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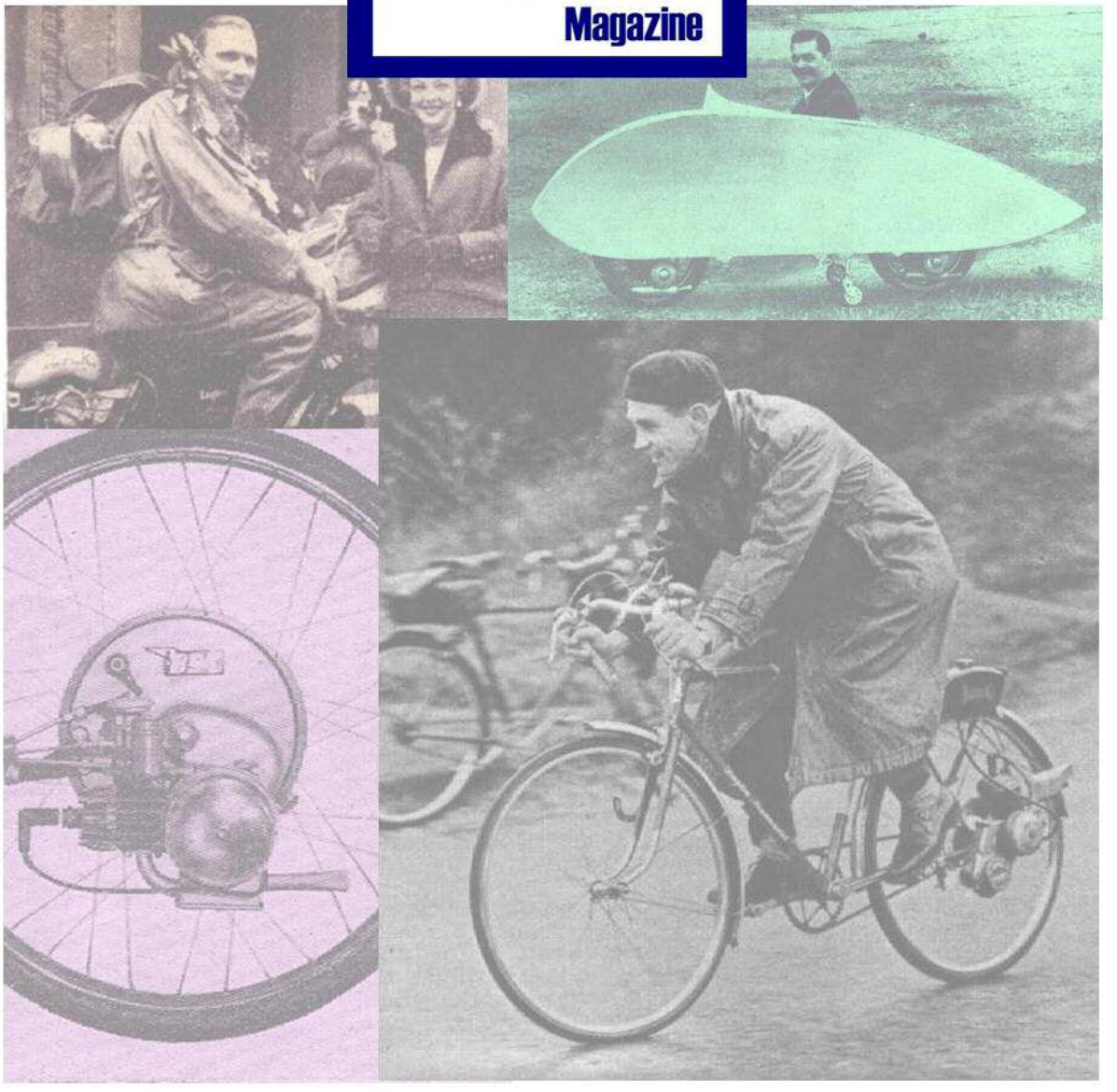
Cyclemotor Autocycle & Moped



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Harry Louis Samples— A PEDAL-CYCLE

Experiences with the Ingenious Mosquito

LAST March, when at the Swiss Show, I was smitten by the appearance of the Mosquito auxiliary engine. Among quite a host of small two-strokes and four-strokes, it was the tiniest engine of its type exhibited. The name of the makers, Garelli of Milan, added to the interest, but the ingenuity and excellence of the design and its solid, practical advantages were the considerations that led me to want to test the Mosquito.

