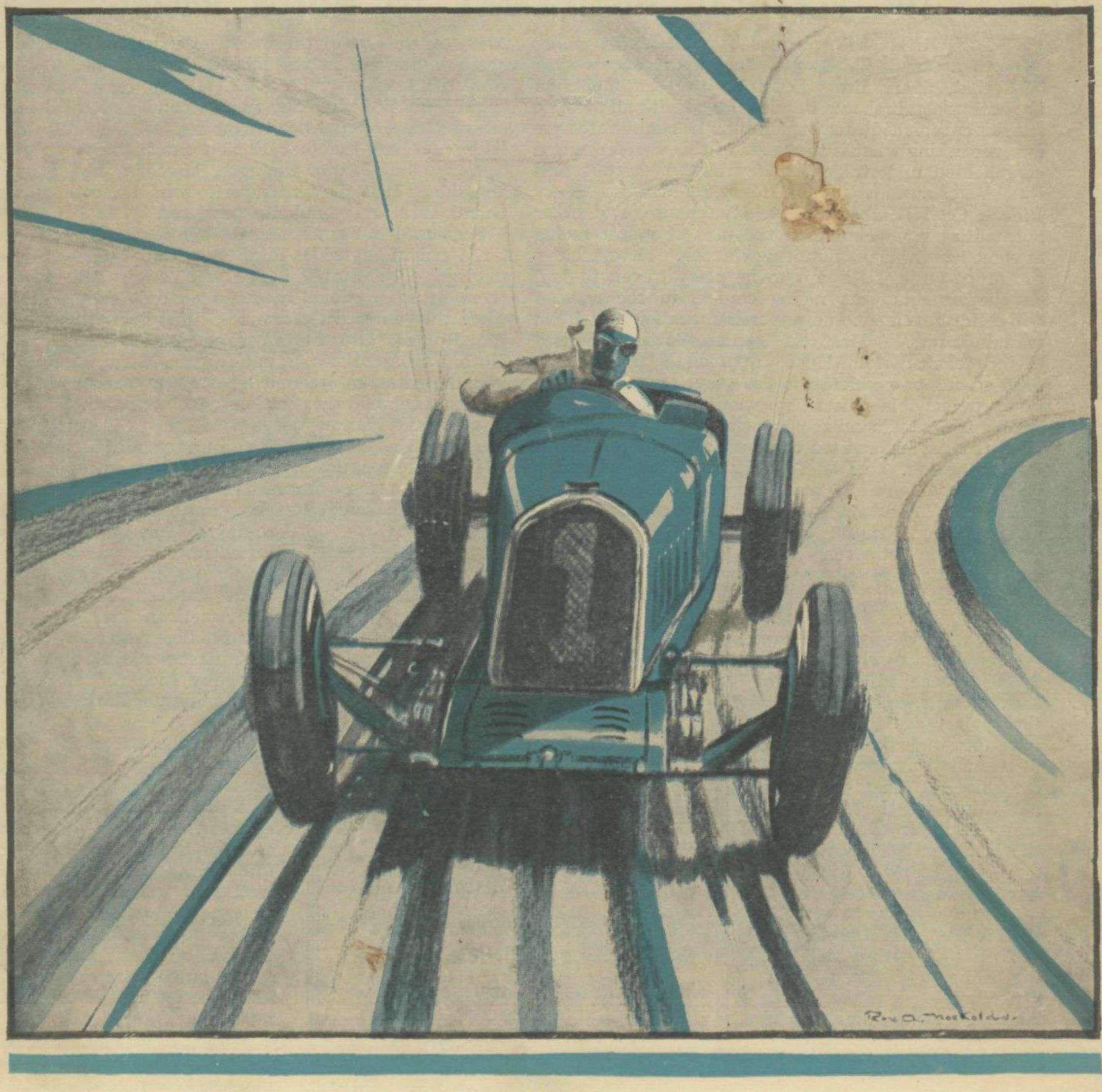
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THE POLITICAL SIGNIFICANCE OF MOTOR RACING

ALTHOUGH the war has brought motor racing to a standstill, its political importance is such that, apart altogether from the sentiments of the enthusiast, it should be encouraged with all possible fervour as soon as Peace breaks out. The uninitiated are for ever asking what is the value of this dangerous and complicated undertaking. They have been answered by hosts of authorities. Sir Henry Segrave, Sir Henry Birkin, Cecil Kimber, George Monkhouse, and other notabilities have explained the uses of motor racing at some length in the motoring classics. Nevertheless, too much emphasis is apt to be placed, even to-day, on the benefits that racing confers in the way of design improvement and advertisement for individual manufacturers. Most car owners, however limited their technical knowledge, appreciate that racing resulted in, or accelerated, the development of safe tyres, detachable wheels, reasonable brakes, efficient small engines and similar beneficial design factors. But all that must be credited to a past age, before the last European war. The Trade knew the advertising value of competition work—in the early nineteen-twenties. We are concerned with more recent times—and of recent times, particularly in the last seven years, motor racing has played a very important part in international politics. Charles Jarrott, in the year 1906, predicted that when racing ceased to benefit the Industry, then would racing cease. In that palmy age he could not have foreseen otherwise. The fact—and it is one we must recognise—is that whatever its value to the Industry, motor racing from the time of the last war has been a very important factor in the development of the international situation.

Mercédès won the French G.P. in 1908 with a 12.8-litre car, from a German Benz That we may take as a Mercédès endeavour, but in 1914, on the eve of the world war, we find Mercédès again victorious in this classic contest, the 4½-litre cars with sixteen valve o.h.c. motors, based on aero-engine practice, finishing first, second and third in a crowd-silence dramatically broken as the "Marseillaise" greeted the first French car home. In this country, long before the race, Mercédès had calmly announced that they intended to win the forthcoming Grand Prix for "publicity purposes."

Consider! For six seasons before the present war the German Mercédès-Benz and Auto-Union teams, undisguisedly State-aided, have swept all before them in international racing, their only serious rivals when they entered the arena in 1934 being the Italian Alfa-Romeo, also State-backed. Participation in motor racing allows a nation's engineers, designers, metallurgists and technicians to try out their skill against that of other nations; it inspires their youth to great and glorious deeds which they can perform in the air just as well as on the ground; and it serves both to illustrate a nation's potency to its own peoples, and to occupy a most impressive part in that "war of nerves" of which attacked nations hear so much to-day. This is not the distorted impression of a motor-racing paper. Read the views expressed recently in the American Press; consult any intelligent person, racing enthusiast or not, who saw Germany race at our circuit at Donington Park in 1937 or 1938.

When the war is won, we must appreciate the political significance of international road-racing as Herr Hitler appreciated it seven years ago, and Benito Mussolini even before that. A nation's political intentions and military efficiency are reflected in its motor-racing successes. Victory in a classic motor race means much more than sporting success to the Dictator mind.

WAR RESTRICTIONS

Owing to the necessity of further reduction in the use of paper, the style adopted for the present issue will be followed until further notice.

