As a demonstration of the stability of the cyclecar this race was really most conclusive. There were four other very sharp turns on the course, but not a single machine upset. No. 18, G.N., went a bit too wide on the first turn, but it was really never in any danger of striking the banking. It is doubtful if more than two or three of the drivers had been round the grand-stand corners before the race, consequently they had to learn how to take them while speeding. Mr. Hawkes's passenger in the Dew created some amusement by hanging with his head as far to the right and as low as possible.

Twenty-eight machines had started in the race. Among those not having put in an appearance were the Roulettes, the Du Guesclin, one of the Morgans, the Bolton-Precision, and one of the Automobilettes. The driver of this latter machine, Ducruzel, was most unfortunate. He had brought his machine to the weighing-in, had had it officially sealed, and during the interval between this operation and the race had

been run into by a cart, with the result that one of his wheels was buckled. He sent to the works for a fresh wheel, and asked to be allowed to fit it and have it sealed. The sporting committee refused to allow this. Had he fitted detachable wheels, as originally intended, he would have been able to start in the race by using his spare. The second Automobilette was hardly less fortunate. It was driven by Simon, and, while going fast, parted company with driver and passenger, the cause being variously ascribed to a burst front tyre or broken springs.

Mr. Francis, on the Duo, disappeared on the second round, it being reported that he had a broken magnet chain. Another unfortunate was Mr. Forster, on the Sphinx-Globe, fitted with a J.A.P. water-cooled motor. Owing to there not being sufficient lateral play in the bearings, the crankcase burst. The fastest time on the first round was made by Mr. McMinnies, with 13 mins. 53 secs., which is a really very good performance for a course of 11 miles with a standing start and several turns. The next fastest was Mr. Nash, on the G.N., with 14 mins. 13 secs., followed by Mr. Mundy, on the Morgan, with 14 mins. 17 secs. Unfortunately, the method of announcing the times was very poorly done, it being impossible for the general public to get a clear idea of how the various competitors stood. When the spectator had a favourite, he could easily follow its progress, but it was a most difficult matter to obtain a comprehensive idea of how the race as a whole was progressing. It is surprising that in a race of such importance as the Grand Prix a more intelligent method is not adopted of informing the public how the competitors stand.

The Incident of the Bonnet.

The public had to be content to watch the incidents at the tyre and petrol pits and on the grand-stand turns. These were numerous, particularly during the early part of the race. Mr. Nash came in on his G.N., took off his bonnet to make an adjustment and decided to leave the engine covering at the pits. He had hardly begun to move away when yells went up for him to come back, and it was hurriedly explained to him that he must carry his bonnet around with him if he did not wish to be disqualified. He put it on, but when he attempted to start up his motor he was again in difficulties, probably eight minutes being lost before he got away. Later it was discovered that there was no obligation to carry a

THE RACE (contd.).

bonnet throughout the race, nor even to start with one. The Violet-Bogey, driven by M. Violet, the maker of this machine, was one of the fastest of the grandstand performers. He went round at such a pace that he became dubbed the dare-devil, and his appearance was always anxiously waited for.

The star performer, at any rate from a grandstand point of view, was Mr. Samuelson, with a lady passenger aboard his healthily-toned Marlborough. The lady was clad in a white dustcoat, wore white shoes and silk stockings. Under her cloak, so it was discovered later, she had an elegant garden-party dress, which a mere cyclecarist is incapable of describing. The Marlborough found the day too hot for it. It really was hot, as most of the spectators and all of the officials would be willing to testify. Water was supplied to the machine, although it was denied to many of the poor mortals who were roasting in the hot sun. After a second round the engine was given another cooling drink, and its fuel tank replenished. The lady took advantage of this stop to change her white dustcoat for a shimmering silk blue garment, a change which was highly appreciated by the spectators, as blue is "la couleur de France." Another round was made with the blue cloak fluttering in the wind. Unfortunately the motor continued to get hot. Giving it a drink every 11 miles was not sufficient. Then other troubles seemed to develop, for Mr. Samuelson worked on his engine in the hot sun for half-an-hour, while his lady helper encouraged him, and he finally decided to crawl into the cemetery and keep company with the Morgan.

Failure of Water-cooling.

Almost about the same time M. Bonville's Bedelia was interred with honours. The machine was one of the water-cooled type, but it had not been giving satisfaction, and after two or three rounds in slow time it was taken round the corner to join what an American visitor was heard to dub "the down-and-out brigade." It is rather interesting to note that the Bedelia people had selected three water-cooled motors and one air-cooled type, because they believed it was possible to get greater power out of the water-cooled variety. The race proved that the air-cooled model was the most reliable, for it was the only one of the four which went right through without a thing being done to it.

After 4 of the 15 rounds had been covered, the leader was Bourbeau; on the air-cooled Bedelia. The second was Mr. Samuelson, on the Marlborough, which later had so much trouble with overheating; the third was Esser, on the Mathis, a cyclecar having all the features of a small car. Others in order were M. Canouel, on the Sphinx-Globe; M. Violet, on the Violet-Bogey; M. Leveque, on the Super; Mr. de Peyrecave, on the Duo; then Mr. McMinnies, on the Morgan. This last-named driver, who was destined to make a brilliant display later, had lost a considerable amount of time by reason of a puncture in the front tyre, a valve spring having been picked up. After this change he stopped at the pits to get another tube, and also to take more spark plugs, for it was feared that there might be plug troubles.

The two Ronteix machines created a very favourable impression. They were both four-cylinder models, with high-speed motors possessing a very healthy roar; the machines had their seats side by side, and were very carefully finished, even the paintwork being equal to that of a show model. The real struggle for the Grand Prix lay between M. Bourbeau, on the Bedelia, M. Violet, on the Violet-Bogey, Mr. McMinnies, on the Morgan, and M. Canouel, on the Sphinx-Globe. It is worth noting that these machines are of entirely different types. The Morgan

has a water-cooled motor and three wheels; the Violet-Bogey a twin water-cooled motor and friction drive; the Sphinx-Globe a big single-cylinder air-cooled Anzani motor which never showed the least sign of overheating; the Bedelia had direct belt drive and an air-cooled 90 degrees engine.

As lap after lap was covered competition became keener and excitement at the pits more intense. When the Bedelia put in for oil and petrol, for the passenger had signalled on the previous round that he would need it, a too-enthusiastic helper rushed on to the track and was about to take off the filler cap when an official yelled at him. According to the rules it was forbidden for any but the driver and passenger to touch the machines. The poor helper, who had almost caused the car's disqualification, was literally knocked back into the pits by his excited companions. When the Violet put in for a renewal of its petrol supply, the passenger wished to leave behind a mudguard he had been carrying in his arms for some time. He was told that the rules insisted on mudguards being carried throughout the entire race, and he had reluctantly to take it up and hold it over the side of the car for four more rounds of the course. It was really not surprising that the competitors were not aware of the rule against abandoning mudguards, for the officials themselves were not very clear on the point. At first they imagined that it was sufficient to have the guards on the machine, whether they were fastened in the proper position or not. Later it was discovered that the guards must remain intact and in their correct position from the beginning to the end of the race. Bonnets, on the other hand, could be discarded, if desired, which was not known.

Mudguard Troubles.

M. Touchet, the driver of the Regal-Green sidecar, was a victim to this rule. One of his guards had become detached, his passenger had thrown it down while passing, and continued the race. He had only four more rounds to cover, was in leading position in his class, when a board was put up—"Disqualifié." It was only with difficulty that he was induced to stop, and when the cause of his disqualification was explained to him he took off his cap, banged it on the ground, and staggered away too exasperated to utter a word. It was, indeed, disappointing.

Mudguard attachments were evidently a weak feature of the machines. Before it retired, the Marlborough had lost three of its four guards, the Mathis was running with one short, and the Violet had one guard in the hands of the passenger. Evidently unconscious that he was in danger of losing the race, M. Violet was driving like a madman, for during the last few laps the difference between the leaders was only one of seconds. When the Violet-Bogey started on its last lap an official, who realized that the driver was transgressing by not having his guards, yelled to him to stop. The machine was pulled up, the driver looking round in bewilderment, for while a few were saying stop, the majority were yelling themselves hoarse with the word "Allez." Evidently M. Violet thought there was some mistake as to the number of laps he had covered, for after looking round a few seconds, without clearly realizing the cause of the disturbance, he rushed away again. He really had no time to waste, for he was being hard pressed by Mr. McMinnies, M. Bourbeau, on the Bedelia, and M. Canouel, on the Sphinx-Globe. The Morgan had stopped twice at the pits, the last occasion being to take water, oil and petrol. A short time before the end, the Dew machine was sent to the cemetery.

The actual result of the race remained doubtful for a little while. Mr. McMinnies, who had started fourth, was the first to finish, his time being 3 hrs. 53 mins. 9 secs., which is equal to exactly 42 miles an hour, a really remarkable performance for a machine



SCENES AND INCIDENTS AND PRIX RACE LAST SUNDAY.

Top, the single-cylinder air-cooled Sphinx-Globe, which broke its steering gear (of the worm and sector type). Centre, the scene at the start. Bottom, Mr. McMinnies passes the smashed-up

THE RACE (contd.).

of such small size carrying two full-grown men over a very varied course. It was an English victory in the first French Cyclecar Grand Prix, but before it was known as such to the spectators there was an interval of several minutes for the later starters to come in. M. Bourbeau, on the Bedelia, finished in 3 hrs. 55 mins. 54 secs. He was thus 2 mins. 45 secs. behind the Englishman. The third man was M. Violet, on the Violet-Bogey, less than one minute behind the Bedelia, while fourth position was secured by M. Canouel, on the Sphinx-Globe.

A protest was at once lodged against the Violet-Bogey that it was not fitted with mudguards throughout the race, and the same objection was made to the Mathis. A special meeting of the Racing Board of the French Club was called, and, after an hour's deliberation, these two cyclecars were disqualified. This but confirmed the English victory, and gave the following official results for the Cyclecar Grand Prix:—

The Result.