It took months to arrange matters, but eventually the Mosquito arrived attached to an attractive Hobbs of Barbican bicycle. Thereafter, for about a month, I used the machine regularly as a town hack.

One of the attractive features of this little power unit is that it can be fitted in a few minutes to any standard bicycle. The overall width is 3⅞in, which is narrow enough to clear the pedalling cranks. Attachment is simplicity itself—just a clamp between the rear fork tubes immediately behind the bottom bracket and a clip round the front down tube. Between the clamp and the crankcase of the engine are links, and between the clip and the cylinder head is a flat strip of spring steel. This method of attachment allows the engine, by means of a small hand lever, to be moved bodily an inch or so back to bring the driving roller into contact with the rear tyre or forward when the drive is not required.

Twenty Minutes to Fit

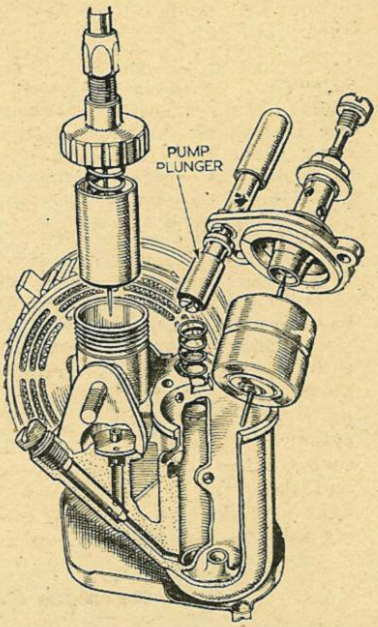
The 38 c.c. two-stroke unit is complete in itself, with carburettor, rotating-magnet magneto, exhaust system, reduction gears and driving roller. There are two controls on one clip for mounting on the handlebars—a throttle and a decompressor—and a petroil tank protected by a tubular carrier to fit astride the rear mudguard. Starting from scratch one can fit the engine, controls and fuel tank in about 20 minutes and remove the lot in half that time.

The total additional weight is 21 lb, so that with the drive disconnected the Mosquito-equipped machine does not feel in the least cumbrous if used as a normal pedal-cycle.

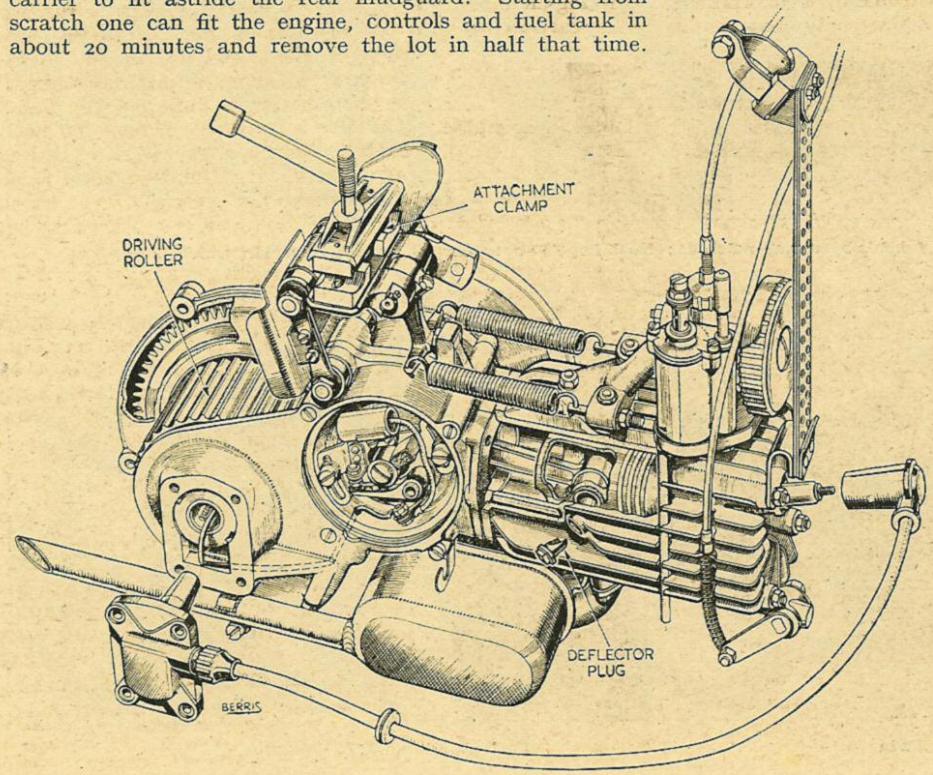
There is real craftsmanship in the engine. The crankshaft runs on roller bearings and there are needle bearings at the big-end. The relatively long cast-iron piston has a slightly domed-crown and a full skirt; it carries three pegged piston rings. The gudgeon pin is hollow at the ends, but solid in the middle, where it is clamped in the pinch-bolt type small-end eye of the connecting-rod.