Knowing that our readers prefer something to read rather than something pretty to look at and hold, it was decided to discontinue the separate cover and thereby give them a few more articles which we hope will be of interest.

A WAR-TIME ROAD TEST OF A 1½-LITRE MARK II LONG-CHASSIS ASTON-MARTIN

AN EXCELLENT SECONDHAND EXAMPLE LOANED BY ROWLAND SMITH OF HAMPSTEAD

WAR is no respecter of animal or of human sentiments, and those persons who have scorned the idea of purchasing used cars may very soon have no alternative, for the industry is now virtually restricted to production for export purposes only, and dealers' stocks of new cars will not last for ever. In our world, this is of lesser significance, for many enthusiasts have long regarded the purchase of a secondhand car as quite permissible, either as an economy measure, or because a certain make or type no longer available from the manufacturer possessed an especial appeal, apart from which lots of folk have had heaps of enjoyment from cars which they could never have owned at all had it not been possible to buy in the used car market. Whichever way you look at it, this war has already placed the good-quality used car on a new footing, and for as long as the war goes on, and most probably for some time afterwards, this will continue to be so. Consequently, when the well-known dealers, Rowland Smith of Hampstead, informed us that they could place at our disposal a 1934, 1½-litre Mark II, long-chassis Aston-Martin two-door four-seater, we decided to test it in the same way as a new car, within the limitations imposed by fuel rationing, the impossibility of using Brooklands Track, and the fact that the speedometer was not working, so that we could not take all the performance figures we usually quote. Actually, it is greatly to the credit of the dealers concerned that this six-year-old car, costing originally £640, but now offered for 145 gns., could really be regarded practically as a manufacturer's demonstrator, for its black finish and interior leather upholstery were in really good condition, there was no excessive lost motion in the steering, and in some 190 hard miles no oil loss was evident, nor did oil fumes enter the driving compartment, while with the exception of the speedometer, screen-wipers, and the minute hand of the clock, every instrument and minor control was working. The hood was quite unworn, and the side screens, hood cover and tonneau cover equally presentable, and the screen glass entirely unmarked. With the exception of rather smooth front covers and one rear tyre, which punctured and was replaced by the retreaded spare, in like condition, the car might well have been a maker's demonstrator, and as such we drove and analysed it throughout the test. Our first impression was of the distinctive lines achieved externally, the whole car having an extremely well-balanced appearance, rendered distinctive by the low radiator, and two flexible outside exhaust pipes and external silencer and pipe on the near side. Installed in the driving seat, there was not a single item to negative the impression that here is a real motor car and one that expressly fulfils the needs of the true enthusiast. The stubby, rigid central gear lever, with big rubber knob, protrudes from the remote-control in exactly the right position, the big, four-spoke, rather thick-rimmed spring wheel is nicely raked, and the right-hand brake lever, if rather close to the door, is extremely well placed, with a pull-up ratchet control which holds securely, and provides racing action when not in use. The seating position is quite low, but both wings are just visible, and the seat has an air cushion, pleasantly flexible back, and Leveroll adjustment, like that for the passenger, both seat-backs folding well forward for access to the rear compartment. The pedals, with the accelerator central, are close-spaced, but not embarrassingly so, and there is sufficient, if not overmuch room, wherein to rest the clutch foot away from the pedal. The facia is well laid out with no unwanted ornamentation, being truly businesslike. From left to right it carries :—cubby hole ; Kigas ; dashlamp ; 6 inch Smith 100 m.p.h. speedometer below ; water thermometer ; oil gauge ; 6 inch Smith 6,000 r.p.m. rev.-counter below ; ammeter and fuel gauge between speedo and rev.-counter ; dashlamp ; St. Christopher medallion ; stop-lamp switch ; ignition and fuel pump switches below ; horn push. The ignition and main and reserve pump switches occupy a separate inset panel, and are of the type in keeping with the car, and the starter button is up behind the facia. The cubby hole is rather apt to eject large objects, and the horn push was not in use. The pull-out dashlamps are adequate. On the steering wheel centre are the three levers controlling throttle, ignition advance and retard, and dynamo charge and lamps, working accurately in fine serrations. The horn button in the wheel centre operates the mellow horn above the dumb-iron apron. The driving position is generally excellent, and the driver's door is appreciably cut-away in a manner most effective if the seat is brought really close to the wheel. The twin screen wipers have a central motor-box out of the line of vision with the screen flat. The external mirror gives quite a reasonable rearward view if one leans out to see into it. The doors, which lock, shut nicely, and the bodywork is generally solid and well made, while not seeming to be unduly heavy ; the brake lever rather demands contortionism in leaving via the driver's door.

Not long after we had taken over the car, torrential rain started to fall and we had very good reason to investigate the weather protection. The hood deserves full marks for being the easiest to erect and lower we have ever experienced, and it has a large rear light providing excellent visibility. In spite of the age of the car, the hood sat rigidly and had no tendency to sag or become detached. With the glass side-pieces, which serve also as aero-screens, attached to the main screen, and the forward side curtains erect, the protection is highly satisfactory, but it says much for the body layout, and the effectiveness of the deep cycle front wings that although the driver did not wear a coat and did not use the off side sidescreen, his right arm remained reasonably dry. We believe rear screens were originally provided, but these were missing ; nevertheless, the low hood kept the rear seat occupants quite dry, so that the fair sex did not complain at all, and it was not necessary to drape the tonneau cover about one. The storage arrangements deserve comment, the side screens and glass pieces living in a pocket in the rear locker, wherein is a tiny cupboard for the hood envelope. The clips and materials are of high quality ; a minor criticism is that there is no provision for securing the lower edge of the hood envelope, and unless it is carefully stowed, the hood tends to escape and billow out behind. It is already evident that the Aston-Martin is very well suited to ordinary as well as to sporting occasions. Additional confidence is lent by the rigidity of the cycle wings, those at the front anchored to the brake back plates and turning with the wheels, and of the outside exhaust system ; the Aston-Martin is one of the few cars on which such things are carried out really well, so that fear of sudden detachment never arises and even undue rattles are obviated, in spite of hard usage. Having made these observations, we were anxious to see how the road behaviour would line up. The 1,493 c.c. four-cylinder o.h. camshaft engine from the start proved to be perfectly docile. It would open up instantly with no sign of a flat spot and run up to high speeds with no vibration periods, and it would run happily at 25-35 m.p.h. (1,500-2,000 r.p.m.) in top gear without distress. Driving in built-up areas with no speedometer readings, and, later, on a black, wet night on side lamps alone, there being no masks on the headlamps, meant prolonged restraint, but the K.L.G. M60 plugs did not in any way object. The engine was almost inaudible at tick-over, and would actually run down to about 340 r.p.m. (6 m.p.h.) in top gear with the ignition retarded. Equally, the Aston-Martin was happy at the other end of the range. In the lower gears we achieved 4,700 r.p.m., and there was no sign of valve bounce, and the revs. were still going up ; the rev. limit is 5,500 r.p.m. This was equivalent to 28, 43 and 68 m.p.h. respectively. In normal driving, the car got along nicely if upward changes were made at 4,300 r.p.m. in each case, equivalent to 26 m.p.h. in first, 40 in second, and 62 in third. In town, or to conserve fuel, it was perfectly practical to change up at 10 m.p.h. (1,500 r.p.m.) in first, and at 18 m.p.h. in second, and 30 m.p.h. in third (approximately 2,000 r.p.m.). The maximum speed attained was 80.5 m.p.h., equal to 4,600 r.p.m. on the top gear ratio of 4.66 to 1. This was attained with the screen up and hood erect, on a short stretch of straight road which made it imperative to ease up early, and it was subsequently found that the ignition was not quite fully

