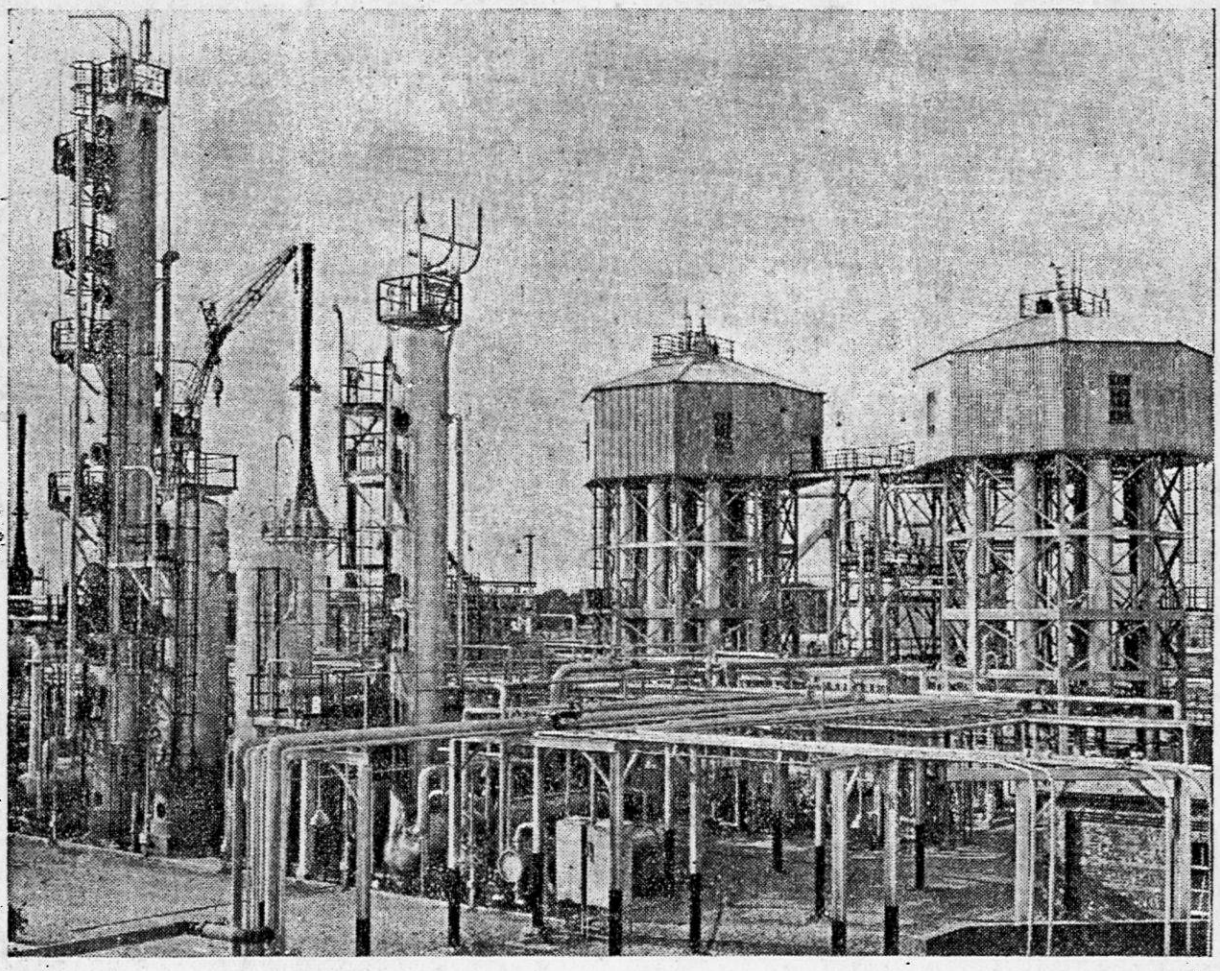
FEBRUARY, 1953 MONTHLY 4D

POWER & PEDAL

The Journal of the Cyclemotor



THE ESSO "CAT-CRACKER" REFINERY AT FAWLEY, HANTS

Focus on Oils—*page* 10

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This Day and Age

WE are now well into the second half of the Twentieth Century, the atomic age, jet age, machine age, the age of the supersonic plane, the washing machine, the automatic toast rack, the super bomb, radar and the electric razor. We are technically the most advanced and experienced nation in the world. Our small children take it for granted that they can touch a switch to have light, heat or power at their service. We have everything—except powered personal transport.

Every working day millions of our countrymen pedal against wind, rain and gradient from their homes to their places of work and back, the only alternative they can see being to walk to bus stops or railway stations and stand in queues. This is bad enough a waste of the nation's time and energy anyway, but the worst of it is that it is taken for granted, as if some Divine Ordinance had so decreed and as if there were really no alternative. Actually it is no more logical for the workman to pedal to his factory than it would be for him to operate his lathe by tread-mill when he got there, but no-one would suggest that human energy should be wasted in this way to-day.

We are not speaking of the sporting or touring cyclist who rides for pleasure in the same way as others play football or run marathon races or walk from London to Brighton in more time and for more energy than it would take to ride. Pleasure cycling is a splendid and health-giving pastime and as such is to be encouraged, but it is no more a modern means of utilitarian transport than is horse riding or roller skating. The man who needs to get to and from in the minimum of time, with the minimum of effort and at a minimum in cost must have a means of transport that is always at his personal service, cheap to buy and run, light and mobile enough to be independent of minor troubles and small enough to be parked anywhere and stored easily in or at his home.

The answer to this is the combination of power and pedals, the cyclemotor or autocycle.

There is no one reason for this anachronism of hard-labour-on-wheels. Several factors have to be be taken into consideration. Cost, we consider, is not yet an important consideration since a cyclemotor soon pays for itself in its economy running. The attitude of any and every British Government to the people is too reminiscent of the classic nursemaids' dictum "Find out what Johnnie's doing and stop him" and discourages the natural growth of powered cycling by a mass of petty nuisance in registration, "L" plates, driving licences and so forth; but this too can be endured by a nation all too accustomed to life by-permission-of some bureaucrat or other. The biggest single factor in the comparatively small numbers of these vehicles in Britain is, in our view, that no-one has yet made any serious attempt to sell them.

The sour remark of one journalist we overheard at the Earl's Court Show that "This Trade is not and never has been publicity conscious" was echoed by every reporter. National press men, the B.B.C. folks and the technical periodical boys all felt the same way about it and, despite the truly heroic efforts of the Press Officer and his devoted staff, many opportunities for publicity were lost and many potential friends turned away.

The manufacturers of cyclemotors and the cycles and equipments that go with them have a new and tremendous opportunity to establish a new and almost infinitely expandable market. It would be a great pity if they remained content with the casual selling methods of the existing cycle and motor cycle market.

Real publicity means more than this. It includes finding the individual people in the market, selling them the stuff *they want*, not what the manufacturer thinks they ought to want, keeping them happy with service and interest *after* the sale is made, and continuously informing the potentially interested public about available products and prices through the co-operation of all such media as deal in the required field. *Power and Pedal* is anxious to perform this service in the cyclemotor and autocycle fields, and we ask makers and public to help us by letting us know what is available and what is wanted. Our pages are open, both ways.

COMMENT

by CLIP-ON

That Spring Feeling

IT is no use telling me that the worst is yet to come, that we will have floods in February, gales in March, snow in April and frost in May (Killed all the fruit trees, old man). I never learn by the experience and as soon as the New Year is old enough to reveal that the days are lengthening I start thinking about Spring and even Summer. The sap of imagination starts stirring long before reality and the wheels of the steed of the moment begin once again to assume the qualities of a magic carpet.

What all this amounts to is that, to a greater or lesser degree according to personal inclination, the planning and buying for next Summer's wanderings takes place now. I have always wondered why dealers and agents do not run special window and advertising displays in the first two months of the year. It is the obvious time and someone should try out the idea first. Hire Purchase deals now for delivery at Easter, planned ahead overhauls, special orders in maps, clothing and so forth for later delivery, all would provide good business for the trader and better service for the user.

The Cycle-Motor Era

It is always pleasing to see some mention of cyclemotors in the lay press, although we often approach such articles with fear in our hearts. A good professional journalist can write about any subject if the material is put before him, but his often pontifical remarks carry a weight out of all proportion to his knowledge of the point at issue. There was a little of that trouble in Raymond Parmenter's article under the above head in the *Spectator* of December 12th. He writes interestingly and easily and on the whole favourably, about the advent of the cyclemotor as a social phenomenon but when he gets into technical matters the touch of the *maestro* is less sure.

For instance, he raises once again the old Aunt Sally of weight high up being a danger because, blessed but misunderstood phrase, it "raises the centre of gravity" of the machine. Cannot a little ordinary common sense be applied to settle this problem once and for all? The ordinary cyclist may weigh anything from 10 to 15 stone and most of that weight is well *above* the highest point to which any motor could be clipped on to a cycle, as well as two thirds of it being over the back wheel. Does Mr. Parmenter, or anyone else for that matter, seriously suggest that the heavier rider is a greater danger than the lighter because his c-of-g is higher? If cycles were all that unstable they could not be ridden downhill at all!

Cycles or Motors

The Chief Inspector of Traffic Police in Rotterdam has gone on record as saying that the place of the cyclemotor should not be on the main (car) road at all, a statement that has naturally aroused plenty of controversy in his native land.

The idea that the fitting of a 50 c.c. (or less) engine to a bicycle makes it into a motor vehicle with all the rights and responsibilities of such is, of course, now peculiar to Britain, every other country having accepted the principle of cyclemotorists remaining cyclists (Note: remind Clip-on to emigrate sometime—ED), but the idea of cyclepaths being the place for us is rather startling. Conditions in Holland are, of course, very different from those obtaining anywhere in this country, for instance there are more cyclemotors than cars on Dutch roads, and opponents of the Chief Inspector's line suggest that the majority should democratically take precedence and make the cars conform to cyclemotor speeds to keep down the accident rate! All the same there does seem to be a case for either granting the cyclemotorists the freedom of their pedal days again or, as was suggested in part by the Royal Ministry of Transport's Committee on Road Safety, making a separate classification for such vehicles. Some change is certainly overdue and should be made before the situation gets out of hand.

Does Price Count?