On the nearside mainshaft is an exposed flywheel to which is riveted, on the inside, a helical pinion meshing with a larger pinion of the grooved driving roller. The reduction is two to one (34 teeth on the mainshaft pinion and 68 teeth on the roller pinion). This drive is totally enclosed in a casing formed by the aluminium crankcase casting and is lubricated through a grease nipple.

Snugly nestling in the housing formed in the crankcase on the offside is a contact-breaker actuated by a cam on the crankshaft. Ignition is by magneto. The driving roller, which runs on ball bearings, enshrouds a rotating-magnet magneto, and from the stationary coils the lead to the contact-



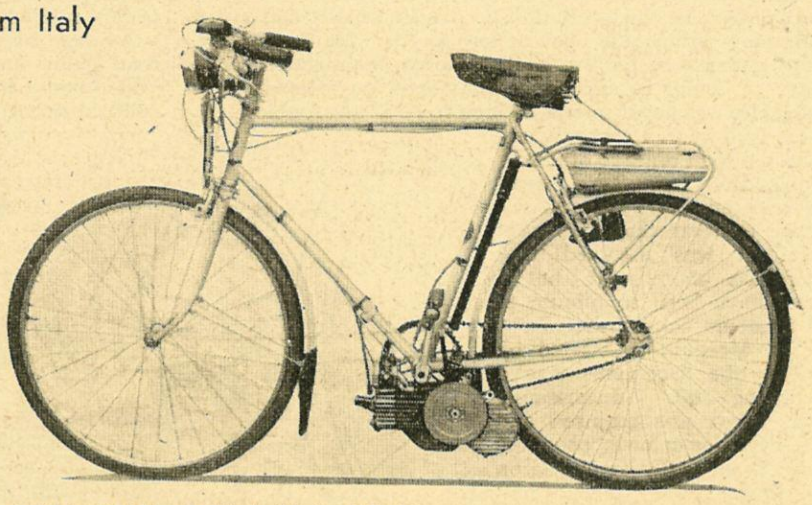
The Dellorto single-jet needle-valve carburettor has many ingenious features, including a manual pump for flooding when necessary



A close-up of the 38 c.c. Mosquito engine. The unit has an overall width of only 3⅞in.—narrow enough to clear the pedalling cranks

PLUS A MERE 38 c.c.

Auxiliary Engine, Specially Imported from Italy



A lightweight bicycle fitted with the 21 lb. Mosquito unit weighs little more than the old type of "dreadnought" bicycle

breaker runs through a drilling in the crankcase casting. The high-tension pick-up connects with a spring-loaded carbon contact in the middle of the coils.