A WAR-TIME ROAD TEST OF A 1½-LITRE MARK II LONG-CHASSIS ASTON-MARTIN—continued

advanced. At this speed the car felt somewhat light and not altogether stable, but later, with four up on a dry concrete surface, it felt safe at a speed only a little slower. Clearly, the gear ratios were high, and the car is presumably fairly heavy, so that acceleration on third and top, while good, is not outstanding. Consequently, it was desirable to use the lower ratios liberally to achieve good get-away, so that the ability to run up to high engine speeds without protest was appreciated. On "Pool" petrol very audible pinking occurred at certain throttle openings, but this was completely curable by retarding the ignition, which one soon did subconsciously between gear-changes. Actually, it was possible by carefully notching up the advance and maintaining small throttle openings, to use full advance with no trace of pinking at really low speeds in top gear, which suggests good head design. Acceleration suffered with the ignition retarded, and it was possible to feel the particular spot on the magneto at which pinking ceased at the expense of performance. This characteristic need in no way worry the ordinary driver, but gave undoubted scope to one prepared to humour the engine.

Getting the Aston-Martin along in a hurry on the open road or over less easy going was a job in which any enthusiast would delight. The gear-noise on all the indirects is quite considerable, the howl changing to a blower-like scream as speed mounts in third, the rather Bentley-like burble in the silencer growing to a power-roar as you pass above touring gait. Against this, the rear axle is not noisy, and there is no lost motion on the overrun, the only effect being a clean change-over from power-roar to exhaust burble as the throttle is eased back. Using the lower gears liberally to maintain speed might prove tiring if much twisty going had to be negotiated, but the writer enjoys the exhilarating music of the gears sufficiently to regard this as a comment and not as criticism.

The clutch takes up smoothly and has a light action, and there is no slipping. The gear change is difficult to master, but once mastered, rapid changes are possible, and the expert dispenses with the clutch. The initial mistakes are those of using too great an engine speed increase when double-declutching to go from top to third, these ratios obviously being quite close, and that of missing the gate going from third to second, because there is no reverse stop, and the movement sideways is appreciable. The gear positions are normal, with the higher ratios on the left of the gate, with a bigger movement between first and second than between third and top; reverse is forward beside first. The gears would seem to have fine teeth and nice synchronisation is necessary. Quiet but unhurried changes up are possible by double-declutching, but a single clutch movement speeds things up if good judgment is maintained and also assists in preventing the dogs hanging up on the change from third to top. The short lever moves beautifully in the visible gate, and no vibration is transmitted along the remote control tunnel.

The brakes were sufficiently powerful given a fairly heavy pedal pressure, and pulled very square on wet and dry surfaces alike. They were not particularly progressive, but it is probable that there was considerable adjustment left, which would improve the action and also assist in a heel and toe action on the pedals when changing gear.

The steering is quite light, nicely geared and has mild castor action. There was some lost motion, but the feel of the road wheels could still be detected, the action being very accurate, and very little column movement took place. Tram lines pulled at the wheel despite the tyre section. The lock is generous and the wheel asks 2⅛ turns, lock to lock; even so, the 10′ 0″ wheelbase makes the turning circle considerable.

The suspension displayed typical sports-car tautness and the Aston-Martin took rough stuff with a clean action. There is absolutely no trace of roll and the tyres only protest under vigorous negotiation of acute bends. When the car slides it plays no tricks and only felt unstable at really high speed on a wet road, for which loose shock-absorbers—that at the near side front was noticeably so—and rather bald front covers were probably responsible. Otherwise, the car controlled impeccably.

In fast cross-country work and rapid main road work, the water temperature reached 94-96° C., and first gear work up a trials hill resulted in boiling, though this never happened on the open road. The oil pressure varied with engine speed, being approximately 10 lbs. per square inch at 2,000 r.p.m., and 15 lbs. at 3,000 r.p.m. When the writer road-tested a new Aston-Martin of identical type in 1933, the oil pressure was 43 lbs. per square inch. However, in this case the water temperature was nearer 60°C., which would have some effect on oil pressure in spite of dry-sump lubrication, and when we later added a little fresh oil, the reading improved to nearer 20 lbs. at the lower engine speeds. So there is no reason to suspect any fault, and undoubtedly if the temperature was brought down, still higher pressures would be shown; the engine was not running retarded, so possibly Pool fuel was to blame for hot running. No oil fumes entered the car, and the driving compartment became warm, but not unpleasantly so. The engine started easily from cold without the Kigas, and was ready to pull very quickly, the temperature rising quite rapidly; the carburetters never spat back. On two occasions the starter pinion refused to engage, but it always resumed duty after the engine had been started by another method. There was ample dynamo charge.

In the course of a most exhilarating day's motoring, for which interesting experience we are indebted to Rowland Smith, one or two notable readings were recorded. Thus, the Aston-Martin was capable of taking the road up to Newlands Corner, in Surrey, faster than conditions will permit, and up Pitch Hill from Ewhurst it reached about 60 m.p.h. (4,000 r.p.m.) in third, which is a very excellent rate of progression.