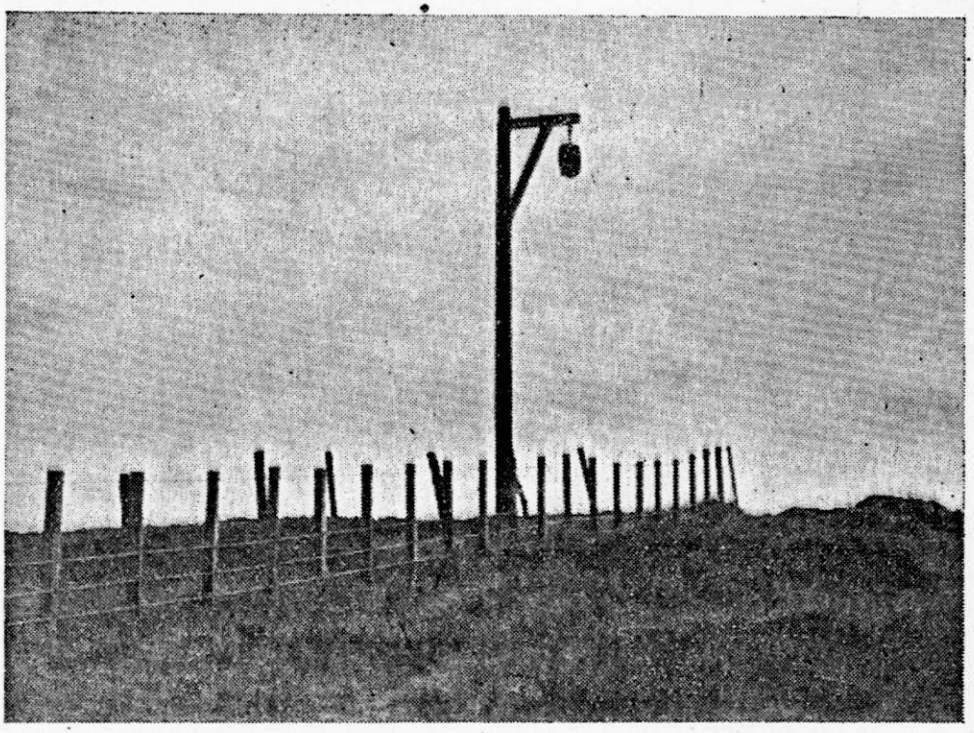
Several correspondents have written in to suggest that I dismissed price too lightly in my comments after the Show. One even says I was deceiving myself and others by remarking that interest in the various engine makers' stands did not vary with the prices of their products and asks if I remember the crowds round a certain gold plated Daimler at Earl's Court a couple of Motor Shows back.

It is a neat point and I give the writer *touché* for the prick of his foil, but even so the test can be carried farther than the stands at an exhibition. From observations on the road as well as figures to hand it is clear that the cheapest machine on our market is not quite the most numerous in use while, at the other extreme, the dearest at well

"WINTER'S GIBBET"

This month's guinea picture is from Mr. Joseph Durey of Newcastle-on-Tyne.

Dull Summer day F4.5 with deep yellow filter, 50th sec. with "Ilford" pan. film.



Winter's Gibbet stands high up on the moors near Elsdon in Northumberland overlooking the scene of the brutal murder of Old Margaret Crozier, for which crime William Winter and two female accomplices were hanged at the West Gate, Newcastle, in 1792. *As was the custom, Winter's body was hung in chains on the gibbet near the scene and when the body rotted away a wooden effigy was hung up in its place. Unfortunately for the gibbet, however, the country-folk thereabouts believed that toothache could be cured by rubbing the tooth with chips from it, and by* 1850 *only a stump remained, and the present one, with a carving in wood of Winter's head, was erected as a reminder to the cosh boys of the period.*

over twice the cost, is quite surprisingly popular. In between these there is a range of models and prices with varying sales success. Admittedly the public taste is not always accountable in logic and it is even true that many a good thing has gone down and out while less deserving competitors scooped the market, but on the whole it is the selling that counts when a number of machines are available to a public that has no very deep knowledge of the technical good and bad points.

Few buyers have made up their own minds unassisted by the time they pay their money and take someone else's choice. It is advertising to the potential buyer, good salesmanship by the dealer and the quoted experiences of the man next door that make the decision—Publicity, Sales and Service; in fact. So long as value is given for money the price is not the deciding factor.

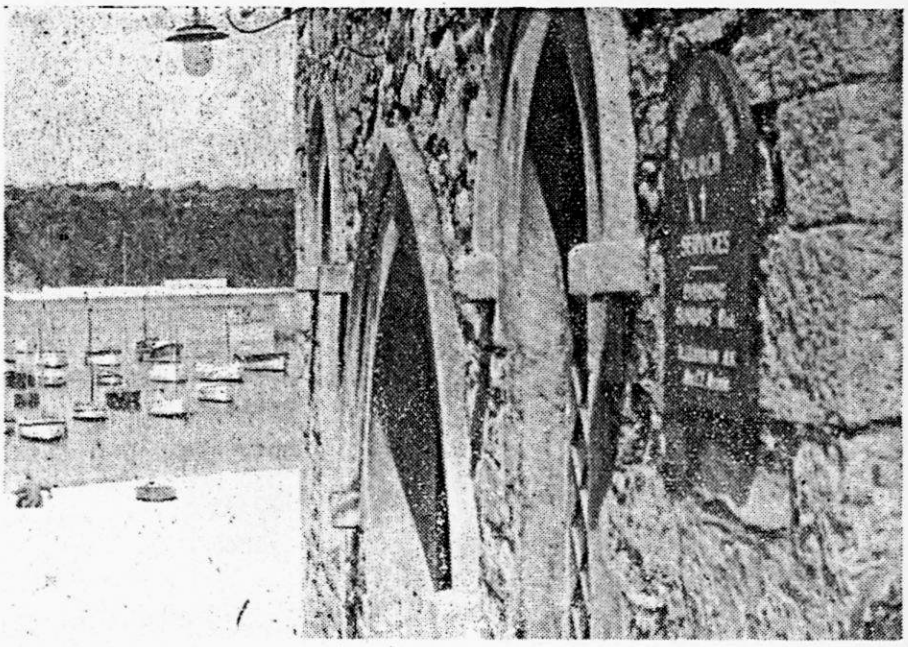
Transmissions

Arguments for and against certain types of cyclemotor unit generally seem to be less concerned with the engines than with the transmissions and it seems that if all the machines had identical engines the sales (and the arguments) would still be the same. It seems likely, therefore, that we shall see yet more inventive genius expended in this field. The innovation of V-belt primary drive on the Mobylette attracted much less attention than I expected, perhaps because the other unusual features and appearance of the machine distracted the viewers, but this is a form of drive that has obvious interest to our small engined machines. The belt is cheap, silent and easily replaceable, with the further advantage that it needs no maintenance—quite a lot of sales points.

Another form of transmisson that does not appear to have been tried is the friction-rubber contact drive in a hub unit instead of a multiplicity of chains and sprockets. Austins did it with steel and bronze in an experimental "gearless" car a few years ago and transmitted some thirty brake horse power without difficulty!

THE SEAMAN'S CHURCH

built almost on the sandy beach of Tenby



With his own photographs

Eric Freeman

gives

A NEW VIEW OF SOUTH WALES

THE recent announcement of the creation of a Pembrokeshire Coast National Park brings attention to this remote county with its hundred miles of south, west and north seaboards.

Pembrokeshire's history has been one of almost continuous invasion. At the time of St. David, the patron saint of Wales, in 650 AD, the flat open shores of the south were the haunt of Norse Sea Raiders who frequently carried out landings in their long-boats. Later came the Danes, the Vikings and the Normans; finally in the reign of Henry I the Flemish weavers. During these troublesome times the Welsh were being pushed more and more into the hilly north of the county and it was upon these hills that the last invasion of Great Britain was made in 1799 by the French.

For nearly nine centuries south Pembrokeshire has retained the English characteristics brought about by these upheavals, so much so that although separated from England by some seventy miles of land inhabited by the true Welsh the south has become known as Little England beyond Wales; a geographical and racial curiosity comprising nearly one third of this county of castles, corgis and curlews.

From the famous Pendine Sands in its neighbouring county of Carmarthenshire, Pembrokeshire is entered in the south through the pleasant seaside village of Saundersfoot, half hidden below its screen of young firs, in the centre of which will be found Hean Castle, most modern of the fifteen castles in the county.

Nearby with the blue southern seas lapping around the french windows of its dining room is the quaint Wiseman's Bridge Inn with its wealth of copper and oak beams; a pleasant place whether for a full dinner-party or just the quiet contemplation of the boats from Saundersfoot harbour over a tankard of cool ale.

Slightly to the east of this point the Coastal National Park starts. Commencing at a depth of two miles and with a delightful coastal path massed high with banks of wild foxgloves the area opens out to take in the wide sandy beaches of Tenby, a coastal resort made cosmopolitan by its popularity with visitors throughout the years.

Fortunate in its situation and climate, Tenby is indeed a happy place and the Greek quotation over the doorway of the White House overlooking the harbour might well become its motto. *The Sea washes away all the ills of man.*

Nearby the robed figure of a monk calling at the shops to replenish the stores of his community is a reminder that not two miles from this delightful coast lies the island of Caldy; an island, even in these days, with an almost mystic significance whose legends and

associations with King Arthur and other mediaeval mythology stretch back into the dim times of pre-history.

Known in St. David's time as the Isle of Saints it is still possible to visit it by boat from Tenby and to view its Norman Church and its prolific 200 yard long fuschia hedge which abounds through the winter months in this place where snow and frost are practically unknown.

The Belgian Order which farms the island is industrious and resourceful and many relics of former occupations have been discovered in the course of years. One of the most interesting is an alabaster reliquary and cover found in a crevice in a quarry during a recent exploration of the island.

This and many others are now safely preserved in the little museum on the mainland beneath the ruined wall of Tenby Castle.