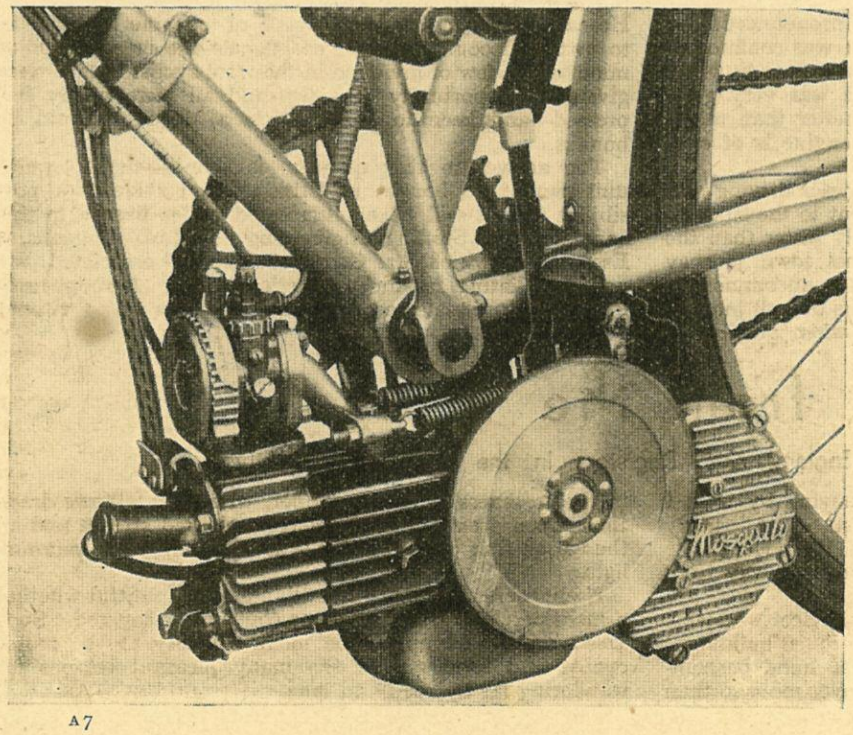
Four long studs in the crankcase retain the cast-iron cylinder and light-alloy cylinder head. The porting in the cylinder provides counter-current gas flow, and very careful attention indeed has been given to port finish and contours. The 10 mm. bore carburettor mates with a similar bore in the light-alloy intake adaptor. The port in this adaptor merges to an elongated shape to match a similar port in the cylinder. This port is machine finished throughout and, of course, leads down into the crankcase.

Opposed crankcase cutaways in line with the crankshaft communicate with the transfer ports in the cylinder. These ports have outlets which give the gas a bias towards the cylinder head and away from the exhaust port; the top of each transfer port is drilled from the outside at this angle and the holes are plugged with meticulously contoured light-alloy deflectors. There is a single exhaust port leading into the box-type silencer under the engine.

An Ingenious Carburettor

The carburettor is a Dellorto of the single-jet needle-valve type. Though it is a tiny instrument, it incorporates a quickly detachable jet (one screw only has to be removed), a combined air filter and choke, a drip tray with a waste pipe to lead the overflow fuel clear of the engine and, most attractive of all, a manual pump for flooding the carburettor when necessary.

At the side of the top-feed float-chamber is a simple spring-loaded pump. The fuel passes through a port about half way up the float-chamber to the pump-chamber (when not depressed, the plunger is above the port). From the base of the pump-chamber the fuel then runs through the submerged jet and up by way of the needle jet into the mixing-chamber. That is the normal fuel supply through the carburettor. When one floods the carburettor, the plunger forces the fuel in the pump-chamber up into the mixing-chamber; as the plunger is released the pump-chamber is replenished from the float-chamber, and so on. Hence the tiny float and its needle are never maltreated by thoughtless, heavy "tickling."