	H	M	S.
1. Mr. McMinnies (Morgan) ...	...	3 53	9
2. M. Bourbeau (Bedelia) ...	...	3 55	54
3. M. Canouel (Sphinx-Globe) ...	...	4 5	11
4. M. Ronteix (Ronteix) ...	...	4 11	16
5. Mr. de Peyrecave (Duo) ...	...	4 12	24
6. M. Leveque (Super) ...	...	4 12	32
7. M. Pouliez (Violet-Bogey) ...	...	4 16	47
8. M. Jolibois (Ronteix) ...	...	4 30	15

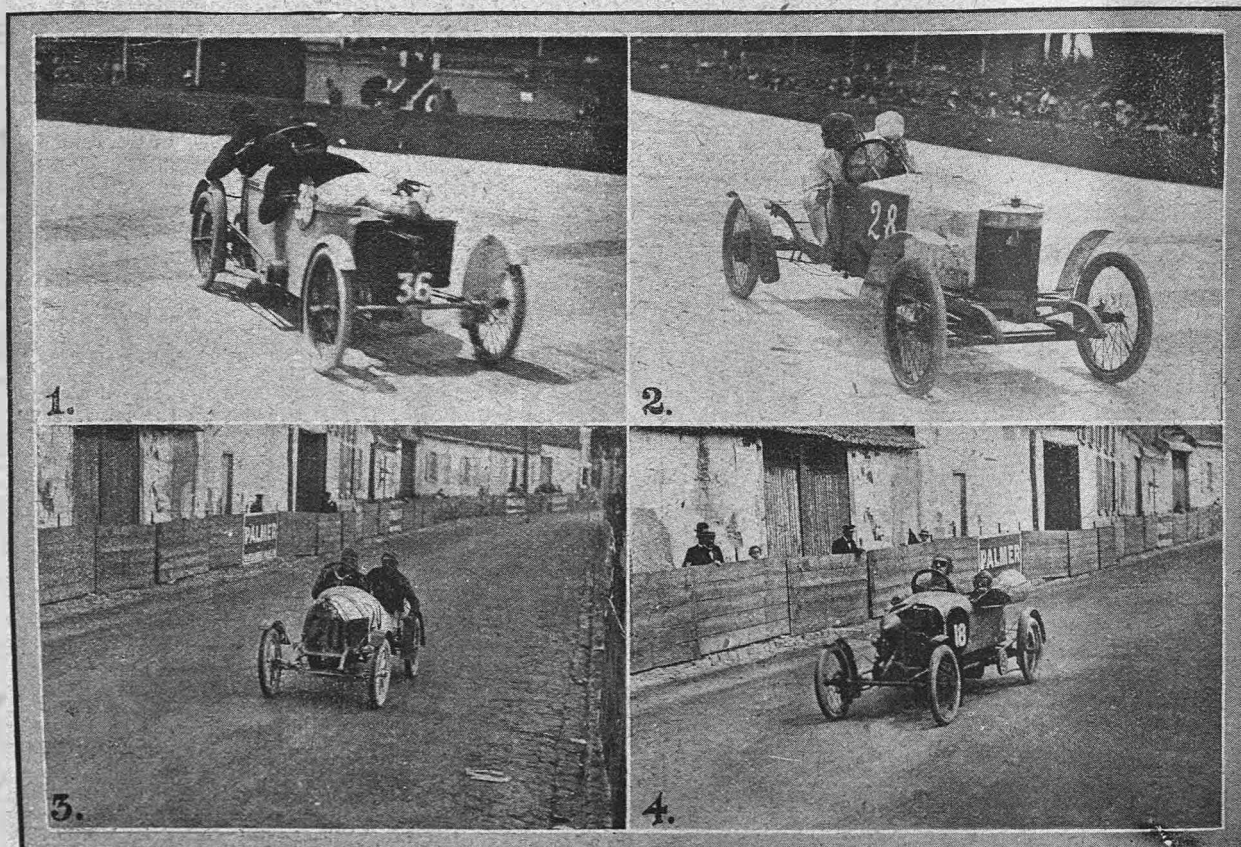
Mr. McMinnies, the winner of the sidecar class, made fastest time of the race. He lost a good deal of time owing to a puncture, while a truss rod broke and had to be patched up on the roadside. He

found the road surface very badly cut up in places, and this was particularly the case under the railway bridges before and after Boves. The village of Boves, too, was most trying, as the whole road surface was full of small potholes, hardly noticeable when travelling at touring speeds, but of such a nature that it was almost impossible to keep in the car when going at racing speeds. During the afternoon, Mr. Thomas, who was passenger in the Morgan, became possessed of a devouring thirst. He shouted to some of the spectators to give him something to drink. Wine bottles are always plentiful among a French crowd, and the drink was quickly handed up. Mr. McMinnies, in his excitement over the race, scouted the idea of wasting time over drinking, but when he saw the bottle to the passenger's lips the temptation was too great for him, and he also took a long gulp. The last few laps were taken at the highest possible speed. It was realized that the race could only be won by saving every fraction of a second, and, as results eventually proved, only a narrow margin remained in hand.

A Popular Win.

When the winner came back to the grand-stands he was seized by his compatriots, carried shoulder high, operated on by the cinematograph men and photographers, and officially congratulated.

M. Bourbeau, who wins the cyclecar class, had few incidents of note, only one stop being made to fill petrol and oil tanks. M. Canouel lost time by the breakage of an oil feed pipe by reason of the vibration. Towards the end of the race one of the Bedelias overturned while taking a sharp turn at an excessive speed. The driver and the passenger were not hurt, but the machine was badly damaged. Very few accidents occurred throughout the race.



Th: only cyclecar in the 750 c.c. class, Mr. Prevot's water-cooled Bedelia. 2. Mr. Samuelson and the Marlborough. 3. The Mathis. 4. Mr. Nash's G.N. passing through Boves, the passenger holding the bonnet.

HOW THE RACE WAS WON.

Attention to Detail and Careful Driving Necessary.

THE winning machines owe their success just as much to the minute attention to detail bestowed upon them previous to the race as to the excellent skill and judgment shown by their drivers. The Morgan was one mass of insulating tape, shellac, and varnish; the petrol and oil pipes were bound with tape, whilst nearly every nut was split-pinned or provided with a spring washer. The Bedelia looked workmanlike, and a close examination revealed the fact that M. Bourbeau, like Mr. McMinnies, was taking no risks so far as nuts and bolts were concerned. His machine was a vivid blue, like all its stable companions, had disc wheels, and special separate driving pulleys at the rear. It was evident from the masterly style, and the tremendous speed at which the Bedelias took the corners, especially that at the second railway bridge, that their drivers had availed themselves of every opportunity of practising. That "practice makes perfect" is generally taken as a maxim in everyday affairs, but in a big road race, such as the Grand Prix, it not only makes driving perfect, but is the only method of becoming proficient. Mr. McMinnies had been practising for about a week previously, trying each corner in different ways.

The acceleration of the Morgan was remarkable, and it took the hill on top gear at a tremendous speed. In the second round Mr. McMinnies had a puncture, which brought his position down from first to fifteenth; thereafter he steadily improved to twelfth, tenth, ninth, seventh, fifth, fourth, third and second, until he was first again in the last three laps, so that the performance of the machine was all the more noteworthy. The Violet-Bogey led for six laps, but slowed towards the finish and came in third. This was the machine with the very fast engine with aluminium pistons.

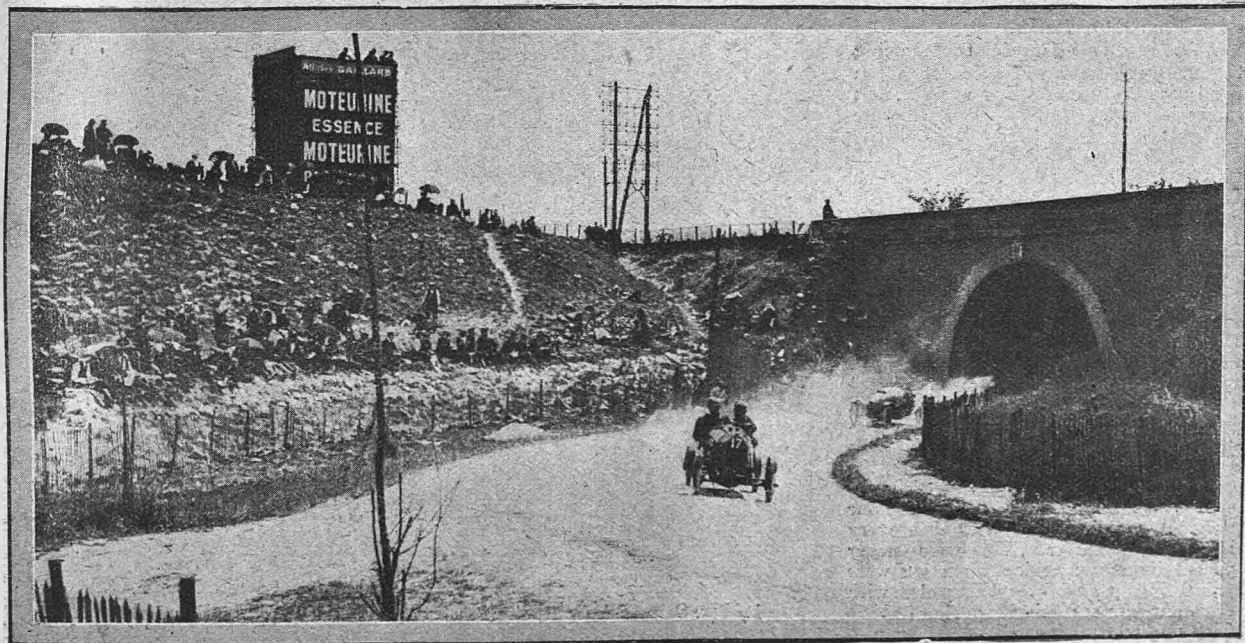
The disqualification of the Violet-Bogey, after it had finished third, demonstrates perhaps more than anything else that even the regulations, some of

which may appear tiresome at first sight, should be respected and carefully adhered to, otherwise the risk of disqualification has to be encountered. The organizers of an important event such as the Grand Prix do not incorporate any regulation without a reason—and a good one at that—so that it may be assumed that any breach, however trivial it may be, will have to be dealt with. Keeping this in mind, therefore, it is difficult to explain why one competitor, if he was out to win, and it must be presumed that he was, should start by contravening an important regulation, by carrying a lady passenger. Had he been fortunate enough to make fastest time he would undoubtedly have been disqualified. Of course we, as well as the spectators, admire the lady's courage in taking the mechanic's seat.