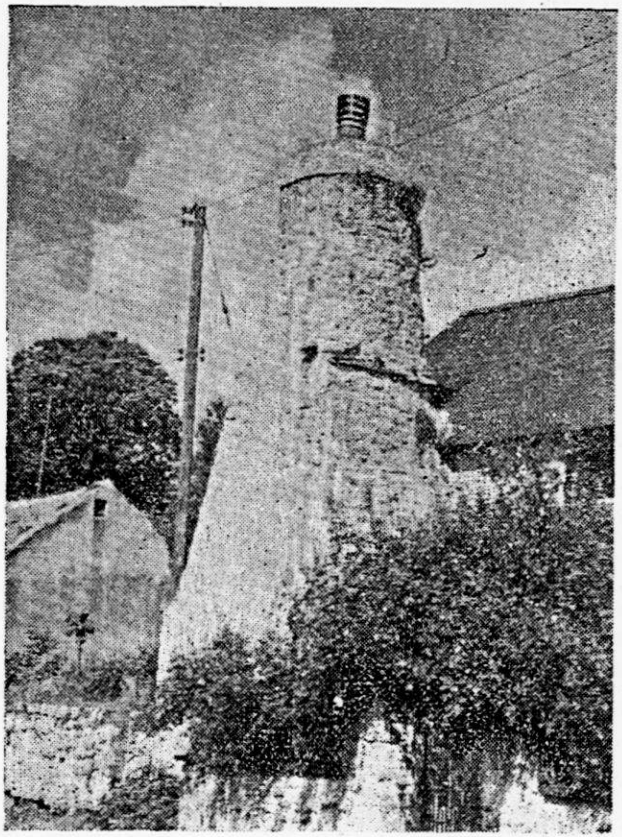
The coastal scenery as one approaches Manorbier is of very high order; falcons, bluffs and many other wild birds can be seen on the 150ft. cliffs, while below and above the sandy shore the caverns and blowholes of Giltar and Lystep may be visited at low tide.

Inland the village of St. Florence is of interest as it contains many excellent examples of outside circular Flemish chimneys, relics of the Flemish weavers settlement in the Reign of Henry I.

Some five miles further on through a countryside of great beauty the traveller will encounter two deep fissures in the cliffs.

In the first will be found built tightly across the ravine a tiny chapel in a perfect state of preservation. This is St. Govan's Chapel and it dates from the 13th century; the only way down to the shore is by walking down fifty-two steps cut in the rock and thence walking through the building.

History is uncertain about the identity of St. Govan but legend suggests that this place was the hermitage of the Knight Sir Gawaine after the death of King Arthur.



The circular Flemish chimney at a Farmhouse near St. Florence probably a relic from the settlement during the reign of Henry I

Nearby may still be seen a well the waters of which were held, as recently as 1840, to contain miraculous healing powers.

A mile farther on is the second deep gap in the high cliffs known as "Huntsman's Leap". The story is told locally that a huntsman intent upon following his quarry did not notice that his horse was approaching the 20ft. gap which the animal safely leapt. Upon gaining the other side the huntsman is said to have dropped dead from shock inspired by the thought of what might have happened.

The traveller now comes to the village of Bosherston and by the side of its delightful Norman Church a path down a steep lane, heavy with the scent of garlic, brings him to the magnificent lilyponds, nearly 500 acres of inland waterway deep in tree-lined hollows covered with masses of flowering lilies; a sight not to be lightly forgotten.

Above on the flat undulating fields of red earth grow the early potatoes for which Pembrokeshire is becoming so well known. Despite the remote position of the county, local growers are able to successfully compete with Cornwall which shares a similar climate.

Many growers in this area are undertaking early marketing of tulips and daffodils with conspicuous success and there appears to be a great future for horticulture in this part of the county. In this respect the new air service from Haverfordwest to Swansea and Cardiff will no doubt help with the early distribution of this latter freight.

The village of Angle is the centre of this activity and the nearby flat sandy shore is the haunt of wild creatures in great profusion.

continued on page 20

My First Bike

With acknowledgements to "Op De Solex" Amsterdam, and translated by

Nel Clegg

MY first bike was not my first bike—but about that later.

The bicycle, to call it by its original and dignified name, has done more to bring people in the world together than Karl Marx, and our twentieth century would have looked very different had not an inventor, or inventors, made something more comfortable out of that queer high wheel with a tiny backwheel—something which had pneumatic tyres, a brake and a bell. In the 'eighties those things were not yet to be seen—only terribly high affairs on which men somehow managed to keep their balance, to their own astonishment and that of others. It required real courage to clamber on to it, for one risked a nasty fall.

The bike came into a world which as yet knew no other means of communication than the railway and the stage-coach. Travelling was expensive. People who lived at a distance of fifty or hundred miles from the capital often knew it only from the tales of others, more fortunate than they. The farmers used to come in their gigs to the little town where I spent my youth, and sometimes you would be given a lift by one of them. Of course you had to be careful not to underestimate the distance that had to be walked back. In those days "hitch-hiking" hadn't reached its present-day perfection and was not yet considered a natural right.

The first bike I saw in our little town was a marvel of shining nickel. Cycle-races were held right through our town, but it was only the sons of the rich who became the possessors of bicycles. This didn't rouse much envy in our hearts, for in those days people were in no hurry and still used their legs for their original purpose: they still walked on them. We walked on them to the cherry-orchards of the farmers, who generously let us eat as many cherries as we liked—though there was a limit even to this, just as to the carrying-power of our legs. It was not until later that the co-operative auctions started, cherries were beginning to be bottled and exported . . . and that was the end of all these pleasures; but by then my generation's appetite had also become somewhat more modest, and the younger ones will just have to find their own ways and means to get them . . .

My first bike, which wasn't my bike, stood in the little office of my first boss, the director of a small shipping firm. He had three little Zuyderzee-boats in use. During the week these carried goods, on Sunday passengers. It took a good three hours to get to Amsterdam. My boss was a man who kept an eye on technical developments, and by that time even the first motor-bikes were already buzzing along the roads. Very often they also stood still . . . When one has never yet ridden a bicycle, one doesn't hanker after a motor-bike.

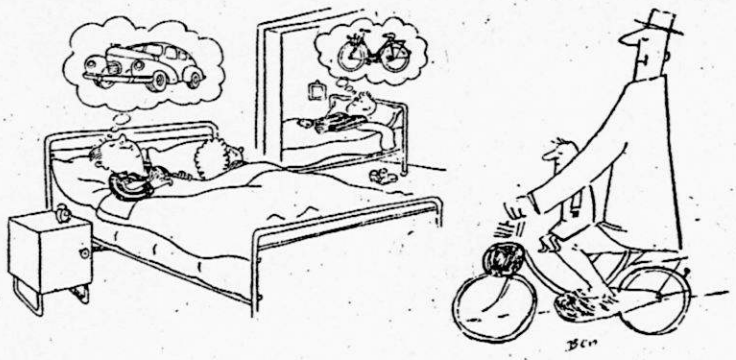
Frequently I took a good look at that shining thing in my boss's little office. It had a horn just like those one saw on the first motor cars. Sometimes I squeezed it—then the old book-keeper (he had a little ring-beard and had been a seaman) looked up from his work with a frown, and probably thought: boys will be boys . . .

One day the temptation grew too much for me, and when the boss and the book-keeper were away for an afternoon I took the bike. In those days there was no need to put a lock on a bike. Who had a bike? and who bought one? In that little town you might as well have tried to sell the British crown jewels to the local goldsmith.

Leading that shining bike by the hand, I went to the Zuyderzee-dyke—in the first place to escape possible witnesses of my efforts, and also because I thought I'd have enough room there. I hadn't. Hyde Park or Trafalgar Square would hardly have been spacious enough. A person on a bike who has lost his balance needs a universe. I smashed into the railings on the dyke, damaged myself somewhat, which didn't matter so much, but the beautiful nickel horn was as flat as a penny. All this happened in sight of the harbour from which once Jan Pietrsz. Coen had set sail for the East—which of course has nothing to do with my catastrophe, for if there hadn't been any rubber, they would probably have put tyres of a different material round the wheels of my boss's bike.

I was not afraid of being fired—my earnings were not as big as all that. And for the same reason there was no fear that the cost of the nickel affair would be deducted from my salary. But I was afraid of corporal retribution, for in those days one didn't keep so strictly within the laws of discipline; and the master at school, too, didn't always refrain from hitting . . .

My being smashed up, the worried expression on my face, and the damage to it, too . . . all this helped to prevent the sad affair from ending in disaster. But the bike was put in a different place. A long time would pass before I would get another opportunity to mount a bike. But I



immediately stepped over into the era of mechanically propelled vehicles. My boss bought a motor-cycle.

The thing differed as much from the modern type as the Inca's of Pizarro's time from a present-day cavalry-captain. There were three wheels underneath. And in front it had been fitted out with a basket, a sort of half-horizontal wicker-chair, in which it could carry a passenger. On this motor-bike-in-its-infancy my boss rode to Amsterdam, and I had to accompany him. At first I loved it, for now I could find out at last how far that dyke went on along the sea. But a motor-bike in those days was not yet what it is to-day, when all you have to do is press a button and you see the continents rush by. That thing was as churlish as a mule. It had the peculiar habit of coughing suddenly, and then coming to a halt—just when you were getting hungry, or when it was starting to rain. Then the cart-horses, who only a little while ago had shied as you were passing, caught up with you. (The farmers, who had been half asleep, were still mad at you and it needed a lot of friendly persuasion to keep them from becoming tough). That was by no means all. My boss, usually so good-natured, began to grumble at me and commandeered me to all sorts of technical jobs, while he was also doing something technical. These were terrible moments, for I foresaw already that we would have to walk back the distance we had covered, and that my share in the pushing would be considerable. The weak splutterings of that motor after we had turned the various taps was as welcome and glorious a sound to me as Beethoven's Ninth was to be in in days to come!

As soon as the splutter became louder, my boss mounted the saddle, did some more to a tap, and then it was my task to push till an even noisier cough indicated that the thing was working again. Then I had to walk a little faster and finally jump into the basket—till the next catastrophe.

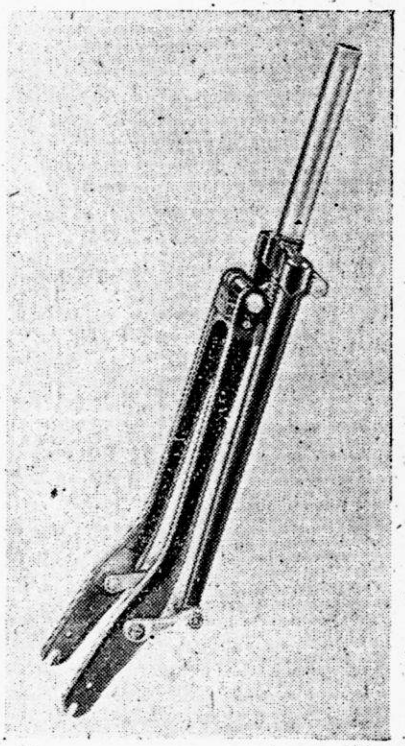
Which all goes to show that in vehicles, both leg-driven and motor-driven, I am a pioneer—be it one with a weak stomach. That jump into the basket was daring—though I was spurred on by desperation and the fear of being left behind, for my boss was a man who in such matters had no scruples whatsoever.