On the nearside mainshaft is an exposed flywheel to which is riveted, on the inside, a helical pinion meshing with a larger pinion of the grooved driving roller

Roller Drive

Questions invariably asked by those who see the Mosquito for the first time are (a) Does the roller slip very much?; and (b) How quickly does the rear tyre wear? I have come to the conclusion that both questions stem from needless fears.

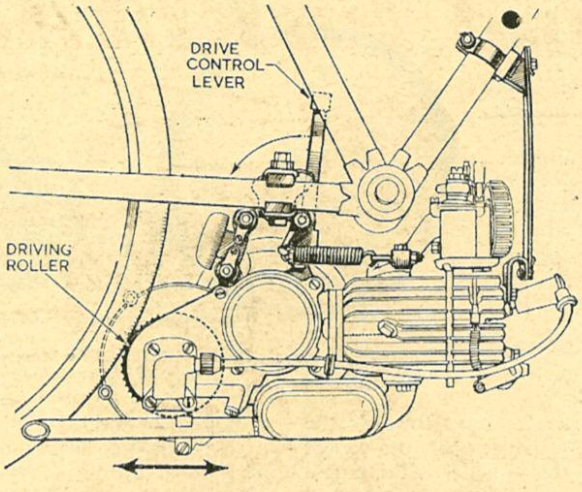
Roller slip cannot be provoked in dry weather. When the tyres are wet it is a different story if one is intent on causing the drive to slip. That is to say one can obtain 100 per cent slip by keeping the throttle wide and stopping the machine suddenly with both brakes. But the amount of slip that

A PEDAL-CYCLE PLUS A MERE 38 c.c.

occurs when the machine is used in the ordinary way is negligible. All one has to do is to drive normally and avoid slamming the throttle open at low speeds. Many journeys were undertaken on wet roads without the slightest difficulty; I found in experience that even on steepish hills roller slip was never serious enough to be at all troublesome.

On tyre wear, I can only say that in a total mileage of nearly 1,000 the rear tyre tread showed no more visual evidence of wear than the front tyre. It was assumed that there was more wear, but it must have been so minute as to be of no consequence.

The Mosquito is started by raising the decompressor and pedalling off. Surprisingly little effort was required and the need for a lower pedalling ratio as generally employed on autocycles was never felt. With the carburettor flooded and the choke in use, about half a dozen digs on the pedals were necessary when the engine was cold, but a warm engine would start every time on one depression of a pedal. Thereafter, the machine would buzz along gaily at any speed from a slow walking pace to its maximum on more or less level roads of 18 to 20 m.p.h., which means about 4,000 r.p.m. The engine was absolutely happy and without perceptible vibration throughout the speed range. It had what I regard as a particularly desirable characteristic—it would keep two-stroking uncommonly well. Only when definitely on the overrun did four-stroking occur, and even then it was not pronounced.



Engine, controls and fuel tank can be attached to a bicycle in about 20 minutes. The simple drive to the rear wheel is shown clearly in this drawing

Silencing was adequate and engine noise was confined to a very slight ring from the roller drive gears and flywheel at revs near the maximum. Carburation was very good and the pick-up and acceleration much better than might be anticipated bearing in mind that the engine is of only 38 c.c.

The normal speed at which I found myself driving was at something near maximum (a compliment to the smoothness of the engine), and it was appreciably faster than the average cyclist travels. During a normal town journey with the usual traffic hold-ups it was not uncommon to find that the Mosquito was no slower on the overall journey than other vehicles that were travelling when possible at the legal-limit speed. Without any annoyance to others one could make up time by manœuvring past halted vehicles and joining the cyclists near the head of a traffic queue. As intimated earlier, the absence of a clutch was no disadvantage because with the decompressor raised the pedals could be used comfortably.

Average hills were easily surmounted. To find a main road incline that would stop the Mosquito I tackled Anerley Hill, Crystal Palace, which is about 200 yards long, has a cobbled surface and has a gradient of 1 in 8 at the steepest part. An idea of its severity may be gathered from the remark of an omnibus inspector who assured me that in seven years' duty covering the area he had only once seen a cyclist climb the hill without dismounting. The Mosquito climbed with a total of 30 digs on the pedals—four periods of seven or eight digs to keep the revs up. George Wilson, who is about 28 lb lighter than I, made several climbs with only 20 prods.