What course should, then, be followed after entering for a big road race? The first thing is to look round and select a suitable mechanic. A good mechanic is more than half the battle. All the hard work falls on the mechanic's shoulders; he carries out his instructions under the supervision of the driver. The latter cannot be expected to do much hard manual labour, such as taking off and replacing cylinders, and, of course, in the actual race itself, the driver has all his work cut out in piloting the machine, so that the passenger is often called upon to undertake various duties, such as regulating the oil supply, pumping pressure into the oil and petrol tanks, changing tyres, and a thousand-and-one other duties.

Corner work is another determining factor. A turn taken rashly may often end in disaster. In this respect the winner excelled himself. Every turn was taken with care, and no undue risks incurred. Not only did this minimize the risk of an upset, but it also saved the chassis from unnecessary strain.

It can be plainly seen, therefore, that a race, and the Grand Prix in particular, is not won by "blinding" madly round the course, but rather by careful driving with speed where safety permits.



A Violet-Bogey, followed by a Duo, at the second railway bridge, one of the most dangerous corners in the race

HOW I WON. The Winning Driver's Story of the Race.

(Exclusive to "The Cyclecar.")

IT is all over now, and, as I write my experiences of the great race, I am sitting at the wheel of my machine in THE CYCLECAR camp on the course at Boves. My machine has run perfectly, and great tribute is due to my mechanic, Mr. Frank Thomas, for the 10 days work he has put in on the machine. Every nut and bolt on the mechanism was spring-washed, taped and shellaced, and in many cases split pins were used in addition. A no-trouble run was obviously the only thing to be sought for, and it is to the attention to minute details that we owe our success. Since we started tuning-up operations three weeks ago in England we have never had a moment's trouble with the engine. The overhead-valve J.A.P. engine with water-cooled cylinders is a revelation. It will run all out for miles on end without losing a single ounce of tune, and one can drive on full throttle for a long distance and then snort up hills at just the same speed.

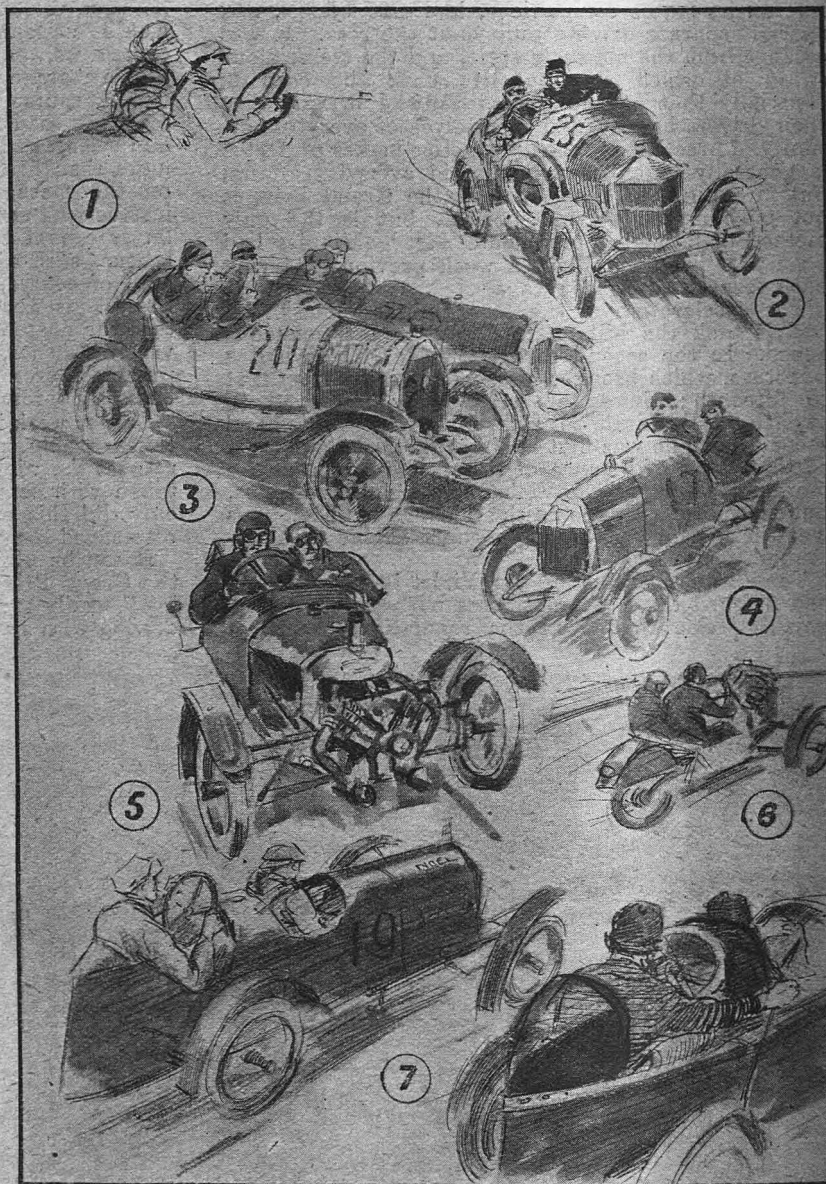
My impressions of the race? They are mixed, and not very interesting, I am afraid. At the start we shot away well in front of the two sidocar machines. For a lap-and-a-half we flew along at 50 m.p.h. with the throttle just one-half open. I could tell that the speed was high, because I could not make my passenger hear what I said, and I could not hear what he said. As we flew along we shrieked to each other about the lubrication. We could hardly see the drip-feed. Then a plug began to misfire; it got worse, and we were compelled to stop. A quick change was effected, because we carried our spare plugs in a special wooden case screwed on the dashboard. A special spanner had also been manufactured for extracting the right-hand plug, which is placed rather inaccessibly on the cylinder.

We were soon off again, experiencing the curious sensation of speed and high wind pressure when sitting upright, but losing it almost entirely when we were sitting low and sheltering behind the dashboard. We were still leading the field on position, but not on time, but on the next lap I found that, on taking the double bends under the bridge at Boves, I could not control the steering. After a few hundred yards I looked down, and, to my horror, discovered that the off front tyre was flat. The brakes were crashed on and the engine switched off, the while friend Thomas sprang lightly on to the road. It took us quite 12 mins. to replace the tube, for a piece of exhaust valve spring had completely inserted itself in it. In the meanwhile half-a-dozen machines passed us. We were sadly behind, and on arriving at the grand-stands we stopped to pick up another tube, and were told to increase our pace. We did so, and after that every lap seemed faster. We were never passed by any machine when we were going, but passed everything else with ease, our Morgan being capable of about 65 m.p.h. when driven all out. Our most exciting incident was when we passed one of the long, rakish-looking Bedelias on the narrow, winding cross road which

connects the two lips of the triangle. We were doing nearly 50, and had to drive on the grass to get past, although the Frenchmen sportingly gave us as much room as they could.

Signals from the tyre pits on subsequent laps revealed the fact that we were fifth. More speed was put on, but I never forced the engine unnecessarily and never took any risks on corners or

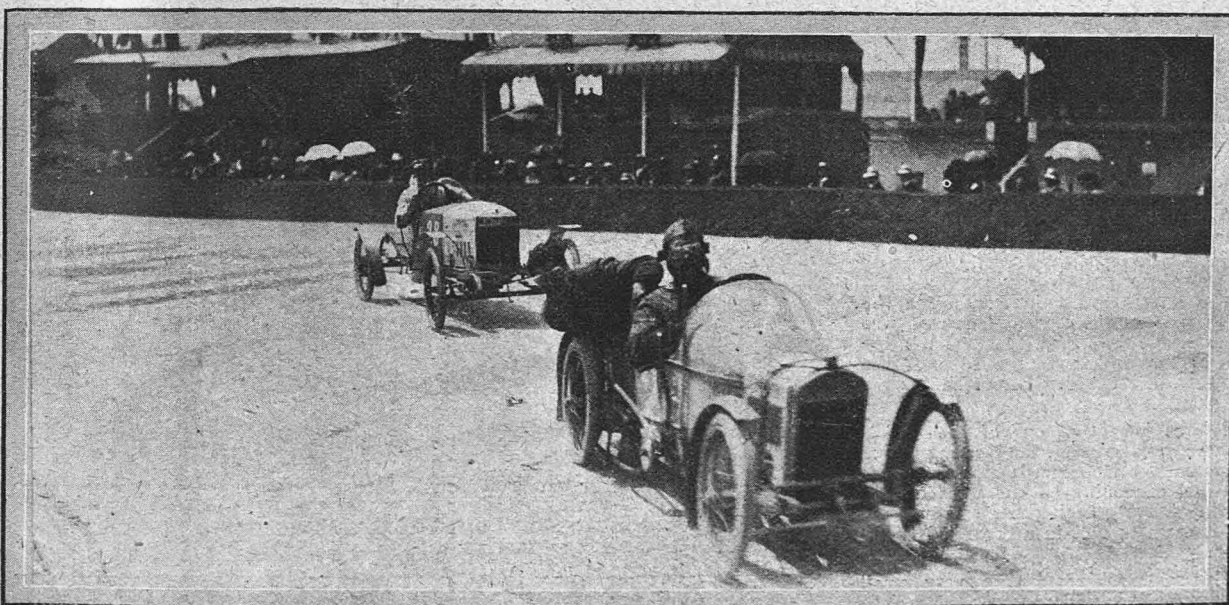
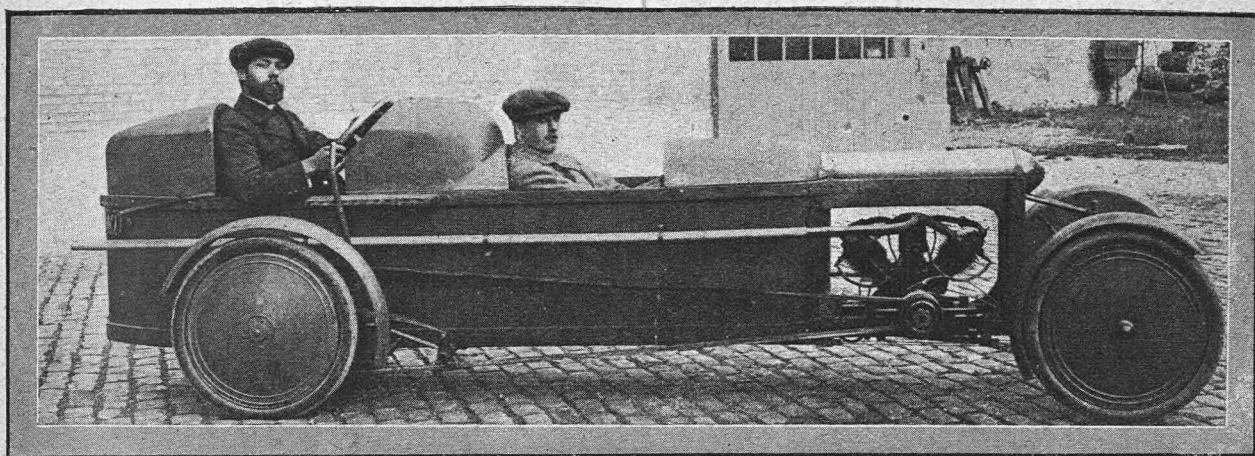
over bumps for fear of rattling the machine to pieces. Through Boves, with the exception of our record last lap, we never did more than 25 m.p.h., for the cars had torn the roads into little furrows, and we were quite at sea on them. On corners we were much slower than in practice, owing to their appallingly rough state. Our single back wheel leapt as it crossed the ruts, and we had several