Fuel consumption appeared to be around 30 m.p.g., driving quietly, and something like 20 m.p.g. was recorded for the total distance of 190 miles of hard and varied going. The reserve pump is needed when about 1-1½ gallons remain in the tank, when the gauge shows zero. Radiator and fuel tank have excellent quick-action filler caps and the dumb-iron oil tank has a usefully large screw cap. We have already commented on the car's excellent appearance, in sober black, with silver Rudge wheels and plated exhaust system. The headlamps carry unobtrusive black stone-guards; they were unmasked. The horn and spot-lamp—also unmasked—live above the easily detachable apron over the oil tank—which may explain the high water temperature. The pneumatic red leather upholstery was in good condition and a generous mat covers the floor and the remote gear control tunnel. The rear seat has two small separate air cushions; the propeller shaft tunnel makes it impossible to seat more than two abreast. The rear locker lid carries the spare wheel, is nicely balanced, and locks securely. The low build of the car makes running boards quite unnecessary; the valance is cut away to facilitate hand-brake adjustment and greasing of the rear shackles. There is no accommodation for luggage and a carrier would have to be fitted for touring. When we changed the punctured wheel, the jack worked well, and if the copper-clouter boasted more lead than copper, it did the job. The bonnet clips work admirably, and the rigid bonnet opens easily. Beneath it, the alloy scuttle with alloy tool chests above, and the remainder of the available space filled with engine, is very pleasing to the enthusiast. The engine is the Bertelli designed 11.9 h.p., four-cylinder 69×99 mm., 1,493 c.c. unit, first produced in 1927. It has o.h. valves, all inclined in one plane in a deep head, and operated via rocker gear by a chain-driven o.h. camshaft. The alloy valve cover has a plate on the off side giving maintenance data; the tappet clearances are, in. .006″, ex. .008″, and the firing order 1, 3, 4, 2. On this side are the two black-bodied S.U. carburetters feeding into a square-section manifold flush with the block, Auto Kleen filter, and the plugs set horizontally, a trifle inaccessibly behind the carburetters. A toothed segment lighting control at the steering column base is typically A.-M. One of the oil pumps is external at the front of the engine, feeding via large bore flexible piping, and the dynamo is driven from the front of the crankshaft. On the near side are the twin two-branch exhaust manifolds with flexible tubing to the silencer, water pump and Lucas magneto beside the block, and a breather which can be quickly unclamped from the valve cover. If the number of pipes makes the engine rather untidy, the detail work is beautifully done. The fuse boxes live in front of the passenger, on the cockpit side of the scuttle partition. Good engineering is typified throughout the design and, in keeping with the rigidly mounted wings, the scuttle only floats under severe road conditions, the

Continued on page 135

A FANTASTIC AMERICAN CLAIM

IT is curious that just when we have devoted some space to modern racing fuels (see "Rumblings") a fantastic claim in respect of high power output on ordinary petrol should come in from America. The most advanced American racing car is the four-wheel-drive 3-litre Miller, one of which crashed in practice for Indianapolis, the other being withdrawn from the race. In a post-race article in "Automotive Industries" some details of the Indianapolis cars are given by R. T. Jackson. It is claimed that the six-cylinder 2,956 c.c. engine of the Miller runs on commercial "No-Nox" ethyl petrol and that, boosted at about 20 lbs. per square inch by a double-entry centrifugal blower running at 32,000 r.p.m., the output is nearly 300 b.h.p. at 7,000 r.p.m. This is less than the output of the 3-litre German Grand Prix cars and represents a b.h.p. per litre about equal to that of the Mercédès-Benz and Auto-Union cars built to the previous formula. We have no quarrel with the power claim, but we cannot believe that this was attained on a commercially obtainable leaded fuel having an octane number of 80.

The last time ordinary petrol was used in a first line racing car was in 1923, when the unsupercharged, 2-litre six-cylinder Sunbeam with which Segrave won the French G.P., ran on No. 1 petrol. This Sunbeam had a compression ratio of probably 6 to 1, certainly not more than 7 to 1, and gave about 54 b.h.p. per litre. Even so, it finished the race at Tours with its valves so badly burned that it is doubtful if it could have run much further. When Sunbeam built the 2-litre supercharged cars for 1924, which developed about 67 b.h.p. per litre, they used a 50 per cent. ethanol, 50 per cent. petrol-benzole fuel, and they used the same fuel for the 4-litre V12 Sunbeam with which Segrave held the Land Speed Record for a time, and which gave around 75 b.h.p. per litre. The increasing output from small engines has led to an ever increasing alcohol content in racing fuels. Certainly the Germans were using specialised fuel in 1938, when their Grand Prix engines were developing about 90 b.h.p. per litre in 5½-6 litre form. At Indianapolis, the winning Maserati, blown at not more than 15 lbs. per square inch, ran on an alcohol base fuel, as did the Sampson, with the Frank Lockhart supercharged V16 3-litre engine, and the 4½-litre unblown Thorn. Certainly other cars at Indianapolis used leaded petrol fuels, notably the 3-litre eight-cylinder centrifugally-blown Bowes, which finished second, and the Elgin, which finished third. The Bowes developed about 116 b.h.p. per litre, and it ran on Shell 100 octane aviation petrol—which is not commercially obtainable fuel. The Elgin used similar fuel for its 4½-litre unblown Offenhauser engine, which gave about 68 b.h.p. per litre. Our Royal Air Force uses petrol as a fuel, but of an octane value of 100 with a b.h.p. per litre from its big engines of only 35. The old 1¾-litre racing Alfa-Romeo, with a compression-ratio of about 6 to 1, blown at about 3-5 lbs. per square inch, used to overheat seriously unless 30 per cent. benzole was mixed with No. 1 petrol to give an octane number of approximately 72. Compare such an engine with the 90 b.h.p. per litre Miller, boosted at 20 lbs., and ask yourself whether 80 octane fuel seems adequate. Indianapolis is a track race wherein engine speeds only vary by 1,000-1,500 r.p.m. per lap, and under such conditions the cooling effect of alcohol is extremely desirable. Sunbeam found the limit of petrol as a fuel seventeen years ago, and even granting Harry Miller modern head design, with bronze valve seats in an aluminium alloy head, extreme finning of sump and crankcase walls, and oil cooling, we just cannot believe that he is able to run satisfactorily on petrol at an output per litre nearly twice as great, even granted an octane improvement of about 20 by reason of ethyl lead. If he does do so, either he knows more about cylinder head design than anyone in Britain, France, Italy or Germany, or the possibilities of leaded fuel have never been properly appreciated in those countries. The correct answer seems important.

RECENT RESULTS

Unfortunately, reports of Tripoli and Indianapolis were crowded out of the issues in which they should have appeared, but for those who keep their back copies for reference purposes, here are the results in brief.

1½-Litre Tripoli G.P.

Nuvolari withdrew his works Maserati as not potent enough to win. Villoresi's Maserati led for one lap and then Farina's improved straight-eight Alfa-Romeo led. On lap seven Villoresi again passed, but on lap nine Farina set up a record lap in 3 mins. 40 secs., and again led, his pit stop taking only 24 secs. The Maserati pit work was poor and set the seal to their chances. The 1½-litre Mercédès-Benz did not go over. It is very interesting that Farina's record lap works out at 132.55 m.p.h. which is 1 m.p.h. faster than Lang's best with the 1½-litre Merc. in 1939.

1. G. Farina (Alfa-Romeo) 1 hr. 54 mins. 16.49 secs. 128.14 m.p.h.
2. C. Biondetti (Alfa-Romeo) 1 hr. 54 mins. 45.96 secs. 127.5 m.p.h.
3. C. F. Trossi (Alfa-Romeo) 1 hr. 55 mins. 9.36 secs. 126.89 m.p.h.