Fuel consumption was checked during the period when I was experimenting on hills and making other tests, all of which meant very hard work for the little engine. The figure? No less than 270 m.p.g. That means a range of nearly 150 miles on one tankful of petroil. A cyclist doing his daily cycling journeys with a Mosquito attachment would probably find it necessary to fill up only about once a fortnight with half a gallon of petroil.

It seems to me that the Mosquito, apart from being a thoroughly good engineering job and a sound practical proposition, must make a very strong appeal to the cyclist. He can fit the engine to any type of machine he happens to own and could learn to use the engine in a matter of minutes. A few of my dyed-in-the-wool cyclist friends were given the opportunity of a flip and all were highly impressed—and keen to know where a Mosquito could be bought.

The answer to that question is simple—the Mosquito unit cannot be bought in Britain. But there is a possibility that it will be manufactured under licence in this country. The Sterling Engineering Co., Ltd., Dagenham, Essex, with which Mr. George Patchett is associated, are now negotiating for the production rights. A rough estimate of its probable cost when in production is £15 without Purchase Tax.

View from the Bridge

A Glimpse of England that Registers in the Mind Permanently

AFTER many delightful years of journeying by road I have been able to assess "the high spots" fairly accurately. One of these is the view of Warwick Castle seen when passing over the river bridge on the way from Banbury.

The impression one gets there is of a perfect *ensemble* of river, trees, and a majestic, well-proportioned building—a glimpse of England that registers on the mind permanently. At all seasons it is beautiful, but never more so than in the freshness of early summer, when the willows drape their green dresses over the velvet-coloured stream and all the varied tints of the castle are accentuated in the morning light.

If one were to search these islands it is doubtful whether a more perfectly balanced scene could be discovered. Such views are stored up in the mental gallery of the motor cyclist and form one of the many pleasant reasons for wandering far by road and lane. AELLA.

FOUR WINDS

By "NITOR"

was: The total number of additional staff engaged since the abolition of the basic ration is 263, plus 46 loaned by other Government Departments. The approximate cost is £6,000 *per month*. (The italics are mine.) A full reply "could not be justified in present circumstances." What an alarmist's expedient this basic ban appears to have been. When the total cost of maintaining the ban is added to the loss of revenue (as well as the loss of Purchase Tax from new vehicles sold) the figure will have reached prodigious proportions. The price of dollars in this case is high indeed.

♔ ♔ ♔

THIS ENGLAND

MOST restrictive legislation results in some anomalies. The present position over motoring is high on the list. At a time when public transport is groaning under its loads and one has to be a magician to find an empty taxi, thousands of motor cycles and cars are deteriorating in garages. An example came my way last week. A friend living in Buckinghamshire had to have a car to come to London on business. In his garage this fortunate enthusiast has a 1947 Triumph Tiger 100, a 1948 Speed Twin with spring wheel, and a 1947 M.G. car. He hired a 1946 Morris 8 for his journey!

♔ ♔ ♔

OFFERS, PLEASE

ONCE again the Board of Trade is stressing paper economy. An extract from a recent circular reads: "The maintenance of paper supplies even at the present level is, moreover, dependent on the ultimate recovery by salvage of a volume of waste paper representing an adequate return on the present consumption." May I ask you to be salvage conscious whenever the opportunity offers? But not to the extent of disposing of your copy of *The Motor Cycle* before it has been seen by others who may want to read it. The number of lads at home whose orders cannot be accepted is legion. Until more prosperous times and, therefore, more paper is available, there is little hope of satisfying these orders. Meanwhile, my pass-on scheme is still going strong and again I have a lengthy list of names and addresses of lads who are waiting. If you regularly receive *The Motor Cycle* and would be so kind as to mail it on to a less fortunate enthusiast, will you kindly send me a postcard? I will then put you in touch with one of the "grateful receivers" on my list.