INCIDENTS OF THE GRAND PRIX.

Some Hasty Impressions by our Artist on the Course.

1. Mr. Samuelson and his fair mechanician. 2. The Ronteix stops to change a tyre. 3. The Mathis passes the Violet-Bogey. 4. A Violet-Bogey comes in second and is disqualified. 5. Mr. McMinnies's Morgan, winner of the Grand Prix. 6. Mr. Mundy's Morgan, a wheel of which collapsed on the banking. 7. Mr. Bourbeau (Bedelia) passes the Noel.



Cyclecars in the Grand Prix : Top, the winning Bedelia. Note the long exhaust pipe sliding with the engine. Centre, Mr. W. G. McMinnies and the Morgan on which he made fastest time. Bottom, the Super followed by the Marlborough.

HOW I WON (contd.).

most alarming skids in consequence. Had the roads been good, I am certain that we could have cornered even faster than the four-wheelers. As it was, I think that they were considerably faster than us. It was on the long, straight stretches, in picking up, and on the winding cross road where we gained on the field.

After completing five or six laps I became horribly bored with the race. I doubted whether I could complete the course, but as the speed increased the laps seemed to decrease in length. I never had any sensation of excitement or trepidation. Every corner was negotiated with a comfortable margin of safety, and, even when passing other vehicles, I never felt the slightest degree of alarm. From my experiences in past T.T. motorcycle races I have found that the most difficult thing to learn in a road race is to estimate one's speed on corners. One travels at 60 m.p.h. for five or six miles and then has to slow down to 5 or 10 m.p.h. for a hairpin bend. The deception lies in the fact that one slows to 30 and imagines the speed about 15; then you calculate on this and slow to 15, thinking it to be in the neighbourhood of 10, and then—well, you nearly run off the road, or "visit the cabbages," as the Frenchmen say, and take the corner more carefully still next time.

When I finished I had really no idea where I was placed. A minute or two had to elapse before I could be placed first in both sidecar and cyclecar class, and then there was the usual battery of cameras and a cinematograph operator or two to be faced. At Boves mine host's daughter presented me with a bouquet, which, together with the wire spring which punctured our front tyre, I shall treasure to the end of my days. It was a great race, but I wish the machine was twice as fast and that there were three times as many competitors, so as to add to the excitement. But, in the meantime, Vive Morgan and vivra THE CYCLECAR! W. G. McMINNIES.

Some Incidents.

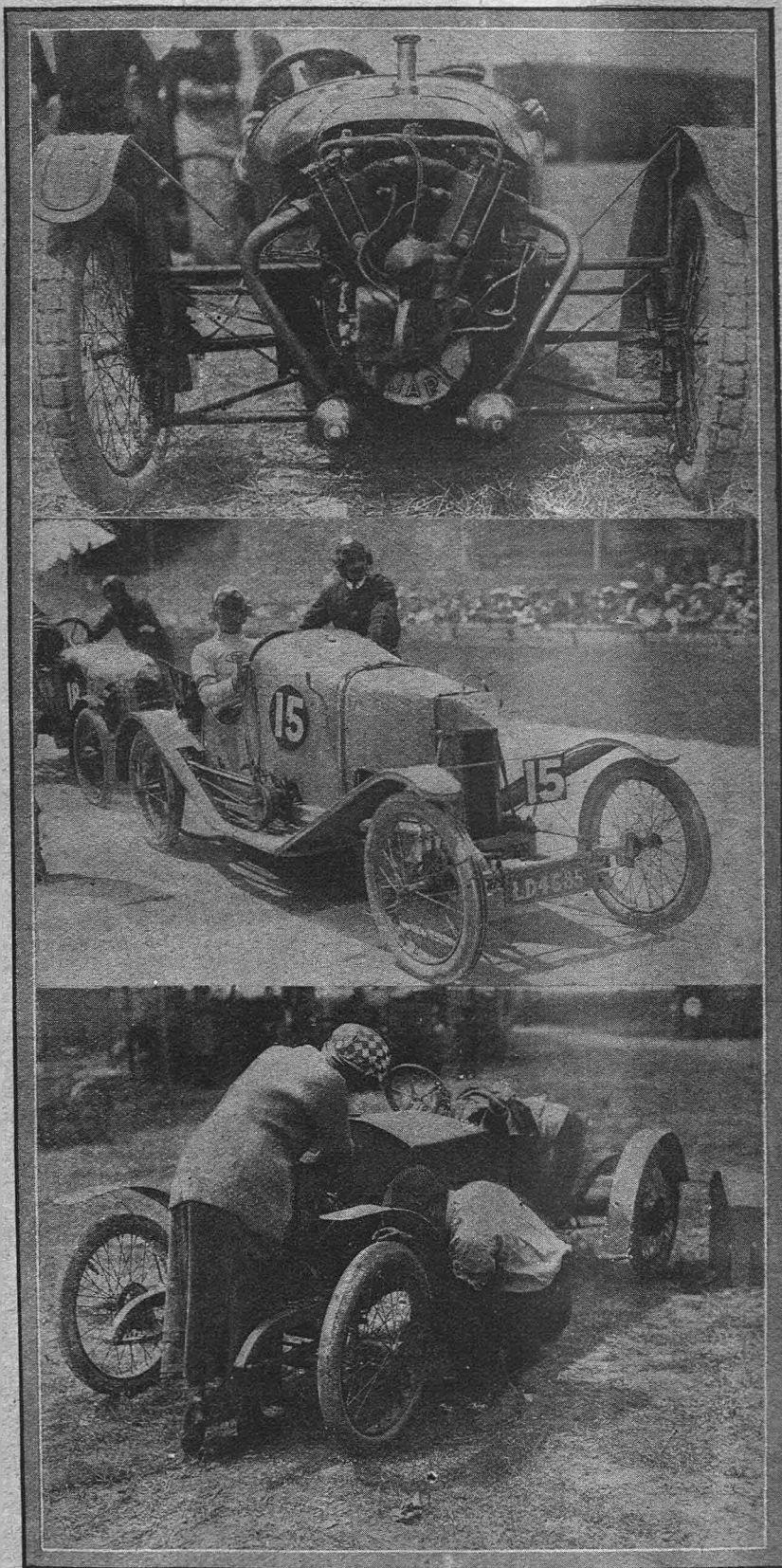
Mr. McMinnies's Morgan averaged 41.9 m.p.h. for the 162.9 miles. His last lap was the fastest. M. Bourbeau's Bedelia averaged 41.4 m.p.h.

The cyclecar race (for four-wheeled machines) was won on the 13th day of the month, in 1913, by No. 13. (M. Bourbeau, on the Bedelia). The motorcycle race was also won by No. 13.

The village street in Boves was the trying part of the course. The road was worn into ridges, and to make matters worse, the broken torque tube of the Sunbeam car the day before had dug a deep hole.