Indianapolis

Wilbur Shaw won for the second time in succession with M. J. Boyle's 3-litre straight-eight Maserati. The cars were flagged down at 400 miles on account of rain, and Shaw averaged 114.28 m.p.h. Rex Mays was second on a 3-litre eight-cylinder Bowes-Special, and Mauri Rose third on a 4½-litre unblown Elgin. Riganti on the short-stroke Maserati crashed early, and of the two Schell Maseratis, Le Begue's broke a rod in practice, and the engine from Dreyfus's car was installed, but it was outclassed, as was Chet Miller's Raymond Sommer Alfa-Romeo.

1. Wilbur Shaw (Maserati) 4 hrs. 22 mins. 31 secs. 114.227 m.p.h.
2. Rex Mays (Bowes-Special).
3. Mauri Rose (Elgin Piston-Pin Special).

A WAR-TIME ROAD TEST OF A 1½-LITRE MARK II LONG-CHASSIS ASTON-MARTIN—*continued from page* 134

bonnet does not weave, and the generally solid feel of the Aston-Martin is reflected in the absence of body rattles. A loose bracket set up some sound and on acute right-hand corners the steering tie-rod knuckle fouled the wall of the tyre, though no appreciable marking was evident and no trouble experienced.

Details apart, this long-chassis Aston-Martin created a profound impression as a very interesting car to handle, able to set up excellent averages, essentially safe, and possessing dignity and reliability not very often found in what some persons rather humorously call *par sang* motors, although having all the desirable qualities which prompt such a descriptive phrase. Incidentally, the Mark II was introduced in 1935, so it seems that this is probably a very late 1934 car. It was tested in the second week of July, so whether it is now still available is not definitely answerable, but Rowland Smith have a big stock of similar cars, and, at the time of the test, had another Aston-Martin, a short-chassis four-seater, for sale at £62, and had just sold another. These cars should contribute much to the enjoyment of Service personnel on leave, and are admirably suited to their needs. That a big selection of sports-cars can be seen under one roof at premises one minute from Hampstead Tube Station, open from 9 a.m. to 8 p.m. every day (and from 9 a.m. to 1 p.m. on Sundays) must appeal in such circumstances. Rowland Smith's telephone number is Hampstead 6041.

Club News

J.C.C.

The Junior Car Club has brought out an issue of its " Gazette " for April-June. It contains some cyclecar reminiscences by A. Percy Bradley, a reprint from " Flight " of an article by A. Frazer-Nash on power-operated gun turrets, and plenty of humour. Also news of members —Professor A. M. Low is at the Air Ministry, Lieut. J. A. Davies, R.A.S.C., " checked-in " from Dunkirk ; Leonard Baynes drives an L.C.C. ambulance ; P. W. Marriage is in the R.E.s ; Mrs. Molony is an ambulance dicer ; Mrs. C. A. Dennett in the A.F.S. ; Hudlass a captain R.A.S.C. ; Harry Edwards, Dixon-Spain, D. H. Murray, K. N. Smith and Jimmy Simpson are all R.A.S.C.; B. Blackford is in the R.E.s ; H. Wood and L. H. White are L.D.V., and Nancy Lines drives the L.N. Special on farm work. Capt. Beachamp, R.A.S.C., has recovered from wounds received in France, and is driving an Aston-Martin, R. J. Hughes got away from Dunkirk, and E. H. Carson, invalided out of the R.A.S.C., is recovered and driving again.

The idea of a social event has been abandoned, pending our promised Invasion, but another " Gazette " will come along about October. Members whose subscriptions are overdue are requested to settle up now—large cars 25/-, small cars 20/- for the war period, and a possibility of reduction if you are laying up your car for a time. Club ties at 3/6 each, and brooches, button-hole badges and beret badges at 2/6 each, are still available. The spirit of sports motoring doesn't die easily ! Hon. General Secretary : H. J. Morgan, 14, Lime Grove, Ruislip, Middlesex.

E.R.A. CLUB

The E.R.A. Club was " at home " to members at St. Stephen's Tavern, Westminster, on the evening of July 12th, by arrangement of A. Rivers Fletcher, its able chairman. Sam Green, the secretary, was absent, being in the R.A.O.C., but Philip Turner, who is L.D.V. until the R.A.F. send for him, came along, and Tappenden, now in the R.A.F., introduced his race game to those others who were present, played on a big scale map of the Crystal Palace circuit. It is hoped to get a better attendance next time.

Hon chairman : A. Rivers Fletcher, 35, Oakleigh Gardens, N.20.

BENTLEY DRIVERS' CLUB

At the Club run to Gerrards Cross for lunch, Gregory, who used to handle a Big Six saloon at J.C.C. Members' Day Brooklands meetings, took the secretary's request to come along as best you could literally, arriving on a penny-farthing bicycle, in spite of the rain. R. W. Seys attended on his S.2 Special Royal Enfield motor-cycle.

M.A.C.

The Midland A.C. announces that on December 31st membership stood at 624, compared with 685 the year before. Sir Francis Winnington has very generously waived the rent on Shelsley Walsh for the duration. The 1939 meeting represented a loss as the September climb was cancelled after organising expenses had been incurred, but on other workings the Club shows a credit balance of £156. Useful A.R.P. and leave transport is being undertaken by members.



Cars at a club meeting in war-time. Secretary Hunter's Austin heads a line of Austins at the 750 Club's Kent picnic

VETERAN RUNS

In more peaceful places, veterans have seen recent exercise. The Apex and Sporting C.C. of Adelaide held a rally for pre-1914 cars with a trial, tests and concours thrown in. A 1911 Newton Bennett covered longest distance with 150 miles, a 1904 De Dion won the beauty prize, a 1902 Oldsmobile the parking test, a 1914 Ford the figure-of-eight test, a 1910 Daimler the adversity prize, a 1906 Speedwell the pre-1906 trial award, and the 1914 Ford, the 1906-14 trial award. The event drew in some £300 for charity. The Leinster A.C. held a veteran run on June 29th, which drew an entry of twenty-six. The 1900-3 class went to an M.C.C., the '04-9 class to a De Dion, the 1910-12 class to a Ford and the 1913-14 class to an Austin.

WE HEAR . . . .

We hear that John Morley still runs his 12/50 Alvis, and has the late Sir John Bowen's ex-Doreen Evans's M.G. and Maserati stored at his home, including Mason's trials 328 B.M.W., an open Alfa-Romeo, an open S.S.1 driven by an Army officer, and Rolls-Royce and Bentley cars. R. W. Seys, who wrote an article in the last issue, has his M.G. and Bentley stored in a barn near Witney. At a breaker's yard near Oxford is reported a 30/98 Vauxhall, a f.w.d. Alvis chassis, Schneider tourer, " Redwing " Riley, and a Salmson—military personnel looking for fast motors, please note. A tiller-steered veteran is rumoured to be amusing the troops near Burford. Massey, of the Bentley Drivers' Club, sold his 3-litre Bentley on the outbreak of war, and is a capt. R.A.S.C.