* * *

Thus I drove—we drove—along the roads to Amsterdam, half a century ago—unhampered by 'stop' signals and traffic. Our only 'stop' signal . . . that was the engine. What a time to be proud of now that every old-age pensioner is undeterred by headwind or engine-trouble.

THE WEBB SPRING FORK

Spring forks on bicycles are not a novelty by many years but the development of the cyclemotor has brought them back into prominence and there are now several alternatives available. A new cyclemotor spring fork from a famous name in the "front-end" business made its appearance at



Earl's Court at the stand of H. C. Webb & Co., Ltd. The interesting thing at first noted is that the single compression spring is located *inside* the steering column of the cycle, the moving part of the fork being in effect a sub-frame carrying the wheel and attached by top and bottom links to a straight-bladed, rigid fork.

The whole job looks very clean and strong and the price is moderate at 75/-. The makers are H. C. Webb & Company, Ltd., Tame Road, Witton, Birmingham, 6.

Focus on OILS

by

OLEO

Some of those people who do not like cyclemotors might be interested to know that, while it would be quite hard work to destroy an engine by hitting it with a hammer, a much more complete wrecking job could be done by running it for a few minutes without oil.

Oil is really all that important and it might be said that any engine can only run by permission of its lubricant. It follows, therefore, that the user of any kind of engine should be vitally interested in oils. If he uses too little oil he will damage his engine, perhaps ruin it. If he uses too much he will have starting troubles, erratic running and rapid carbonisation. The same thing goes for the use of the wrong grade or type of lubricant although to a lesser degree.

It is true that we have all met the man who uses any old oil in almost any old quantity in any old engine and apparently gets away with it. But this type of man is seldom fussy about really sweet running and if he cannot be bothered to look after his engine he is not likely to be able to keep any sort of account of how often he has to decarbonise or how frequently he dips into his pocket for new spares. It *is* possible to save cash by using less of a cheap oil, but the cash saved is *always* swallowed up again in overhaul frequency.

Let us see what an oil does in a machine. The bearing surfaces, that is the bits of metal that rub against each other in the running of the engine, appear to have highly polished surfaces that slide quite easily even when dry; but quite a moderate microscopic magnification reveals metal grain, machine marks and wear scars that look like a battlefield after artillery bombardment on that shiny surface. Furthermore, as the engine heats up under the influence of combustion, flame higher in temperature than the melting point of steel, (the heat being absorbed by the bulk of the metal in the cylinder head and carried away with the burnt charge via the exhaust port) the warming up process is uneven throughout the various parts of the engine so that the rate of expansion of two bearing faces is rarely the same.

This means that the surfaces tend to bind on each other and without lubrication the engine would quickly "seize up", chewing its bearings into a mass of half molten metal. The job of the oil is to provide a film of microscopic molecules between the bearing surfaces of the metal, each like a tiny ball bearing in itself, rolling instead of rubbing over the surfaces.

If this was all that was required of it the lubricant could indeed be the "any old oil" of the man quoted above. But the inside of an engine is not like the hub of a cart wheel that can turn on a handful of fat. The heat alone near the head of a cylinder would melt or burn up any ordinary grease and the oil has to stand a range of temperatures from the hottest cylinder head to something that may be down below freezing in the tank. Furthermore the loads on bearings, even of our tiny engines on cyclemotors may well run into tons per square inch, pressures that are trying all the time to squeeze the oil out from between the loaded metal faces. All this demands a special lubricant —an oil-for-the-job.

This stuff we call oil starts out as a rather thick, foul-smelling substance, varying from near black to a yellowish brown in colour, that lies in great underground lakes in various parts of the world, noteably the U.S.A., Canada, the Middle East, South East Europe and South West Asia. Sometimes it gushes out of the ground under pressure from the subterranean gases but more often it is raised by means of bores and pumps. Then it goes most commonly through pipe lines to refineries or to ports for loading into tankers. Some still does go into steel barrels as once, and to this day the "standard barrel" of 42 gallons is the international quantity measure for crude oil.

The oils of different fields vary in chemical content but a typical "standard barrel" will break down somewhat as follows:

Petrol	20 gals.
Fuel oil	6gals.
Diesel fuel	6 gals.
Paraffin	2 gals.
Lubricating oils	2 gals.
Bye-products, wax alcohol and various chemicals	2 gals.
Total	42 gals.

and when it is considered that the basic price of the 42-gallon barrel is about what you pay your garage for 3 gallons of "Pool", it can be understood that oil is a major factor in world politics affording plenty of money for the meat of international intrigue, for large scale advertising (except in *Power and Pedal*) and for research on a scale that few industries can ever hope to enjoy.

It is the benefit of this research on such a luxury scale that we get in having the right oil for each and every power unit in operation today. It is true that the recommendations on the different charts

appear to vary slightly, but the variation is very slight and the figures on the chart on the garage wall as they relate to any known engine and properly branded lubricant can be accepted by the motorist with absolute safety. It is true, however, that the cyclemotorist has a special problem and is not likely to find a garage man with a first hand knowledge of his requirements.

We have heard unconfirmed reports of actual prosecutions because garages have refused to sell petrol and oils in the tiny quantities and often odd proportions required by our machines. Certainly *Power and Pedal* holds no brief for bad service in this or any way, but it is possible to feel some sympathy for the man on the pump who has oil to sell in one pint bottles or cans and is then asked for "just enough not quite to fill this filler cap, please". This is a problem for the distributors and we are glad to hear from at least two Companies that they are preparing special packaging for our purposes. The popularity of petroil lubrication for an increasing proportion of motorcycles as well as cyclemotors and autocycles should soon force even the most conservative of Sales Departments to consider serving the mixture direct from the pump, but till then we must know what we want and be prepared to demand it boldly. It is worth making the point to manufacturers and distributors of oils that even our little engines burn their oil as they run instead of carrying it around in the sump as cars do for thousands of miles, so we are quite valuable customers.

The old fashioned faith in thick, treacly oils is dying hard, but dying all the same, for which let our engines be thankful. Nearly all cyclemotors run quite happily on an oil of SAE 20 grade and most charts give this number with a recommended proportion of 20/25 parts petrol to 1 of oil. One maker, however, demands SAE 10 for his engine in the proportion of 1 to 16, and his Service Department go as far as to say that the *only* trouble their engines consistently meet is over-carboning due to using heavy oils. This is a cool-running, lightly stressed and superbly silent machine and it may well be that it is peculiarly sensitive to the grade of oil used.

The amount of oil used must of necessity be a compromise figure that allows a fair margin of safety. A hard driven engine needs more oil than one that rarely exceeds half throttle in regular use, and there is the additional complication with the petroil lubricated two-stroke that when the machine is running downhill with the throttle shut it is getting no oil at all! If real care is taken to keep stresses low and coast down hills the average cyclemotor engine will run on well under the recommended proportions of oil to petrol and will actually run more smoothly by cutting out fourstroking and also for far longer periods between decokes. But this is a calculated risk that should only be taken if the rider feels confident that he knows what he is doing. On the other hand, however, over-lubrication can do no good at all and may do real harm. The rapid filling of the ports with hard carbon, the gumming of piston rings and the presence of incandescent particles of

"Research on a Luxury Scale"

This photo from Manchester Oil Refineries Ltd. shows a corner of their research Laboratories.

carbon on the plug can spoil the running and increase engine wear alarmingly. So, when you feel like adding another drop of oil for luck—DON'T. It does not pay.

Every reader has already been told so many times in every handbook on the subject that he should pre-mix his petroil and filter it into the tank that we shall not stress the point here, but we do stress getting the right grade and the exact proportions. The oil Companies did not spend millions on research and double their distribution costs by producing different grades of oils just for fun. It would pay them handsomely if they could make one grade of oil do the lot, but it cannot be done, not yet anyway, and it is worth while for the user to learn by heart the names the various Companies give their oils of the SAE grade needed.

A word is needed on the subject of Additives. Some people think of these as an advertising selling point, some swear by them as the key to modern motoring and some swear at them as a new-fangled curse. None of these attitudes is, in our opinion, quite right. Additives have been found useful and have come to stay. They are not a revolution in motoring and they may have potential disadvantages in certain specific circumstances, but they are the result of much research and experiment and it can be taken as near enough certain that they are, on balance, an advantage.

Additives can do any or all of three things :

a. Eliminate water vapour from the inside of the engine, thus reducing harmful condensation.

b. Absorb and suspend carbon that would otherwise clog oilways and gum rings.

c. Discourage sludge formation and prevent the deposit of that enamel-like coating called oxydisation that can keep the oil from getting at places where it should.

We are not by any means advocates of the "blind faith" approach to advertised products, but it is not easy to see that anyone is better off without these useful little chemical services in the engine.

Oils have changed much in the past few years and will undoubtedly change again in the years ahead. Each new advance in materials and techniques must be tried and tested in everyday use before it is accepted and there may well be a real interest in the new lubrication ideas now coming in. For instance, British scientists working for the *Esso Company* have just produced a synthetic lubricant for turbo-prop and turbo-jet engines, a lubricant that can operate over ranges of temperature never before dreamed of. Not much to do with cycle-motors, you may say—No, not yet, but the flyers of even twenty years ago would have been glad to have some of the fine oils we use now, and in another twenty years we will be taking for granted standards of lubrication that are in the world of laboratory technicians' dreams today.

WE ASKED THE MAKERS:

SOME CONSIDERATIONS OF THE LUBRICATION OF CYCLE-MOTORS, SPECIALLY PREPARED FOR "POWER & PEDAL" by THE AUTOMOTIVE DEPARTMENT OF THE VACUUM OIL COMPANY

The improvement in recent years in power output and reliability of the two-stroke internal combustion engines used in lightweight motor-cycles has been obtained through increased technical knowledge of design requirements, together with the materials developed through improved metallurgical practices. This has encouraged many manufacturers to explore other fields for their application.

In view of the degree of efficiency that has been achieved with these units, it became apparent that this knowledge could be successfully applied to the production of engines of much smaller capacities, so that the public could be offered another form of cheap and reliable means of transport.

That this reasoning was correct is shown by the popularity that has been gained by these small engines for attachment to the normal pedal cycle.

These small engines, ranging in size from 18—50 ccs., are usually two-strokes but a four-stroke version is also available. However, a recent development is that another type is marketed which eliminates the need for electrical equipment such as spark plugs and ignition systems.

The continued efficient operation of these small engines depends upon a number of factors, among which is the type of lubricant employed. It can readily be appreciated that engines with such small outputs have very little in the way of reserve power to offset engine performance deterioration and, as deposit formation can be a major factor in power losses, the selection of high-grade lubricants is absolutely essential if such deposits are to be held to a minimum.