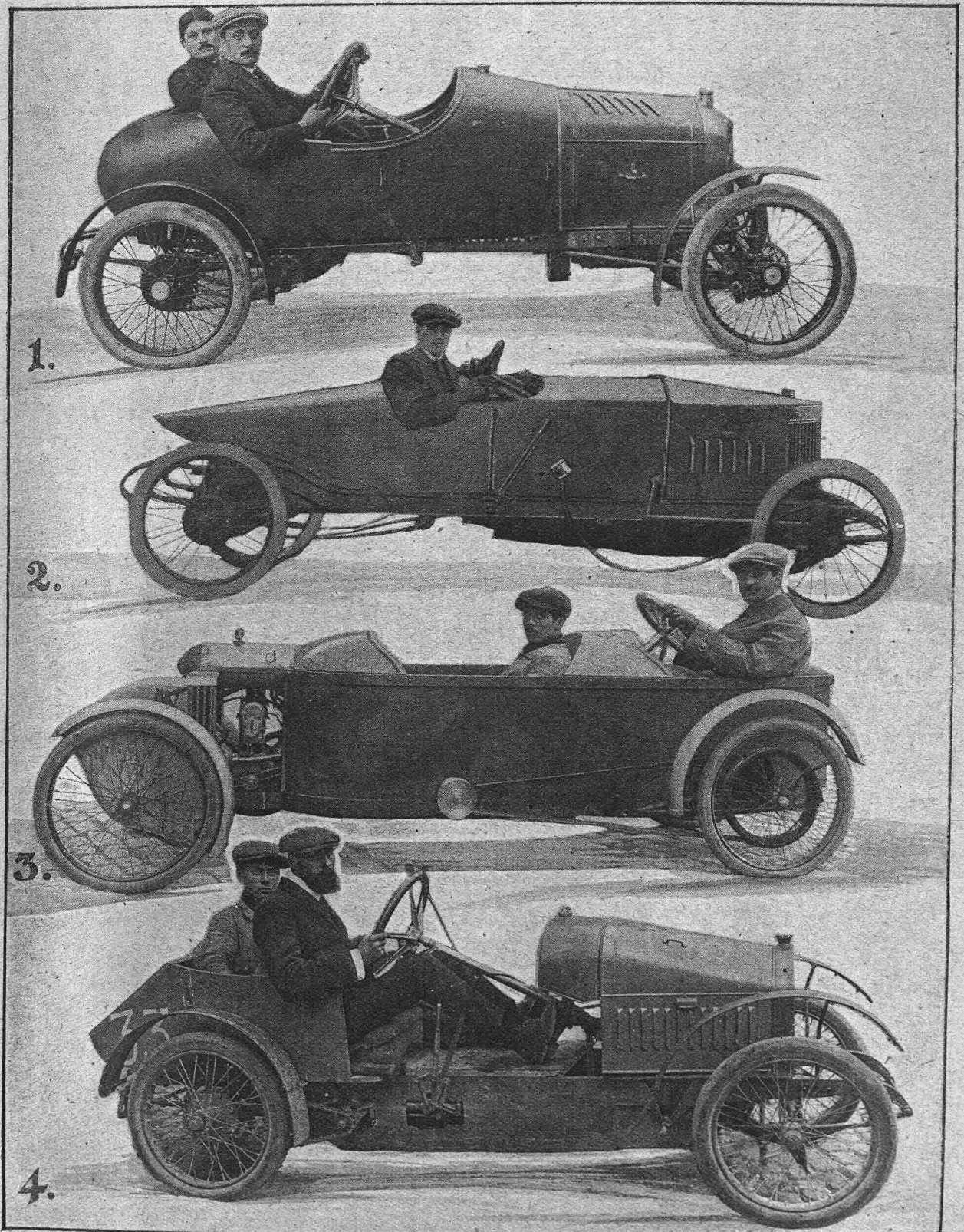
It was here that one of the Violet-Bogeys came to grief, the steering giving way and the machine dashing from side to side, cannoning off the wooden palisading keeping back the spectators, until it came to rest in a crumpled condition.

Several machines had a very small margin to bring them under the weight limit, and in order that this could be done we were surprised to see the officials allow the removal of exhaust pipes and valve caps!

**MACHINES AND DRIVERS IN THE GRAND PRIX.**

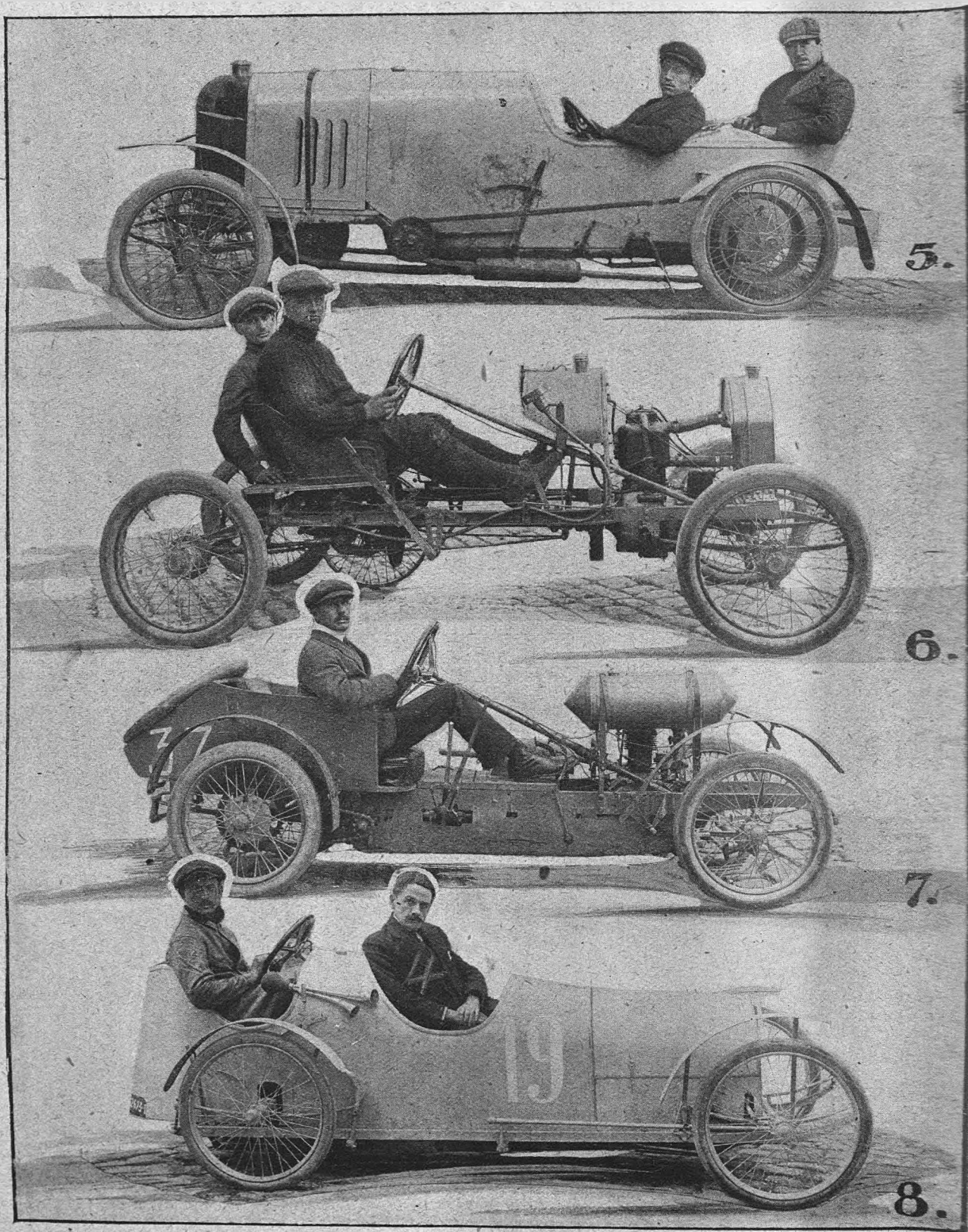
Top, the winning Morgan. Centre, Mr. de Peyrecave and the Duo, the first English machine in the four-wheel class. Bottom, Mr. Samuelson brings a fair mechanic, who proved very skilful in tuning up.

CYCLECARS IN THE GRAND PRIX.



1. The Ronteix driven by Jolibois. It has a very much drilled frame. 2. Mr. Samuelson's Marlborough, a private owner's machine, which has been lightened by the owner to bring it into the definition, but it is really a light car. 3. The Bedelia, the surprise of the Grand Prix, for it has a water-cooled 90 degrees twin-cylinder engine. 4. Mr. Foster, an English driver, and the Sphinx-Globe, the feature of which is flat belt drive and final chain drive to one rear wheel only.

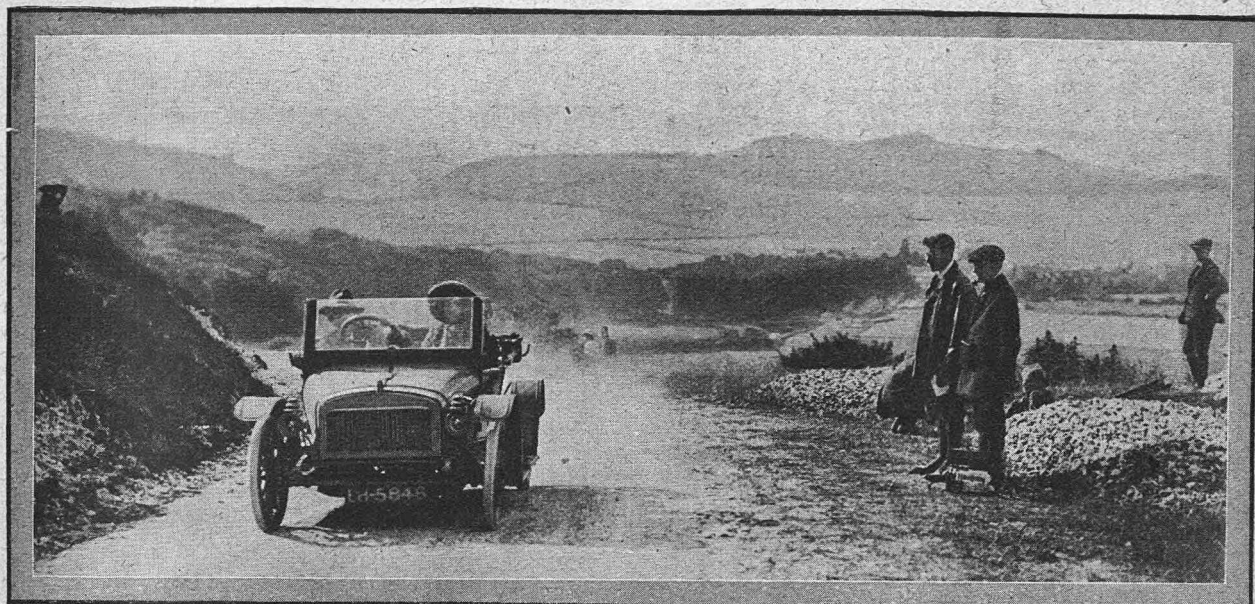
CYCLECARS IN THE GRAND PRIX.