Robertson-Roger has become engaged to Miss Eve Somerville—congratulations. A 1926 7.5 Citroen Cloverleaf has arrived at a breaker's near Henlow, which has had only one owner and possesses unmarked paintwork and almost brand new all-weather equipment and actually had petrol in the tank. Someone might like to save it from destruction, especially as its 5 h.p. (French rating) makes it very economical. Aircraftsman N. W. Newbatt of the 750 Club is stationed at Henlow, where MOTOR SPORT is displayed in the R.A.F. reading room. Radford has laid up his Bugatti, and runs a very fine bicycle. Benn is selling more petrol than ever, and Lambert is still with him.

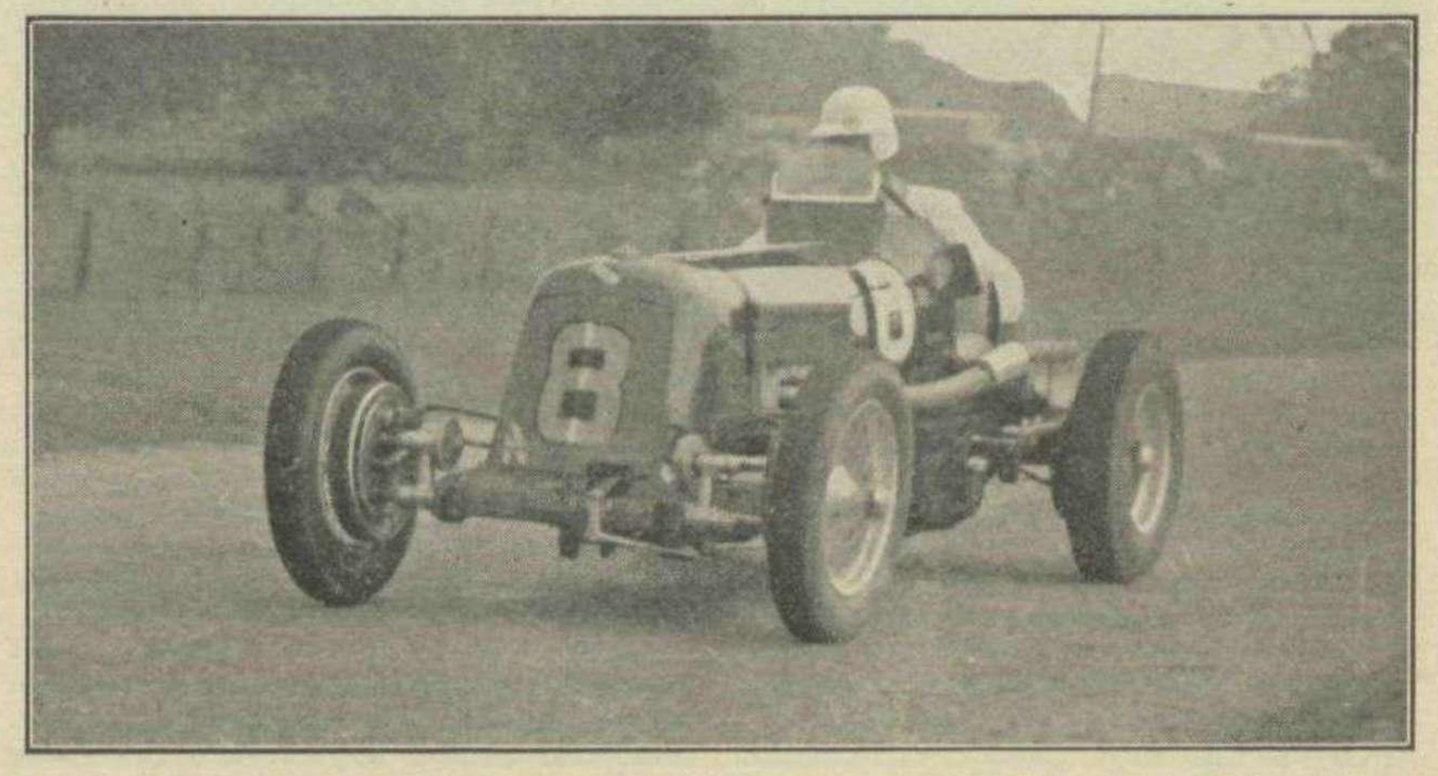
1½-LITRE RACING FROM 1935

A SURVEY OF RECENT INTERNATIONAL SMALL CAR RACES. BRITISH E.R.A. ACHIEVEMENTS IN PERSPECTIVE

TO the British enthusiast 1½-litre racing has a special significance, because, while this country has never made any attempt to compete in full Grand Prix racing, she has sought, and attained, not a little success in events confined to cars the engine size of which does not exceed 1,500 c.c. There is, however, additional interest in 1½-litre racing arising from the German monopoly of International Formula Grands Prix of recent years, a monopoly which many authorities expected would have resulted in the adoption of a 1½-litre Formula for 1941, to encourage the wider interest already existing for this class of contest. The 1½-litre Formula is no new thing, for it was used in 1926 and 1927, Bugatti carrying the honours in the former year, and Delage in the latter. This period of 1½-litre history was reviewed in MOTOR SPORT for March 1938. In the present article we propose to deal with International 1½-litre racing from 1935 to the present-day, this period being chosen because Great Britain began to take a serious part in such racing after the 1934 season. Consequently, a survey of the last five seasons of 1½-litre racing serves both to portray the achievements of the British E.R.A. in this sphere, and to illustrate the recent development of small-car racing up to the time when the 1½-litre Formula seemed likely to be adopted internationally.

In MOTOR SPORT for June, 1934, we were able to publish comprehensive details of Humphrey Cook's new 1½-litre E.R.A., designed to achieve successes that would enhance British prestige against the best racing light cars the world could produce—we published photographs of the E.R.A. engine, cylinder-head, chassis and front axle, etc., that are still worth close study to-day. This happened at a time when the general capacity of full Grand Prix cars was around 3 litres, and Varzi's Alfa-Romeo of this size had just won at Tripoli at nearly 116 m.p.h. The E.R.A. began its racing career before the close of the 1934 season, but it was not until 1935 that the marque was properly organised for serious onslaught on 1½-litre honours. Just how successful the E.R.A. has been in this sphere, and how much we owe to Humphrey Cook, who financed the team entirely out of his own pocket, until he was obliged to withdraw his support in 1939, is evident from the race history which follows.