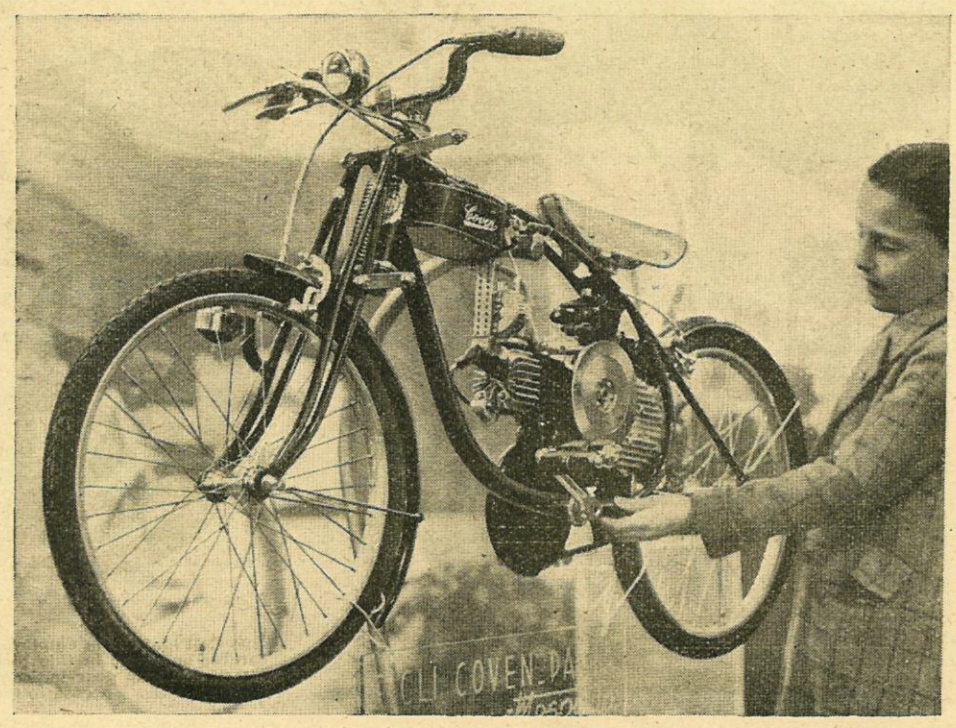
PETROL IN N.Z.

FOLLOWING my notes some while ago about motor cycling in New Zealand, a correspondent writes to describe the present petrol situation. Apparently the first step was to invite consumers to make a voluntary 10 per cent cut. The result was that consumption went up slightly because some people feared compulsory rationing and straightaway filled all available tins, drums and other receptacles. Then came a restriction on the filling of containers. Result—tanks were filled, emptied at home into containers, refilled, and so on, with no saving in apparent consumption. Latest news is that there has been a 10 per cent cut to retailers and there are restrictions on week-end sales of petrol. Latest rumour that makes those with stored petrol give a chuckle is that petrol coupons are already printed and will be issued shortly. May our New Zealand friends be spared the misery of coupons—though, paradoxically, we would welcome them back just now.

♔ ♔ ♔

RESOLUTION

ONE of the best New Year leading articles I saw appeared in London's *Evening Standard*. Headed "Basic Resolution," the piece starts: "Most New Year resolutions fail because they aim too high. Reaching for the moon results in falling to the ground. Success is far more likely when the object chosen is practical, well-defined, and regarded by most other people as desirable. From this point of view, no resolution more commends itself than a vow to continue and strengthen the pressure for the immediate restoration of basic petrol." The article ends: "The whole disastrous chain of consequences proceeds from a stupid inability to realize that so-called 'private' motoring is an essential part of the national system of transportation." Well spoken, leader writer!



On view at the Milan Show. The "egg-shaped" frame of this Italian lightweight cleverly accommodates the 38 c.c. Mosquito engine. This picture makes an interesting comparison with the British lightweight pedal cycle fitted with a Mosquito engine described on pages 26-28

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