5. Vigliotti's La Roulette. 6. Antony and the Violette-Bogey, which has a wonderful engine developing over 20 h.p., with aluminium pistons. 7. Canouel and the other Sphinx-Globe, this being the single-cylinder model. 8. Noel, a new designer, and the Noel cyclecar. Note the underslung frame. The other machines in the race have been illustrated in previous issues of "The Cyclecar."

HILL-CLIMBING ON TOP GEAR.

Our Test of a Crouch.



The Crouch at the summit of South Harting Hill.

ON the occasion of the cyclecar rally at Buxton we were considerably impressed by the performance of a privately owned Crouch carette, which carried two passengers in addition to the driver, and therefore we looked forward with interest to a personal trial of this make of machine.

A demonstration model was placed at our disposal by the London agents, Messrs. E. S. Thomas and Co., of 154B, Gt. Titchfield Street, W., and after a brief explanation as to controls, etc., we set out for the Westerham district in order to give the Crouch a thorough testing on different hills.

A few remarks on the machine itself may be of interest. The Crouch is a chain-driven machine with a water-cooled twin engine, 780 mm. by 90 mm. bore and stroke, and is set with the crank-shaft across the frame to the rear of the seats. Bolted up to the crankcase is a three-speed and reverse gearbox, a Ferodo lined cone clutch being situated between the two. The gearbox is of the ordinary sliding type, a separate lever operating the reverse. A single roller chain transmits the power to a differential live axle of novel design. The outer casing and inner shafts rotate together when proceeding in a straight line, but on turning a corner the inner shafts can rotate independently. The complete axle rotates in two ball bearings carried at the extremities of the springs. This arrangement of the transmission makes the machine extraordinarily efficient on top gear.

Low Frictional Losses.

It is difficult to imagine a transmission in which there is less friction loss, and the designers of the Crouch deserve particular credit for having boldly adopted an unconventional design, in order to deliver the maximum amount of engine power at the rear wheels.

Accessibility is a strong feature of the machine, and in spite of the fact that the engine and transmission are situated beneath the body the whole can be exposed

for inspection or adjustment in a few moments. This is effected by making the tail of the body detachable, and the seats can also be tilted forward.

With regard to the performance of the Crouch on the road, the first feature to impress us was the steering. This is of the rack-and-pinion variety, and is particularly easy to operate; at the same time road shocks do not appear to be communicated to the hand. An Amac carburetter is fitted, the control levers being mounted on a short column on the dash, and operated by the right hand; thus steering is practically effected entirely by the left hand. The fact that this could be done with every confidence at any speed will show that ease of steering is a strong feature.

The long gradual ascent from Bromley to the top of Westerham Hill gave us a foretaste of what the Crouch could do in the way of hill-climbing on top gear. The speed remained practically constant at 30 m.p.h., the engine running smoothly and evenly at this speed with a minimum of vibration.

The descent of Westerham Hill served as a test of the brakes, which are of the internal expanding type, and operate in the centre of the back axle. Both foot and hand brakes would hold the machine independently on any portion of the hill.

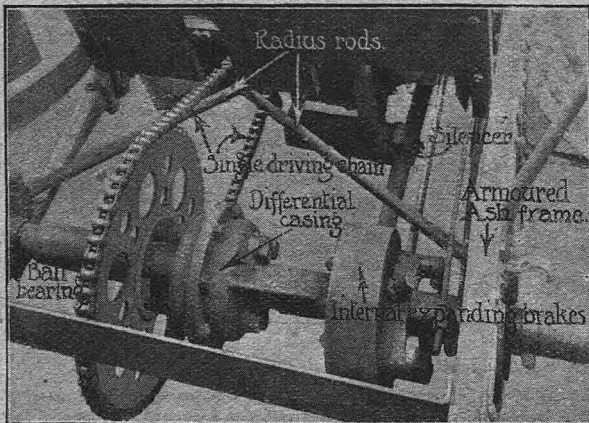
Climbing Steep Hills.

The steep little ascent into the village of Westerham was effected on top gear, and the road to the left was taken to Brasted. The nose of the Crouch was put up Brasted Hill, and shortly after the start second gear was required. First gear was soon called into requisition, but the corner proved too much for the engine, as we came to a standstill. We therefore descended to the foot and attempted the climb of the next hill to the east, which we believe is known as Knockholt. This hill is three times as long as Brasted and steeper in places, but the Crouch retrieved its reputation by climbing this with ease. The failure on Brasted was probably due to a partially choked jet, and not to any fault of the machine.

TEST OF A CROUCH (contd.).

Cyclecarists in Kent will know Titsey Hill, but few are acquainted with a rough chalk track which joins it at the top. This hill is known locally as "Old Chalkey," and in wet weather is practically unclimbable owing to the slippery nature of the surface.

We came upon this hill entirely by accident, and not knowing what was in store for us put the Crouch at it. For about half a mile we roared on second, and suddenly, near a quarry, the road disappeared beneath the branches of a large tree. Ducking beneath the leaves we were confronted with a steep and rough chalk bank; the passenger was dropped, and the Crouch climbed it easily on first speed, and much too fast to be comfortable, as there were 10 in. ruts and pot-holes all over the road. At the top of



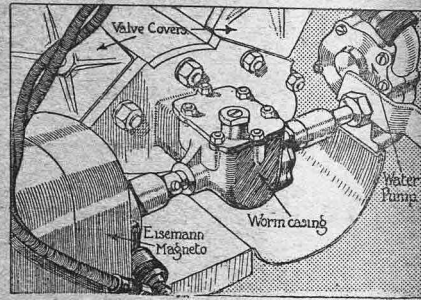
The back axle of the Crouch, showing the brakes and single driving chain.

this stretch we stopped to pick up the passenger, and the rest of the climb, over a mile long, was easily accomplished on first.

Thus the Crouch was the first cyclecar to effect the climb of "Old Chalkey," and those who know the hill will appreciate its performance.

After all this low gear work, with the engine racing, there was not the slightest sign of the water boiling. The cooling is extremely efficient, and it was never necessary to add water to the radiator; the latter is of generous size, and the water is kept in circulation by a rotary pump.

The final performance of the Crouch was particularly praiseworthy. Pol Hill, on the Sevenoaks road, was ascended on top gear, the speed never falling below 28 m.p.h. We passed every sidecar machine and

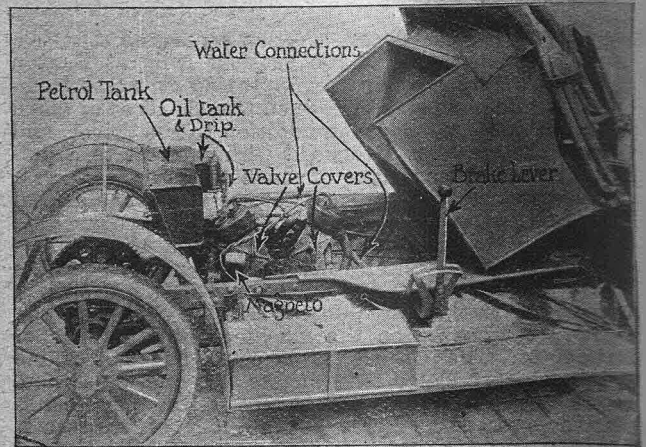


The worm-driven cross-shaft for driving the magneto and the water-circulating pump.

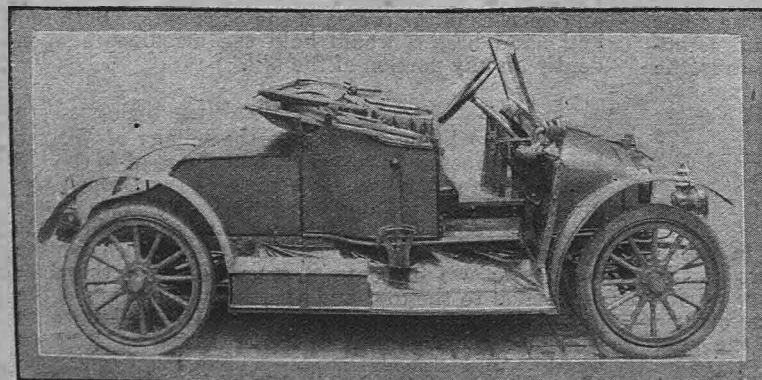
touched on the same gear the Crouch is not undergeared in any way. Ide Hill, in the neighbourhood of Sevenoaks, was also ascended at a minimum speed of 18 m.p.h. on second gear.

We completed over 150 miles without a single involuntary stop, and once we had found the proper adjustment of the carburetter levers starting was easy. The starting handle is situated on the near-side running board, a portion of which swings to one side for rotating the handle.

The magneto is a fixed point Eisemann, and while no drawback was noticed we believe still better results would be obtained with variable ignition. Lubrication is by gravity drip from an oil tank set behind the engine, and performs its work without any care or attention, it being only necessary to turn off



The accessibility of the engine and transmission. The tail is removed, and the body tilted forward.



The off side of the Crouch showing the easy access to the driver's seat, owing to the door provided.

the oil when the engine is stopped. Petrol consumption worked out at about 43 miles to the gallon.

The seating is very comfortable and roomy, there being accommodation for three average adults. The springing, by full elliptics forward and inverted half-elliptics at the rear, can scarcely be improved. The weight distribution is particularly well arranged, the machine holding the road to an exceptional degree. As a result the machine skids very little, and is very stable at speed. Access to the driver's seat is easy, as a door is fitted to the off side.

The price of the machine is £132 15s., with hood, screen, lamps, and tools. Delivery can be given from stock, the manufacturers being Messrs. Crouch Motors, Ltd., Coventry.

THOUGHTS AND OPINIONS.



*"The suggestions of to-day may
be the realities of to-morrow."*



CYCLECAR TRANSMISSION—THEORIES AND PRACTICE.