The lubrication system generally employed for these engines is of the 'petroil' type ; that is to say, predetermined amounts of petrol and oil are intimately mixed and introduced to the engine through a carburettor. The petrol and oil then perform their allotted tasks of providing power to drive the engine and to lubricate its working parts.

Carbon deposits formed during operation adhere to the internal surfaces of the engine, exhaust pipe and silencer. They may build up to such a degree that efficient operation is impaired by the restricting effect resulting from this accumulation. If an over-rich oil/petrol ratio is used this deposit formation can be accelerated as more

oil is carried over to be burnt during the combustion process.

During this process, in addition to steam, acids can also be formed which, combined with the water condensed from the steam, can attack the bearings, thus causing pitting etc. This could lead eventually to complete bearing failure and, during the preceding period, to excessive wear on other engine parts, resulting possibly in complete engine failure.

It can be seen therefore that, although a good quality lubricant is essential to control deposit formation and also to afford complete protection against the products of combustion, it must also be used in the correct proportions, as specified by the manufacturer.

The viscosity of any lubricant employed is an important characteristic, because the oil must not only be thin enough to allow ready miscibility with the petrol even during the winter months, but must also be of sufficient "body" to afford complete protection to the various bearing surfaces of the engine. Generally speaking, to employ a heavy oil, a consequent reduction in oil/petrol ratio would be necessary, whilst if it is preferred to increase the dosage, a thinner lubricant would be used. This latter procedure would ensure easier miscibility of the constituents of the mixture. Generally, an oil of SAE 20 viscosity rating in proportions of 1 : 16 for the running-in period followed by a reduction to 1 : 20 should give satisfactory performance.

An aspect peculiar to two-stroke engines is that of spark plug fouling. When this occurs, the lubricant is frequently held to be responsible. Several theories have been advanced, claiming that the constituents of the fuel and/or the the lubricant after or during combustion are responsible for the fouling. Various methods, including fitting a different type of spark plug and adopting different driving methods, are claimed to eliminate the trouble. Other owners claim that a different type of lubricant overcomes the trouble. In order to minimise the possibility of this trouble occurring, very great care must be taken to ensure that the petrol and oil are thoroughly mixed.

From all these vital considerations, the manufacturers select the oil in such proportions and of characteristics considered by them to be essential for the desired performance of their engines. It is incumbent on the owner to ensure that only high-grade products —in the correct proportions—are used.

From perusal of the Table it will be seen that two viscosity grades are approved for use in most of the more popular types of unit, but that some variation in the petrol/oil ratio exists. Although it would be highly desirable to have a common recommendation and ratio, the manufacturers' approvals should be strictly adhered to, because considerable research is always carried out before a recommendation is made.

The following suggestions will assist in obtaining the maximum life and performance of these small engines.

1. Use a good quality lubricant approved by the manufacturer.
2. Adhere strictly to the recommended ratio of petrol and oil.
3. Always ensure that the constituents of the 'petroil' mixture are dispensed from clean cans.
4. When decarbonising the engine, always give similar attention to the exhaust pipe and silencer.
5. Always remember that the rate of deposit formation is a major factor in the deterioration of performance of these small output engines. By using the recommended grade of lubricant, this feature is held to a minimum.

It should be remembered that although the best of lubricants are employed to obtain minimum accumulations of deposits, considerations other than those associated with the combustion process can also lead to indifferent performance. Attention to the electrical equipment (where fitted), ensuring the spark plug and contact-breaker points are cleaned and adjusted regularly, will also result in optimum performance over prolonged periods.

THE VICTORIA "VICKY"

A Dublin reader sends us particlars of a German cyclemotor that is being marketed in Eire and called the Victoria.

The unit is mounted in a strong sub-frame which also forms a rear carrier, the tank being mounted neatly and safely under the carrier and over the rear mudguard. The engine/gear unit itself fits into the sub frame on the near side of the machine and just above the rear hub, driving through a two-speed gearbox by chain to a sprocket mounted on the spokes of the wheel.

Of 38 c.c. capacity with a bore and stroke of 35 mm. x 40 mm. the engine gives 1 h.p. at 5,000 r.p.m. It is a conventional flat piston two stroke, with alloy head and flywheel magneto ignition. The neat demountable silencer is bolted direct on to the exhaust port and adds to the general streamlined effect of the appearance. The 2-speed gearbox is in unit with the engine and offers 18.9 and 27.8 to 1 through spreader ring clutches. On these it would appear that the machine could climb the proverbial wall of a house.

The firm also offers a special cycle with oversize tyres for use with this engine, and a front-carrier tradesman's machine.

The price of the unit in Eire is £33 and it is handled in Dublin by Keating Cycles, Ltd., 6 Lower Baggot Street, Dublin. The makers are: Victoria Werke A.-G. Nurnberg, Germany.

Correspondence

The Editor is not responsible for the views expressed by his correspondents. Letters should be typed or written on one side of the paper only and may be signed under a nom de plume for publication, but must be accompanied by the sender's name and address

Thank you, Sir

I have only just heard of, found, and bought, Vol 1, and have read it right through three times.

In response to your invitation on p. 20, I write!

I *like*; your title, the word "Cyclemotor", the type, every one of the articles, particularly the friendly tone, and the general make-up. There is no doubt that in time you will find it necessary to issue fortnightly and extend to more pages—I found 24 rather short.

I think *fourpence* per copy is rather—humble! A pair of shoe-laces costs 6d.

As to suggestions, I have only one, so far. This is, that the Proprietors and Editor of *Power and Pedal* take No. 1 issue out to a quiet spot and carefully read the article by "Clip-on" wherein there are enough hints to fill the journal for many months.

Perhaps the manufacturers of clothing, spare parts, etc., and the legal fraternity, will select another quiet spot for the same purpose.

My Mini-Motor is 2½ years old. I do 208 m.p.g., 25 m.p.h. cruising, and 29 m.p.h. flat out. I may write some DO's & DONT's on Mini-Motors some day, for your perusal and rejection!

The new journal was very badly needed.

With best wishes,

Blackpool A. H. SECRETAN.

Engineer on Oils

First let me wish you good luck with your new journal. It is going to be helpful to us cycle-motor users. In reply to your questions concerning the size of the journal. I think it should be bigger and better, with particular attention to care and maintenance. A word of advice to cyclemotor owners on lubricants as an engineer working in a chemical factory, the only possible way of avoiding rapid carbon formation is to use the best quality petrol and oil at all times, the little extra cost will prove worth while in the long run. Cheap petrol and oil contain impurities which after combustion become carbon.

I would welcome information on small sidecars for children.

Walkden I. NORRIS.

Experiences Wanted

I have been very interested in reading the first number of your magazine which must, I feel, fill a long-felt want.

I should explain that I am contemplating "motorising" my sports Light Roadster (the "light" part of this exists only in the makers' imagination!) and would appreciate your observations on the following points.

The machine would be used entirely for pleasure—I have in mind South Coast runs and possibly a tour at holiday time. I have three models in mind—Cyclemaster, Mini-Motor and Berini. I have a moderate engineering knowledge and would be interested in maintaining the unit myself. With reference to your open letter in the correspondence section I think the modest price of the journal and a format in keeping with this is a wise step until the venture grows as I feel sure it will.

Wishing you every success.

Purley ROY E. G. DAVIS.

(*Other Readers' comments will be forwarded.*)

Warm Blood

First as a printer, allow me to congratulate you on the format of *Power and Pedal*, although I think the text could with advantage be set smaller—but no doubt that matter will be taken care of as demands on your space grows!

Secondly, a suggestion to "Clip-on". He complains about the lack of clothing for riders of cyclemotors (horrid word!). He has no need. Myself, when I ride my machine, which is often, I wear a long-sleeved pull-over, gloves and raincoat, and am always as warm as toast. Sometimes I change the pull-over for a windcheater.

Third, you ask for a beef. Here's one: A friend at work rode a machine with a motor attached, and was always complaining about the wear on the ratchet of his freewheel. He used his machine rather a lot and I believe, had to change this component every six weeks.

This leads me to suggest that it is time someone marketed a freewheel which could be disengaged when the engine took up the drive.

Fourth: Is there a National Association similar to the Motoring Associations devoted exclusively to the interests of Cycle-motorists?

Nottingham HARRY E. KEMP.

(*This free-wheel story is a new one on us—any manufacturer interested?*—ED.)

One Association

I wish to congratulate you on your enterprise in starting a magazine to cover the interests of the hitherto neglected "Cinderellas of the Road": Motorised Cyclists. Your publication fills a gap which has grown out of the rejection of the Motorised Cyclist by his brothers of the "Legitimate" variety, and by those who only "assist" their machines in an emergency.

I would, however, like to take up one point which was made in your first publication about the success or otherwise of Clubs and

other organisations which have for their objects the Social Welfare and interests of Motorised Cyclists.

The National Association of Motorised Cyclists of which I am the local Outings Secretary, was formed in 1950, and since then has set up local Branches which have achieved much social and other success. In addition to this it aims to provide National facilities parallel to those available to other motor-cyclists. The organisation has not yet spread to any great extent to the South of England, where members only occur as individuals, and so it is easily understood that its doings are unknown to you. The organisation was formed entirely by Motorised Cyclists, has no Trade interests or connections and is non-profit making.

In the position which I hold I shall, of course, deem it an essential that I have at my disposal a current copy of *Power and Pedal.*

Finally, I wish you and your publication much success in the future, in which I feel that Motorised Cycling will become "The Transport of the Masses".

Blackpool B. Morris.

And Another

It was not until yesterday that I heard of the *Power and Pedal,* and I had to chase around a bit to get it, but I can tell you, it was worth it.

I have organised a motor assisted cycle Section, and, as far as I can trace, it is the first one in the South of England.

I consider it is beneficial to all M.A. cyclists to join this club, not only because of unity, we have a very good backing, but because of the Social facilities, such as club-runs, a good club room, competitions, trials, etc.

Regarding the latter, it is quite possible there may be a National trial this year, the same as last year, and I would like some members to enter for these, the more the merrier.

As for these trials, I consider that they should be run by us, the M.A. cyclists, not motor cycle organisations.

If there is anybody interested in the above, and wish to become members, will they kindly get into touch with me at the address, below.

And the best of luck to your new journal. H. E. Evans.

The British Two Stroke Club,
(*Affiliated to the Auto Cycle Union as a Non-Territorial Club and in association with the R.A.C.*)
10 Elia Street,
Islington, London, N1.