The 1935 season opened with a number of Bugatti victories in the 1½-litre category of several not particularly important events. The first big 1½-litre contest was the R.A.C.'s Mannin Beg race in the Isle of Man. The course was fifty laps of the 4 mile "round-the-houses" course. There were thirteen starters, comprising the 1½-litre Riley of Freddie Dixon, Humber's 1½-litre Bugatti, the late Pat Fairfield and Raymond Mays with 1,100 c.c. E.R.A.s, three 1,100 c.c. M.G.s, two 1,100 c.c. Altas, and four 750 c.c. R-type M.G. Midgets. Fairfield had the Roots-blown E.R.A., but Mays was using the new Zoller compressor-layout, and both were 1,090 c.c. cars. After a ding-dong first lap, Hall's M.G. Magnette led Fairfield's E.R.A., with Mays (E.R.A.) third, and Dixon (Riley) fourth. After three laps, Mays led by 50 yards from Hall, and Fairfield was a close third. Retirements began to come thick and fast, and Mays stopped on his fifth lap, allowing Fairfield to lead, the M.G. having been passed at the corner leading up Broadway in the fourth lap. Hall now had pit-stops to attend to a slipping top gear band, and to change plugs. At 10 laps, Fairfield led by a quarter of a mile from Dixon, with Mays third. Fairfield had been cornering with mathematical precision at the Promenade hairpin, and using the pavement at Onchan hairpin, and he set a lap record on his sixth lap of 71.21 m.p.h. Mays was suffering from a broken oil pipe which necessitated frequent change of visors, and Humber's old G.P. Bugatti came up to third place. Dixon hoped to get through non-stop in the silver, unblown Riley, whereas Fairfield would need to stop. This he did on his 24th lap, when 22 gallons of fuel went in in 1 min. 15 secs., the Dunlops not needing to be relieved. After 30 laps, Fairfield led by 55 secs. Fairfield went on to win easily at 67.29 m.p.h. as Dixon had a sick engine at the end, and lost much time taking on water. The Riley averaged 64.13 m.p.h. and the Bugatti blew up while in third place. Hall's M.G. Magnette and Baird's R-type M.G. were the only other finishers.



Raymond Mays in action at Donington with a C-type E.R.A.

The next important 1½-litre contest resulted in a most convincing E.R.A. victory. It was the 1½-litre category of the Eifelrennen over eight laps of the Nurburg Ring. The late R. J. B. Seaman (E.R.A.) led for some time, followed by Rose-Richards (E.R.A.) and Mays (E.R.A.), doing his second lap at 114½ k.p.h. Mays then passed Seaman and Ghersi was driving very hard in third place in his Maserati. Later Ghersi had to retire with an eye-wound when a stone smashed his goggles, and Ruesch (Maserati) became third. Raymond Mays carried on to win in 1 hr. 38 mins. 33 secs. at 69 m.p.h. Ruesch was second, passing when Seaman stopped for oil, and Rose-Richards also passed Seaman. Cook's E.R.A. was fifth, Sojka's Bugatti sixth, Kessler's Maserati seventh, and Castelbarco's Maserati last. Mays won comfortably by 30 secs. Tapper's Bugatti and Wimmer's Zoller retired.

The only French race of 1935 confined to 1½-litre cars was the G.P. d'Albigeois, over the very fast circuit des Planques. Two races, each of 20 laps, were run and the final positions arrived at by adding together the times made in each race, of which the distance was 8 km. 900. Howe's Delage—the 1927 type—made best practice time, in 3 mins. 55 secs. Barbieri's Maserati won the first race from Veyron's Bugatti and Leoz's Bugatti. Collier and Froy (M.G.s) both crashed, and Howe was fifth. Barbieri again led the second race until he blew up, when Veyron and Howe held first and second places. They finished in that order, and the final placings gave them these places outright.

The Nuffield Trophy Race, at Donington, was limited to cars up to 1½-litres, but was actually a handicap event, unblown 1½-litres and blown 1,100 c.c. cars getting 2 mins. start, and 750 c.c. cars two credit laps and 76 secs. start in 150 miles. The three 1½-litres were Eccles's Bugatti, Davies's Frazer-Nash and Connell's Vale. Seaman's E.R.A. ran a big-end in practice. Eccles soon retired with overheating, and Fairfield's famous 1,100 c.c. E.R.A. eventually won at 63.67 m.p.h. from Maclure's works Riley and Briault's 750 c.c. M.G. Dixon's Riley was fourth, "Bira's" M.G. fifth, and Miss Evans's M.G. sixth, and there were fourteen retirements.

The 1½-litre scene now changes to Dieppe. There were twenty-seven entries, and twenty starters. When the flag fell, Mays and Seaman got their E.R.A.s clean away from Lord Howe's Delage, Veyron's Bugatti, Rovere's Maserati, Berrone's Maserati, Fairfield's

1½-LITRE RACING FROM **1935**—*continued*

1,100 c.c. E.R.A., and the remainder. In the first lap, Mrs. Stewart's single-seater Derby retired with clutch trouble, Breillet's Salmson also fell out, and Thorpe's Frazer-Nash changed a plug. Rovere, driving the Maserati which held the 1,100 c.c. record, but now with 1½-litre engine, passed Seaman on lap 3, but was soon repassed. Then Seaman's 1½-litre E.R.A. retired with transmission trouble, and Rovere had a long stop. Mays's 1½-litre E.R.A. was establishing a new mode of progress in 1½-litre racing, and "Bira's" E.R.A. was now second. After sixteen laps, Mays stopped with loose oil tank and misfiring engine, and, the latter trouble uncured, retired on the next lap. "Bira," too, had stopped for a plug change, and Fairfield's white 1,100 c.c. E.R.A. led easily from Veyron. Howe's Delage had lost its anchorage, the Frazer-Nash its transmission, and two M.G. Magnettes were out. Fairfield went on to a wonderful win, at 181.973 k.p.h., making fastest lap in 3 mins. 47 secs. (Seaman did 3 mins. 42 secs. in training). "Bira" steadily closed the gap on Veyron's eight-cylinder Bugatti, to the extent of 8 secs. a lap, to finish second, and Cook's E.R.A. was fourth, Berrone's Maserati fifth, Rayson's Bugatti sixth, Hertzberger's M.G. seventh, Rovere's Maserati eighth, Guilbaut's Bugatti ninth, and Dubois's Bugatti tenth.

Froy's and Tongue's M.G.s were the only British cars in the Coppa Ciano 1½-litre race. Ghersi's Maserati led until it retired, when Tuffanelli and Bianco (Maseratis) duelled for the lead. Tongue's M.G. was in third place, but finally retired, as did Froy (M.G.). Tuffanelli finally won at 80.59 k.p.h. from Bianco, in spite of a pit stop to cure misfiring. He set a new lap record on lap seven. Villoresi and Ferrara on Fiats were third and fourth.

Came the important Coppa Acerbo 1½-litre race at the Pescara circuit, starting at 8.30 a.m. (!) with twelve starters. In practice Seaman's black E.R.A. was clocked at 143 m.p.h. over the flying kilo against Bianco's 124 m.p.h. for Maserati—by way of comparison Varzi's Auto-Union was doing 183 m.p.h. Seaman drove the only E.R.A. against Bergamini, Bianco, Tuffanelli, Castelbarco and Ghersi in Maseratis, and scored a truly decisive British victory in 48 mins. 42.4 secs., at 78.9 m.p.h. Tuffanelli crashed on the first lap, and Bianco was second, 1 min. 9.7 secs. behind the E.R.A., with Steinweg's Bugatti third.