The Unnecessary Differential.

I should like to add some remarks to those already made in your paper on the subject of differentials for cyclecars. Having made very thorough investigations into this subject I can assure "Slipper Slide" that under certain conditions a differential is quite unnecessary, apart from any considerations of cost. These conditions are light weight and narrow wheel track. If we consider a cyclecar turning in a radius of, say, 15 ft. with a wheel track of 3 ft. we find that each wheel has to slip a distance of about $1\frac{1}{4}$ in. for every foot of travel. Surely this is not very serious when we consider the small weight on the tyres. If we take a cyclecar with this track and set it to turn in a 15 ft. radius and then push it, we shall find that it needs quite a small effort to move it. Even then, how often is a cyclecar called upon to turn in such a small radius? When travelling along ordinary roads the slip is quite negligible, and undoubtedly less than on a car fitted with a differential.

On going over a bump a differential will cause one wheel to suddenly accelerate, and when this wheel reaches the ground again, and has to be decelerated to the normal speed, wear of tyres must necessarily occur. By fitting a differential the weight of the back axle is considerably increased, and the extra unsprung weight still further adds to the wear on the tyres. Another disadvantage due to a differential is skidding in grease. This skidding is not noticeable with a cyclecar not so fitted.

After all, what are the disadvantages of a machine without a differential? Merely a very slight amount of extra tyre wear, and it is questionable whether such extra wear really does occur. Surely we can do without this complication on cyclecars if we expect to get a really good machine at a small price.

With regard to belt drive as a method of overcoming this difficulty, it seems strange economy to pay the extra price of two belts and their upkeep and to lose quite an appreciable amount of power in such a transmission, in order to get a slight extra mileage from the tyres. A large amount of the

driving shock due to a solid drive, can be saved by means of a simple and inexpensive shock absorber. Farnham. GEORGE L. HOZAPFEL, B.Sc., etc.

[We would rather wear belts than tyres. They cost very considerably less and are replaced in a few minutes without trouble.—ED. THE CYCLECAR.]

The Cheap Cyclecar and its Transmission.

The problem of a cheap cyclecar lies more or less round the gearbox or speed-changing device. With a change-speed gear, giving a wide range of ratios and a reverse, a moderate horse-powered engine can be used, with consequent lightness of other parts and a reduction in tax and fuel bill. No type of gear gives so much promise as the friction-disc drive, but can this type of gear be improved? I think it can. At present there is a grinding effect between the two discs, when the contact is of appreciable width, which is bound to reduce the efficiency of the gear. This can now be eliminated by using a number of extremely narrow suitable to the line of contact which it makes. The discs on the same shaft, each disc revolving at a speed cumulative effort of each disc is transmitted to the shaft in a simple manner without friction. This gives a wider range of speed than any gear yet made, also a reverse, and should hasten the production of a low-priced cyclecar.

W. E. BURGESS.

Aberbeeg.

Tyre Wear Extraordinary.

With reference to the letter headed "Tyre Wear Extraordinary" in the issue of THE CYCLECAR dated 2nd July, it is truly remarkable that the near-side tyres should wear quicker than those on the offside. I do not think it is the differential that causes this, since I have seen this curious phenomenon on many belt-driven cyclecars. The best reason I can give for this extraordinary tyre wear is that since the cyclecar is driven on the left side of the road, which invariably slopes down from the middle of the road to the gutter, a great proportion of its weight is thrown on the near-side wheels, and thus these tyres wear out quicker than those on the off side.

W.P.S.



CAUGHT
IN A
"TRAP."

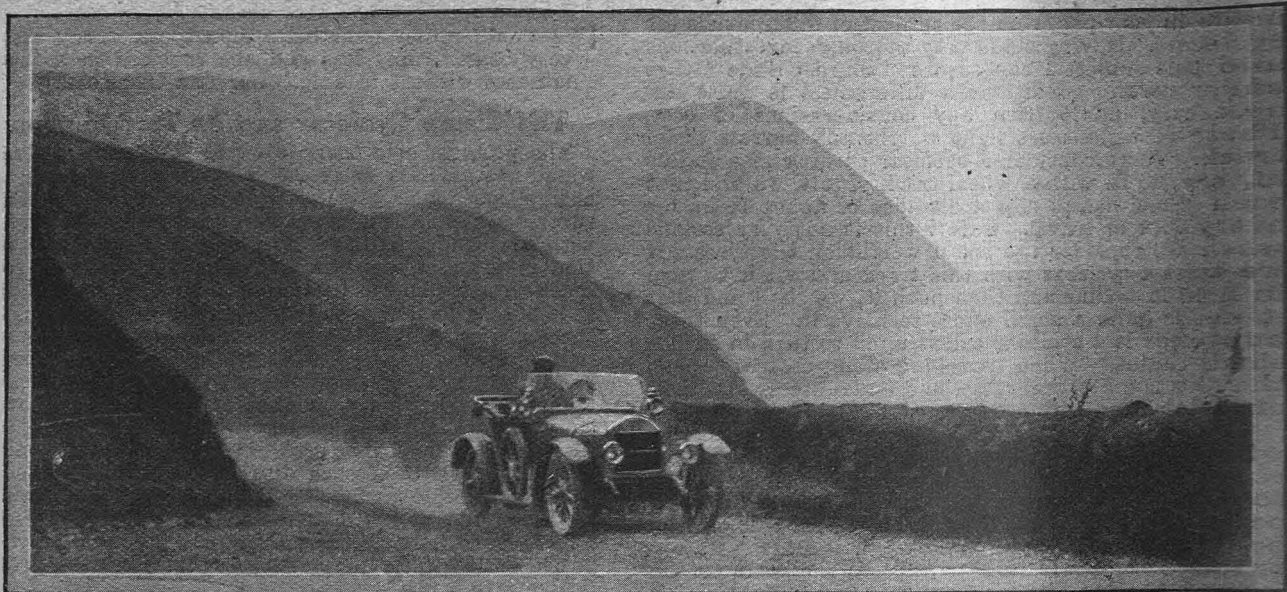
The spot is Barnes Bridge, on the road from Hammersmith to Richmond Park. It seems almost incredible that cars should be stopped at such a dangerous spot as this narrow and often congested bridge, but the photograph was taken after the chauffeur had been stopped last Wednesday morning. The policeman is waiting for the plain clothes men to come up.

Single Belt Drive. Is it More Efficient than Transmission with Two Belts?

I am a great lover of belt drive for cyclecars, but at the same time I am rather doubtful about the generally recognized advantages of double over single belt drive. I think I may safely say that it is now quite taken for granted that the necessary compensating action of the double drive is allowed for in belt slip. This, in itself, cannot be good for any belts, with which I think everybody will agree. Now,

good, only the engine has the extra work as before, but the tyres the extra wear.

With single belt-drive, if one drops a belt, one very soon knows it; with double drive, one drives on in blissful ignorance of being one belt short. I should also think that with single belt drive to one back wheel, we should have the same freedom from skidding that we have with the sidecar outfit. Length of



Mr. Harry Long climbing Countisbury Hill, the steep ascent out of Lynmouth, in North Devon, in the course of his round-the-coast drive on a Singer cyclecar.

it seems to me that this slip takes place not only on corners but practically always owing to it being almost impossible to get the respective gear ratios identical, and supposing this could be managed, a perfectly straight course cannot always be followed, even on a perfectly straight road. Consequently, I contend that, to all intents and purposes, the drive is always being taken by one belt only at a time, and that this one belt, whichever it may be, has the extra work of forcing the other belt to slip on its pulley.

What a tremendous amount of power must be absorbed in doing this! These remarks apply to cases where one belt has a similar tension to the other. Where one belt is tighter than the other, it seems to me that the drive which has the slacker belt will have all the slipping, irrespective of whether the road wheel on that side is called upon to revolve slower or faster than its confrere. In the first case the belts take the pull alternately, in the latter case one has it all the time, but in both cases only one belt does the work. If both belts are too tight to slip, then the tyres have to, and my argument still holds

drive and size of belts and pulleys being equal, my contention amounts to this: that with single belt drive the following advantages over double belt drive are obtained: machine cheaper to manufacture in first case, bigger mileage per belt, bigger mileage per tyre, more speed and general efficiency, and freedom from skidding.

A. G. MEATS.

Cheltenham.

[Instead of there being a tremendous loss of power through the theoretical slip of the belts, the loss is very little indeed, no more than that caused by the slip of the tyres on inequalities of road surface, and probably less. That the wear is very slight can be demonstrated by a pair of belts that we have in use, which have completed nearly 6000 miles and are not worn 1-64th in. On two occasions that a fastener broke, we knew the fact immediately. The loss of belts from breaking is a more or less imaginary complaint. On the other hand, if a single belt is used, it would have to be very strong and wide, like the single flat belt drive of the Globe.—ED. THE CYCLECAR.]

A Three-seated Cyclecar.

In your issue of 9th July "F.J.A." complains that he cannot find a cyclecar with sufficient room to take his wife and children out for a drive. Whilst at Messrs. Palmer's Garage, Tooting, a short time ago I was shown a Duo cyclecar with a body specially built to overcome this difficulty. It had a very neat seat, built behind the ordinary one, and was capable of being covered up altogether, if necessary.

Bournemouth.

REGINALD C. STONE.

B40

The Precise Overall Width.

May I urge upon cyclecar makers advertising in your excellent paper the necessity for stating the extreme "clearance track" of their machines? It is no use stating the wheel track, because the mudguards and footboards have also to be considered. It is useless for anyone to waste time inspecting a cyclecar which requires a clearance of, say, 5 ft. 3 in., if your suburban house only admits of one of 4 ft. 9 in.