* *If the correspondent signing himself TYRMAN and writing from a Bloomsbury hotel will comply with the rules and send his name and address, not necessarily for publication, his letter will be printed in our next issue.* Ed.

It Can be Done

I have just purchased the first of your magazines, *Power and Pedal* and would like to congratulate you. I really think it is a very good idea and just what all cycle-motorists have been waiting for.

I have already placed an order with my newsagent for them. I find the article by "Clip-on" especially interesting and think the idea of rallys a very good idea. I agree with "Clip-on" about tyres and friction drive rollers and have found my tyres wear just as well as they did with plain cycling.

Harlesden J. A. FORTUNE.

Needed

Yesterday, I chanced to find the first number of *Power and Pedal* for November, on a newsagent's counter. It was just the thing that I had been looking for, as it dealt solely with cyclemotors and autocycles. I was extremely pleased with it, as I had been searching for a magazine that opened up the cyclemotor world with articles and advertisements, as I am a prospective owner of a cyclemotor.

Previously, as the motor-cycling press overlooked cycle-motors, there was no way of getting to know the various makes well, to aid purchase.

As to your suggestion of increasing the magazine's size (and price), I am in total agreement.

I welcome indeed this magazine and wish it growing success in the future.

Aylesbury R. A. DEAN.

(*In fairness, the motor-cycle journals do try to give good coverage for cycle-motors, but "Power and Pedal" is the only journal in Britain specialising in its field*—ED.)

"Gen"

I have just read your publication *Power and Pedal* for November, which I spotted on Stroud B.R. railway book-stall. It is just what powered cycle owners want, and will no doubt buy when they know it exists.

A large percentage of powered cycle owners are not conversant with the internal combustion engine, so why not technical articles such as "Principal of the Two Stroke Engine", "Hints and Tips", Importance of correct sparking plug and contact-breaker points, etc., How to de-coke the engine, Useful Mods., such as a quickly detachable rear mudguard for servicing and puncture repairs similar to the one I fitted to my Cyclemaster.

Many riders cannot afford to go to the agents every time something goes wrong.

After 20 years as a motor-cyclist I bought a Cyclemaster 2 years ago for economic reasons. I have enjoyed every mile of the hundred miles a week average. Being an Engineer by trade I have never been troubled by snags or

Flashes

MR. H. M. Palin has been appointed director of the British Cycle and Motor Cycle Manufacturers' and Traders' Union Ltd., Coventry, in succession to Major H. R. Watling who has retired. Mr. Palin, who is 40, has been assistant to Major Watling since he was demobilised in 1945. His hobbies are motor cycling and tennis and he is a keen follower of motor cycle, cycle and motor sport.

Next year it is hoped to fit 250 new vans on passenger trains with hooks to carry from six to three bicycles, Mr. L. W. Conibear of the British Railways Executive told the Pedal Club in London last month. It would cost £9,000, he added, to put hooks in all existing vans but certain of these were to be equipped.

maintenance, but small snags seem very large to the novice so please give your readers some 'gen'
Stroud J. W. JORDAN

Next Year's Riders

First I should like to say what an excellent little magazine, *Power and Pedal* is. I saw it on a station bookstall and when I saw it was only 4d. I snapped it up immediately and I think you should keep the price low if it's at all possible.

Please continue with the road-test reports, because it is a sure guide to a machine's road-worthiness or not.

As I am only 15 years old I haven't had any experiences with cycle motors, but when I am 16 next February I hope to be getting some kind of motor for my birthday.
Cheshire P. WEBB.

Experiment

As a cyclemotorist of some two years' standing may I congratulate you on the publication *Power and Pedal* which fills a long-felt need.

During my first six months of ownership I ran into many snags, ranging from rollers and tyres to ignition. Recourse to agents hardly solved the problem for at that stage it was a case of the blind leading the blind.

Gradually, however, I learnt the answers (most of them anyway) to my particular problems. As a result I now have a thoroughly reliable machine which takes me anywhere with a minimum of fuss. As a result of my own experiences my advice to 'backyard engineers' is to rectify one fault at a time and then check for improvement.

In its present form my machine has one or two features which may be of interest to other owners. The first snag I dealt with was that of the free-wheel which wore out very rapidly. A coaster hub replaced this and has given trouble-free service for 18 months now. The question of wear on tyres did not obtrude for some time because I had the correct type of power-drive tyre fitted when the motor was attached. Wet weather and a spate of bad adjustment first brought the problem to the forefront.

I reasoned and argued with a relation of mine who has a similar machine and finally we arrived at the following conclusions:

a The greater the area of contact with the tyre the less likelihood of slip.

b The toothed (metal) roller was more satisfactory for general purposes.

c The engine was obviously capable of moving people whose weight was over 15 stone whilst we weighed only ten or eleven stone.

The practical result of our deliberations was the production of a toothed collar 2.5in. in diameter which was contracted on to the core of an old carborundum roller.

The transmission is now much more positive, tyre wear negligible and petrol consumption has decreased.

Hills now demand some assistance but not very much more than turning the cranks is needed. Jerkiness at low speed which we anticipated almost failed to materialise due no doubt to the flywheel effect of the larger roller (!-ED)

As a matter of interest the new Mini-Motor roller will I learn soon be available direct from the manufacturers on a C.O.D. basis at 26/6d.

Might I add in conclusion a plea for continued simplicity. The introduction of complete machines and the more complicated four-stroke engine into the cyclemotor field seems to me to be the thin edge of the wedge for trespass on the field of the autocycle and lightweight motor cycle. The attraction of the cyclemotor lies in its simplicity and present day two-strokes are highly efficient so let's keep it that way.

Once again, Good Luck in your endeavours and a Happy New Year to you and all your readers.
Lancs. L. SMITH.

Connoisseurs

The utility field needs no comment as such but it must contain a vast source of potential tourists who have hitherto refrained from pleasure cycling because of the erroneous idea that it is hard work. After all pleasure cycling is one of the finest and most popular of recreations, and many admit the fact on behalf of others whilst refusing to allow right knowledge and the modern cycle to erase this false hard work idea from their minds. Surely the auxiliary motor will now tempt them to meet the latent urge to venture beyond the city streets into this glorious countryside of ours, on a bicycle.

Experienced and enthusiastic touring pedal cyclists grow old and their cycling must of necessity be proportionately restricted. And I suppose there will be die-hards who will never tolerate power assistance to their cycling. But to the others an auxiliary could offset the restrictive effects of Anno Domini. The Trade, however must recognise that these people are connoisseurs at the game. They ride machines that are lightweight, reliable, efficient and silent; and if they are to be attracted to the auxiliary then it must possess precisely the same qualities, otherwise the benefits of real cycling would be destroyed for them. If the scientists can progressively meet this demand then all classes of auxiliary users will benefit. I dream of a motor so lightweight that it need not be used throughout an entire journey, but can be switched-in when headwinds, hills or fatigue demand. And used moreover without an accompanying popping and buzzing. I have no experience of these motors but I do hear them and they sound excessively noisy.

Finally, I think you may have to make a distinction between a motor-assisted bicycle and a motor-cycle's younger relation. One of your illustrated advertisements looks very much like the latter.
Yorks. TOURIST

ROAD TEST REPORT

THE 32 c.c. CYCLEMASTER WHEEL UNIT

WHEN a lot of people keep on buying the same thing it is apt to be taken as evidence that the makers of that thing have got something there. Certainly the continuous and increasing popularity of the Cyclemaster wheel unit is proof enough that it fills a need. The original 26 c.c. has been replaced by a slighty larger engine of 32 c.c. and the late type "Bantamag" now has lighting coils, but, apart from this and a change of colour, the unit has remained virtually unchanged since its inception and the fact that the 100,000th wheel recently came off the assembly line demonstrates that the Cyclemaster idea was sound.

The unit received for test was mounted in the Mercury cycle that is designed specially for use with the Cyclemaster and is produced at very competitive price, sold less rear wheel. The machine has 2in. balloon tyres and a large, soft *Lycett* saddle for comfort, and is finished in the same attractive polychromatic grey colour as the engine unit itself.

The first impression for one who has experienced the earlier *Cyclemasters* is the unexpectedly large increase in power that has resulted from the slightly greater cylinder capacity. This 32 c.c. engine gets away from a standstill on the clutch, if one is brutal or lazy enough to let it and goes smoothly and easily straight up to a steady 18/20 m.p.h. by the *Smith's* speedometer fitted. The maximum reached by the clock was 23 m.p.h., but this involved waiting for it and was also somewhat noisy. Minor gradients are taken with ease and without recourse to the pedals and only real hills demanded rider assistance when the speed had fallen below 8 m.p.h.

With the wind astern or down a steady grade the speed could be sent up to nearly 30 mp.h. without any apparent stress and strain and with a complete absence of vibration, but speeds of this sort are not really in the cyclemotor world and the tests were made purely to check (and wonder at) the ability of the engine to rev. At the other end of the range, walking pace could be maintained with the clutch fully engaged and a smooth getaway made from there when the throttle was opened.

This clutch, incidentally, is a real help in traffic. It is a single-plate cork insert job, running constantly in oil and seems capable of taking anything the rider cares to hand out in the way of hard work without complaint. It takes up the drive smoothly, never slips under load and, most important with pedal machines, frees cleanly and completely when withdrawn thus enabling the machine to be pedalled like an ordinary cycle without drag. The withdrawal lever is fitted with a finger operated toggle catch so that the lever stays "out" when left and is released by the use of the first finger. It fits naturally to the hand and the use seemed natural after a few minutes riding.

Starting was easy and certain, a matter of a couple of pushes at the pedals when warm and no more than three or four when the choke was used for a start from the coldest cold. It is, however, a real irritation to have to dismount after fifty yards or so to return the choke to the open position and, whilst appreciating the desirability of keeping cyclemotor controls at their simplest minimum, it is felt that some remote control, perhaps a rod reaching up to beneath the saddle, would be a worth while refinement. Once started, the engine pulled away evenly with very little four-stroking hot or cold.

In common with far too many present day cyclemotors, the *Cyclemaster* exhaust was too noisy for comfort when the engine was really turning over on a wide throttle. There was also a certain amount of mechanical noise that is not heard from the simpler roller drive machines, but this appeared to be magnified to some extent by the revolving metal shell of the hub. This problem of silencing is one for the Trade as a whole to tackle and the *Cyclemaster* is no worse than average. In fact, from the rider's point of hearing, the position of the engine below and behind made it seem unobtrusive from the saddle.

The only other point of criticism concerns the Coaster-type rear brake which was not a real stopper even when the rider's whole weight was used on the pedal. It did, however, provide some useful slowing down on hills and showed no signs of fade through overheating. By contrast the stirrup type front brake was most efficient on its own.

At night the lighting coils provide a magnificent beam from the headlamp and a legal enough glow could be maintained by keeping the engine at a tick-over in traffic stops. No parking battery is provided.

The *Mercury* cycle itself was of of the open frame type (Cross-bar frame available if required) and appeared to be somewhat whippy, noticeably so at very low speeds over bumps. These rear engined machines are always at a disadvantage when being manhandled up steps or through gateways and this test model had a large touring bag, a carrier and two panniers at the back as well as 34 lbs. of *Cyclemaster* wheel, which made it so tail heavy that a woman aquaintance asked to lift the machine by by the saddle with one hand was unable to cope. Once on the road with the rider's own weight on top the machine was stable enough, but it would seem that the carrier and panniers when loaded would be better off over the front wheel.

Petrol consumption returned a test figure of 168.4 miles per gallon with a mixture of town and suburban riding. There was no opportunity to give the machine a long straight run on open roads, but it seems probable that the makers claim of over 200 m.p.g. would have been handsomely justified under such conditions.

To sum up, the *Cyclemaster* is a sound, high performance specimen of the attachment unit, with the additional advantages of being easy on the eye, out of the way on the machine and having a real clutch. The chain drive eliminates the need for special consideration over tyres. The *Mercury* cycle is unusually comfortable, handsome and remarkably cheap. The combination of the two provides excellent value for money in easily handled, reliable personal transport.

Specification

CYCLEMASTER. 32 c.c., Bore 36mm., stroke 32mm., flat-piston two stroke with alloy head. Petroil lubrication. Flywheel magneto with integral lighting coils. Amal carburettor. All-chain drive via cork-insert clutch running in oil. Built-in Coaster type rear brake.

MERCURY cycle. Open, straight tube frame, 26 x 1¾in. wheels with 2in. tyres. Wide mudguards. Lycett soft-top saddle, Roller lever front brake.

Weight of complete machine 71½lbs. dry, of which the makers figure for the Cyclemaster wheel unit is 34lbs.

Prices :

Cyclemaster wheel unit complete £27. 10s. 0d.

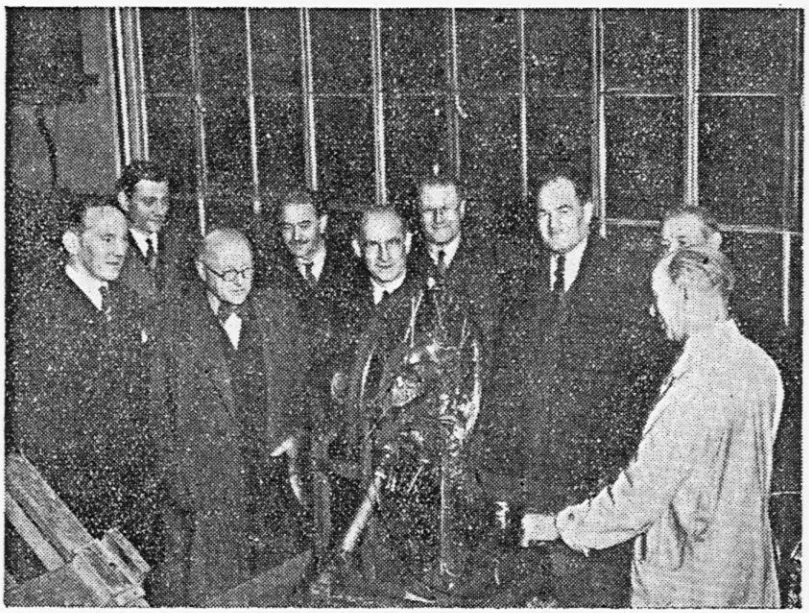
Mercury cycle, less rear wheel, inc. P.T., £13. 19s. 0d.

THE HUNDRED THOUSANDTH WHEEL

The 100,000th Cyclemaster wheel unit came off the assembly line at the E.M.I. Factory at Hayes, Middlesex, in December, 1952.

In the picture are Sir Alexander Aikman, Chairman of E.M.I. and three directors of Cyclemaster, Ltd., Mr. Calcot Reilly, Mr. Palmer Phillips and Mr. J. D. Mc Gregor.

Manufacture of the Cyclemaster commenced in September, 1950



ROAD TEST REPORT

The "Palco" Shock-absorbers have now been tested on the editorial machine and the opinions of three testing riders are reported.

Anyone who has tried to sleep in a train or other moving vehicle with a well-sprung seat cushion or even air cushion as a pillow will know how the bouncing of the head because of the reaction of the springing becomes a major and at times insuperable problem. For this reason many experienced travellers (and old soldiers) carry a small pillow of flock or down despite its bulk. The ordinary pillow or cushion of this sort does not have anything like the range of movement of the sprung type, but it does stay put and give a soft ride. That is what a shock-absorber does, and while the ideal ride on the road may be both springs and shock-absorbers, the makers of the Palco claim that their product gives the greatest advantage for the smallest cost in cash, weight and complication.

The makers recommend that the setting be varied for riders of different weights but for the purposes of the test, riders of 10½ stone, 12 stone and 13½ stone have all ridden the machine with the shock-absorbers set as received.

On good roads none of the test riders could detect any effect at all in the handling of the machine, and one man made a short trip on it without even knowing that the "shockers" had been fitted! On a five mile test over cobbles all the riders felt considerable improvement in comfort, the heaviest rider appearing the most impressed. Then a really tough tryout was arranged with the front tyre pumped very hard and the machine being driven up and down curbs and steps and over waste ground. This could not, of course, be comfortable but the worst of the jar was taken from the rider's wrists and control of the machine was much improved.

With a stirrup type front brake, even with the brake blocks set to rub slightly when dismounted, some loss of movement and power was felt, but against this, the brake judder, to which this machine has always been prone, disappeared completely, being absorbed by the cushioning of the Palcos, and the brake could be jammed on hard in full safety and comfort.

Another slight disadvantage is that the mudguard has to be persuaded to take up a fresh position to follow the forward placed wheel, but this is not a major problem.

The Palco Shock Absorber does all it is claimed to do and really does add to the rider's comfort and save wear on head bearings and strain on spokes. For the man who has daily bumps to contend with it is highly recommended.

WALES—*cont. from page 7*

The traveller is now on the eastern bank of Milford Haven: that great fiord-like inland waterway which divides Little England into two and even in these times presents many transport difficulties.

It is upon the twenty miles of wooded shallows of the upper reaches, also to come under the protection of the National Trust scheme, that the county town of Haverfordwest stands.

Here the old and new contrast: a ruined castle does not hide a busy and prosperous air; a quietly living town one would say, very self-contained in its business and self-sufficient in its needs.

From the year 1200 AD when the chief centre of the slave trade was at Bristol, great commerce was carried out between Haverfordwest and that city. The inland waterways upon which the town stands are no longer navigable for large craft, nevertheless the presence of The Bristol Trader hostelry upon the deserted little quay is a reminder of the commerce which once flourished here.

More recently boats loaded with chalk kept this stretch of water busy on their way upstream to the kilns where the cargo was burned and sold to farms in all parts of the county.

In the lower part of the haven and opposite Angle is a small piece of land known as Thorn Island. Like all the headlands on this coast it was fortified against the invader by a small building with a look-out tower. Whilst most of the others have fallen into decay that upon Thorn Island has not and is now a small hostelry with limited accommodation, a pleasant stopping place should one decide to cross the estuary by boat. Angle's sister village on the opposite side of the water is Dale situated upon a continuance of the flat country of the east and from which may be visited the islands of Skomer and Skoholm; islands which are now bird sanctuaries but which also contain many stones, circles and earthworks of a former occupation.

From here the traveller into the National Park turns towards the west where the hamlets of Marloes, Little Haven and Broad Haven situated at the dips in the hilly coast repay a call.

Six miles farther on the cliffs dip down to the flat surfing beach of Newgale, giving five miles of golden sand and turquoise sea free from weed and rock; here the traveller may enjoy himself with the great Atlantic as the sole witness of his peaceful solitude.

Centuries ago the Welsh had a name for Pembrokeshire. In their own language they called it "the land of Charm and Magic".

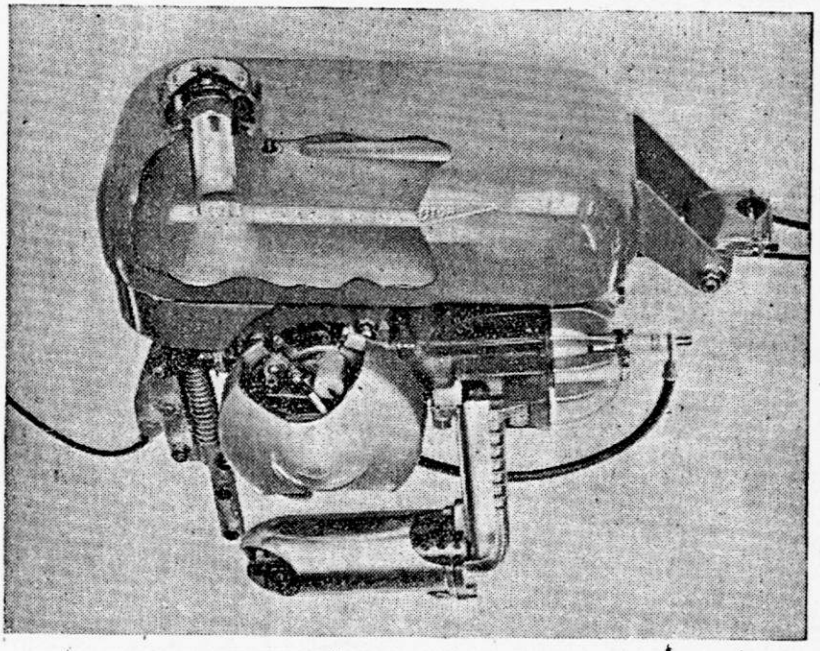
To-day the description is more than apt, and a visit to this "Colonial possession" of which most Englishmen are unaware will give a refreshing new view of South Wales.

THE SERVICE DEPARTMENT SAYS:

A monthly feature provided by manufacturers' service departments on machine maintenance.

THIS MONTH

MINI-MOTOR



THE Mini-Motor, like any mechanical contrivance, will perform more satisfactorily if it is maintained correctly and the following hints and tips are for owners' guidance in achieving the best from their Unit.

For easy reference each aspect of the Unit will be dealt with in turn.