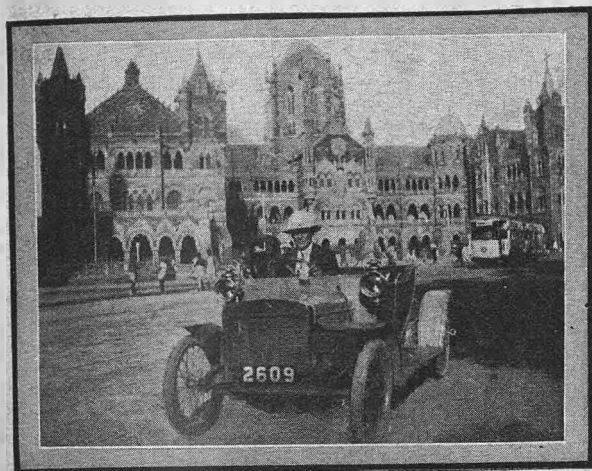
London, N.W.

A WOULD-BE CYCLECARIST.

THOUGHTS AND OPINIONS (contd.).

A G.W.K. in India.

Although I can hardly claim to be one of the pioneers of the cyclecar movement, I drove my G.W.K. all over England early in 1912, when there were very few cycle-



A G.W.K. in India, photographed outside the Victoria Station, one of the finest buildings in Bombay.

cars about, and it was the centre of attraction wherever I stopped. I brought it out to India in September last and am delighted with the way it has run. Unfortunately I am at present stationed in a place where there are no roads, except those actually in the station, and therefore cannot indulge in a run of more than five miles, but I am loath to sell the machine, and occasionally take it by train to other places where I can obtain a good, long run. On a recent visit to Bombay, I took the machine by train to Nasik, a place about 120 miles from Bombay, and drove it down to the latter town. This was in May, the very hottest time of the year out here, and it says a lot for the cooling system that the engine did not overheat to any great extent.

The accompanying photograph was taken in front of the Victoria Station in Bombay. The G.W.K. attracts a lot of attention, for cyclecars are not often seen in India. The other day I saw a Humberette, belonging to the Bombay Cycle and Motor Agency. From inquiries I found that this machine had not yet been tried over any considerable distance, so that it will be interesting to see how an air-cooled engine on a cyclecar will behave out here. They have proved quite satisfactory on motorcycles, as I know from experience, but I should think they would run hot on a cyclecar in hot weather.

I have taken in *THE CYCLECAR* ever since it was started, and read it each week with great interest from cover to cover. I wish advertisers would give

the prices of their goods more often than they do, especially in the case of accessories. I often see odd fittings that I would like to write home for, if I only knew the price. It is such a long business writing to find out the price before being able to place an order. The charges of most of the motor agents out here are so high that many of us would write home direct for things if the price were only known. Wishing all success to your excellent paper.

G.W.K.
Bina, India.

[Judging by the experiences of cyclecarists in other warm climates, air-cooled engines in cyclecars give excellent results.—ED. *THE CYCLECAR*.]

Cyclecars Weighing Over 9 cwt.!

I have read with great interest the results of the cyclecar hill-climb; the one thing that is worrying me is, what is a cyclecar? I thought chassis and body weight combined should not exceed 7 cwt., yet I find that the Singer weighed 11 cwt. 1 qr., Mr. Wood's G.W.K. 9 cwt. 2 qr. 7 lb., Mr. Bradley's Duo 9 cwt. 3 qr., and Lieut. L. Hook's G.W.K. 10 cwt. 1 qr. Now, one reason I have kept out of competitions is that I thought I was over weight. I also remember that when the Singer first raced it was disqualified because it was 30 lb. over weight. If the record-breaking Singer cyclecar only just comes under the limit (its chassis being drilled and lightened), how is it that a standard Singer is able to compete in cyclecar competitions. I personally think it would be best if the A.-C.U. (or whoever the governing body is going to be) were to ignore weight. I do not think the so-called lightweights really last, and, after all, how many lightweight cyclecars are there? I may add I have had a "Tweenie" in use for the last four years, and the only repairs I have had are one new chain and one new sprocket. I greatly regret I am out as regards weight,



Picnicking in the Forest of Dean, and a charming spot for an al-fresco meal, too. Mr. W. J. Bladder, of Worcester, who forwards the photograph, states that it was taken during a halt for tea on a run with a Humberette and a Rudge-Multi through Malvern, Ledbury and Ross, returning by Cinderford, Westbury and Gloucester, a very charming round of about 80 to 100 miles.

but may I not compete in these trials if others are allowed?

H. SENOJ.

London, S.E.

[Our correspondent evidently is not aware that a cyclecar which has a detachable body has no limit set to its overall weight, provided the chassis complete with tyres does not exceed 6 cwt.—ED. *THE CYCLECAR*.]

THOUGHTS AND OPINIONS (contd.).

Criticism of the Low Formula for Hill Climbs.

In regard to the formula invented by Dr. Low, it has been so carefully thought out, is so elaborate, and I am so little of a mathematician, that I do not venture to theorize upon it. But it is interesting to compare the results with those of the ordinary formula—

$$W$$

$$C \times T^2$$

Undoubtedly the latter is not altogether satisfactory. It gives too much importance to weight and too little, perhaps, to cylindrical capacity. If, however, we allow a possible error of 50 per cent., even Dr. Low, I think, will admit that the allowance is generous. Now the marks obtained at South Harting under Dr. Low's formula, compared with the

$$W$$

$$C \times T^2$$

marks obtainable under the formula show errors of over 400 per cent. Take the three first machines on time and the three first on formula (Mr. McMinnies's Morgan appears in both), and we obtain roughly the following results:—

Cyclecar.	Time.	On Dr. Low's Form.	On Old Form.
	M. S.	Fig. of Merit.	Fig. of Merit.
Chota ...	2 29	209	60
Cycar ...	4 4	78	36
Morgan (two-seater) ...	1 43	46	92
G.N. ...	1 50	32	74
Morgan (monocar) ...	1 33	32	75

To take one instance. According to Dr. Low's formula, the Cycar obtains twice as many marks as the G.N.; according to the old formula, it obtains only half as many! There is a still greater discrepancy between some of the other figures. Can Dr. Low explain? Taking an extreme case, could anything beat

$$W$$

 a machine of 200 c.c., as the formula—

$$(200-200)^2 \times T^2$$

would then become infinity.

Stoke Lacey.

H. GEORGE MORGAN.

Dr. Low Replies.

We have asked Dr. Low to answer Mr. Morgan's query. It should be pointed out that the figure of merit in the case of the Chota should be 52 instead of 209. Dr. Low writes:—

If the constants are chosen correctly, and it is quite easy to produce an equation to give these constants, if necessary, the formula gives very satisfactory figures indeed. It is quite ridiculous to speak of taking the constant K as equal to 200, because it has been clearly stated that the constants are chosen to suit the length of the hill and the capacities of the machines. It would be easy to regulate the constants by means of another formula, but it is by no means necessary if even reasonable care is taken in selecting the constants, so that it is absurd to make comparisons based on ridiculous assumptions. As a matter of fact the discrepancies referred to by Mr. Morgan are actually far greater in the case of the old formula shown by him than they are in my own, and the results on my formula, when correctly worked out, are a magnificent advertisement for it, being what one's commonsense would lead one to expect after a careful examination. If the results on my formula are plotted against calculated horse-power they provide some most valuable data. On the old formula Morgan machines would have won all through, but in spite of the excellence of this make I do not think it can be denied that the relative order of merit as seen from my formula is perfectly just. It is ridiculous in the extreme to use the same formula for long hills as

for short, so that the time factor is allowed to absolutely control everything, and it is equally absurd to neglect the fact that a small capacity engine making not such a very much slower climb than one of more than double the capacity certainly deserves to score on formula. A. M. Low, A.C.G.I., D.Sc., etc.

[The Low formula is so obviously better than the old motorcycle one that we are at a loss to understand the attempt on the part of a contemporary to prove the reverse, at the same time practically admitting that the new formula is an improvement. Competition secretaries are indebted to Dr. Low for its production, and we expect it will come into general use.—ED. THE CYCLECAR.]

A Royal Commission Report.

What has happened to the new class of vehicle of under 5 hp., which, by the report of the Royal Commission on Taxation, was to be taxed at £1? It was not adopted last year because the report was issued too late for such an innovation. I thought it was to come into operation this year, but there are no signs of it, and at present the authorities have no intention of adopting it. R.P.M.

Wanted—Cheap Cyclecars.

Although the advent of cyclecars is a tardy acknowledgment of the rights of ordinary people (and not rich road-hogs only) to the benefits of mechanical traction, the manufacturers still give only a grudging concession to their demands, and persistently refuse to bring down the price to £100, which the democratic Americans have done for a long time past. With truly British snobbery and adulation of rich aristocrats, even the cheapest cyclecars are still made to appeal to them by means of cushions and other luxurious appointments, utterly ignoring the demands of the general public (at least nine-tenths of the population), who simply require the lightest and simplest vehicle possible, a motorcycle with three wheels instead of two. If in America, where labour is twice as costly as here, motors can be produced at £50, why is it that English manufacturers still keep their prices at £120, or thereabouts, instead of being enterprising and generous enough to turn out a really popular cyclecar at once? Rye. E. A. PHIPSON.

[Is not the A.C. at £75 all on getting very near the mark?—ED. THE CYCLECAR.]

Should French Chalk be Used in Tyres?

While purchasing at a depot in Newcastle recently I was presented with a book on tyres entitled "How Can I Reduce My Tyre Bill?" A few days later another book entitled "A Book for Drivers" was given to me at another tyre depot. Now, both deal with the care, detaching, fitting, etc., of tyres, but each contradicts the other. The former book says, with regard to using french chalk in tyres, "The more chalk the better, as it prevents heating of the tube whilst running," whilst previously it advocates putting two handfuls of chalk in the cover. Now, in the latter book, under the heading of "Chalk," the following appears: "On no account put chalk in the covers, for it will accumulate and harden, and will puncture the tube." Unfortunately I read the former first and bought a 10 lb. bag of french chalk, and have taken my tyres off and positively smothered them with it, but now do not know whether to shake it all out again or not. I certainly do not wish to puncture my inner tubes, as three out of the four are brand new and have never been punctured. Can any of your readers help me? WILLIAM WALLACE.

North Shields.

[We should leave the chalk in.—ED. THE CYCLECAR.]