FITTING THE UNIT

First and foremost the bicycle should be in a roadworthy condition with brakes working correctly, wheels and spokes in good order. One cannot expect the best from the Unit if the bicycle is not in good order.

Distance between roller and tyre should be approximately $\frac{1}{8}$in. when motor is in the "off" position, and the roller should run true with the tyre.

Cables should be adjusted to give maximum pull with minimum effort. Never fit cables with acute turns, otherwise a correct pull will not be obtained and breakage will occur.

IGNITION

The Mini-Motor is fitted with either a Wico or Miller Magneto and engine numbers bearing the suffix Z leave the manufacturers fitted with a Miller Magneto. The snags that may be encountered with the ignition are itemised below

Coil. This particular component does not normally fail unless it is mishandled, either damaging the insulation or by pulling away any of the connection wires; either of these occurences will result in a complete lack of spark.

Condenser. Again a component that does not normally break down unless misused. Symptoms of a faulty condenser are undue sparking at the contact breaker points or lack of spark at the sparking plug under compression. A faulty condenser may function reasonably well when the engine is cold but as the whole Unit warms up, sparking may become irregular or fail altogether.

Contact Points. These should be examined about every 1,000 miles and checked for correct clearance and if worn or pitted should be replaced. The correct clearance is .018 in. with the piston at top dead centre.

Lubrication of Magneto. The only lubrication necessary is on the contact breaker arm. One drop every 1,000 miles should be ample, but too much oil will interfere with the efficiency of the Magneto.

Sparking Plug. This should be kept clean and the points maintained at a gap of .018in. If the plug is cleaned by sand-blast, it is important that all sand is blown out before replacing in engine.

Important. If any adjustments are necessary to the Magneto and they entail removal of the flywheel, then the special tool, which can be obtained from the dealer should be used. Never lever the Flywheel from the Magneto back-plate.

CARBURETTOR

Each Unit is tested before despatch from the manufacturers and fitted with a size 45 jet, although it may be possible for the enthusiast to obtain the maximum results by fitting a larger or smaller jet according to circumstances.

If the carburettor floods it is probably due to a damaged float or the float needle. When replacing, care should be taken as the float is easily damaged. The point of the needle should be uppermost and located in the carburettor cover. The carburettor should be fitted square and secure on the inlet tube.

DECARBONISING

The Mini-Motor will require decarbonising at intervals of approximately 1,000 miles. This job should be tackled by a Mini-

Motor Dealer unless the owner is sufficiently experienced to undertake this work himself. In the latter case the following sequence is recommended.

Remove the sparking plug, cylinder head and exhaust silencer. Carefully scrape the carbon deposit from the inside of the cylinder head and from the piston top. Also clear the carbon from the two small recesses on the sides of the piston crown.

The cylinder will also have a carbon deposit near the cylinder head joint corresponding to the aforementioned recesses in the piston. These carbon deposits should also be carefully removed.

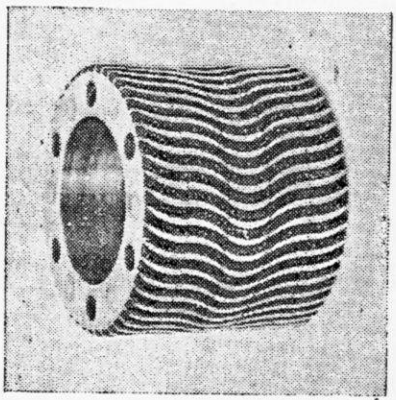
Remove the decompressor valve, clean and reseat if necessary. Make sure that the decompressor is tightly screwed into the cylinder head, always using a new copper and asbestos washer when refitting the decompressor.

Now, turn the engine until the piston is at its lowest position and, looking into the exhaust port, you will find that it probably has a carbon deposit around the edges. Scrape away this deposit. Now wipe the inside of the cylinder with a clean rag. To remove any particles of carbon which may have fallen in, blow through the exhaust port with a hand pump. When you are satisfied that the inside of the cylinder is clean, carefully clean the contact surfaces of both cylinder and head and then make a joint with gold size, shellac or similar compound, and a new gasket. When replacing the cylinder head tighten the three securing bolts progressively, then check again for tightness when the engine is warm after restarting, when your service work has been completed.

BRINGING THE MINI-MOTOR UP TO DATE

A feature of Mini-Motor technical policy has been that improvements introduced into new models (Mark II and Mark III) can also be fitted to the older machines.

The most important of recent improvements fitted has been the introduction of the MA 161 roller (Price £1. 6s. 6d.) to the Mini-Motor Mark III. This is a hardened steel roller of special design which performs effectively in the worst weather conditions, and it can be fitted to all previous Mini-Motors. To effect the exchange, the old type roller should be held with the special spanner provided, and the lock nut unscrewed. The old roller can then be withdrawn and replaced by the newer type. This in turn has to be held with the new special spanner (Part No. A163, price 2/-) and care must be taken that the lock nut is securely tightened.



The decompressor, which was introduced on the Mark II, Part No. K109, price £2. 0s. 0d. (this price includes a new cylinder head) can be fitted without difficulty to those engines already fitted with a plugged head. Another feature of the Mark II was the toggle action at the back of the Unit. This has the effect of locking the engine in the "off" position. The assembly is Part No.K 107, price £1. 10s. 0d.

GENERAL POINTS

Four-Stroking. This is normally brought about by too rich a mixture and can be caused by a damaged float, by the carburettor being tilted, or by too large a main jet.

Loss of Power. Engine may need decarbonising. Piston rings may be worn.

Engine refused to start. Lack of fuel, dirty plug, pitted or worn contact points, decompressor valve sticking, blocked jet, "blown" cylinder head gasket.

Oilseals. One of the smallest but most important component parts of the Mini-Motor Unit. They are located at both ends of the crankcase immediately behind the main bearings and their function is to maintain compression in the crankcase. If they are worn or fitted incorrectly, the Unit will not function as it should do, and wear on bearings will result. The Mini-Motor Dealer should be consulted if any replacements of oil-seals are necessary.

DO'S AND DON'TS

DO keep tyres pumped up and in good order.

DO lubricate cable ends and such moving parts as toggle action and forward hinge lug.

DO check periodically all nuts and screws and see they are tight and keep engine clean.

DON'T ever use levers for removing the flywheel.

DON'T run for any long period with the decompressor valve open.

DON'T descend a long hill with the Unit in the drive position and the throttle completely closed.

DON'T cut away too much mudguard when fitting the Unit, just enough to clear the engine and carburettor body.

DON'T allow the H.T. lead to come in contact with the exhaust manifold.

DON'T clear blocked jets by inserting a pin or needle (this will enlarge jet considerably). The correct procedure is to blow through the jet.

DON'T allow the air-hole in the filler cap to be obstructed by saddle or pannier bags.

DON'T hesitate to contact your dealer or Mini-Motor (Gt.Britain) Ltd., if you are in trouble with your Unit.

A. J. GLOVER, *Service Manager, Mini-Motor (Gt. Britain) Ltd.*

Question and Answer

Address your queries to Q & A, and enclose SAE if postal reply is required. Full information must be given if our replies are to be helpful.

Q

One of the cyclemotors now on on the market is of 48 c.c. and the makers claim 1¼ h.p. from it at 5,250 r.p.m. Now, all the horses I have known have been 100 c.c. per horse power *or* the power required to lift 33,000 lbs. one foot in one minute, and I very much doubt if 48 c.c. or 1¼ h.p. will do it.

Why do manufacturers always give this developed horse power, which to my mind is useless as these "developed" horses do not seem to be able to do any real work. Can you explain all this?

ARTHUR HIMSWORTH

Sheffield.

A

The machine you refer to most certainly does provide the 1¼ "developed" horses at peak revs. and we think it unlikely that any reputable manufacturer would take the risk of quoting a figure for his engine that the test bench did not confirm.

The thing to be remembered is that this power is only available at peak revs and with the engine in peak condition and it may be an advantage in practice to keep the maximum output down in order to have the power where it is wanted, at hill-climbing speeds, in an engine that is not too fussy about a couple of millimetres of "coke" on its piston crown. The quoted brake horse power is of value to a prospective purchaser if he considers it in relation to engine speed and the amount of time he is prepared to expend on maintenance.

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PARTNER WANTED

With "Power & Pedal" now firmly established as the only cyclemotor journal in Britain and the job of running it getting heavier the editor requires a partner to share the work and pleasure.

Journalistic and advertising experience will be an advantage, but the main qualifications are some capital and plenty of guts. These David and Goliath fights are not easy— YOU HAVE BEEN WARNED.

Editorial Announcement

This issue is so full of good things that this is the only space left to say that although we have given three full pages to reader's letters, many interesting ones were held over. Do you like it this way—or shall we cut down on that item—or even increase the space?

The "Focus" feature in next month's issue will be on CLOTHING & EQUIPMENT, fully illustrated with original drawings and photographs and with the latest scientific answer to the English climate in detail at your service.

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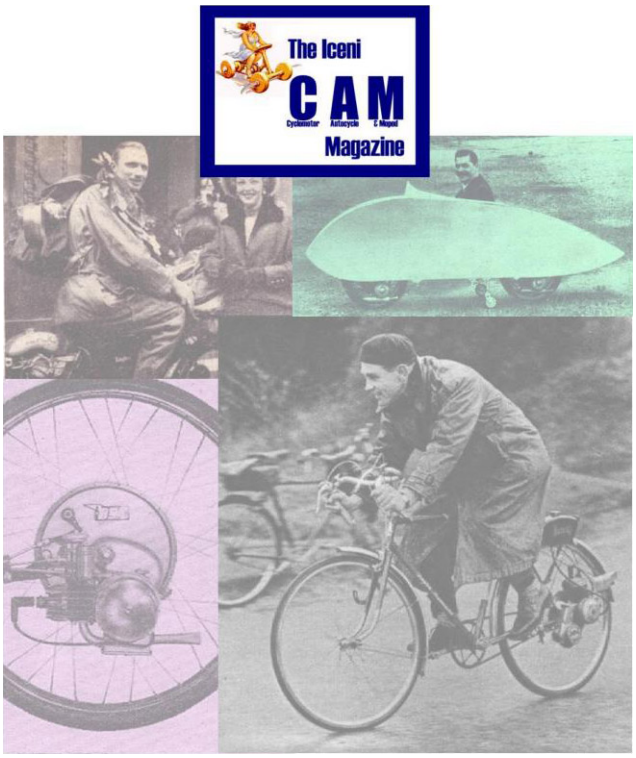

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