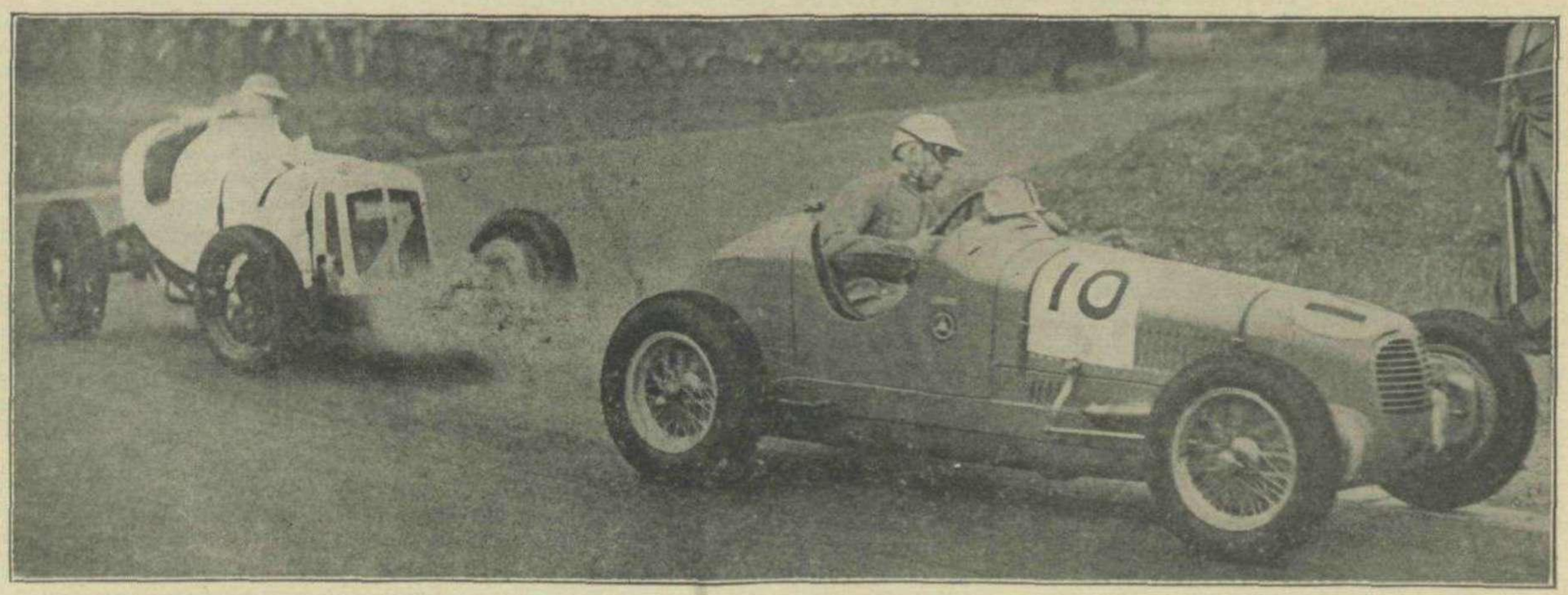
The Coppa Acerbo was followed by the G.P. of Berne. Seaman and his black E.R.A. led quite easily throughout, to win in 1 hr. 5 mins. 20 secs., at 82.64 m.p.h. "Bira" (E.R.A.) ran home second, 54 secs. behind Seaman, and Howe's Delage was third. The foreign opposition came in behind these three—Tuffanelli, Ghersi and Ruesch, in that order, driving Maseratis. Mays on the experimental Zoller E.R.A. was seventh, after a series of minor troubles.

No British drivers competed in the 1½-litre race at Modena, but Cecchini drove an M.G. Magnette. Berrone led the opening stages in his Maserati, Barbieri was going very fast in second place, but had to retire, and Tuffanelli gradually came up with an 1,100 c.c. Maserati. Berrone finally won at 96.32 k.p.h. for the 80 kilos., from Bergamini and Taruffi—Maserati one, two and three.

The 1½-litre season concluded with the Masaryk G.P., when Seaman again led throughout, his E.R.A. winning at 71.16 m.p.h., in 3 hr. 48 mins. 32 secs. for the 437.13 km., 3 mins. 26.3 secs. ahead of Veyron's Bugatti, with Sojka's Bugatti third.

So the 1935 1½-litre "score" was: E.R.A. seven firsts, two seconds and one third; Maserati two firsts, four seconds and one third; Bugatti one first, one second and three thirds; Riley two seconds; Delage one second and one third; M.G. two thirds; and Fiat one third. Surely conclusive proof of British 1½-litre supremacy! The E.R.A. show was especially praiseworthy because three of the victories were achieved by Fairfield's 1,100 c.c. car. The other E.R.A.s, and this wonderful 1,100 c.c. car, had the Murray-Jamieson Roots-blown engine, but later in the season Mays used the rear-placed, very large Zoller compressor, drawing from twin S.U. carburetters, and improvements were made to all the cars in respect of extra frame bracing and softer rear springs ("Expansion at Bourne," MOTOR SPORT, June 1935, and "The Development of the E.R.A.," MOTOR SPORT, October 1938). All the E.R.A.s had six-cylinder engines, push-rod valve gear, Wilson gearboxes and normal half-elliptic springing. The 1½-litre (57 × 95.2 mm.) gave 180 b.h.p. and weighed about 13 cwt. Maserati used four-cylinder cars. We may assume that the Bugattis were supercharged double-wipe straight-eights, developed from the former Type 39a.

Nineteen thirty-six opened very successfully indeed for E.R.A. The Prince Rainier Cup Race over 50 laps of the immortal Monaco circuit attracted nine Maseratis, six E.R.A.s, an Alta, an Amilcar, and a Bugatti. Seaman's ex-Howe Delage was even then in process of rebuilding, and unready and Trevoux's E.R.A. and Kohlrausch's M.G. were non-runners. When the flag fell, Howe's E.R.A. got away with Mays (E.R.A.) and Tenni (Maserati) in hot pursuit. At the close of the sinuous 1.98 mile lap, Howe still led, but Tenni was in front of Mays. As the race progressed "Bira" (E.R.A.) began to work up steadily from eighth position. By lap 4 Tenni led for Maserati, as Howe was suffering misfiring, which necessitated a stop and spoilt his chances. Mays came in on this lap for plugs, and was technically excluded as poor carburation made a push start essential, which the rules forbade. After ten laps Tenni led Villoresi's Maserati by 25 secs., and "Bira" was third, and Embiricos (E.R.A.) fourth. When Villoresi came in twice for plugs "Bira" moved into second place, and Tenni was driving like a demon. At half distance, Tenni led by nearly a minute, and Rovere (Maserati), having put up a race lap-record of 55.57 m.p.h., was now third. The leading Maserati soon began to be hampered by weakening brakes, and on lap 35 Tenni hit the sandbags by the gasworks, and retired with damaged steering. "Bira" continued, to win by 2 mins. 4.8 secs. from Lehoux's E.R.A., which had been wildly handled



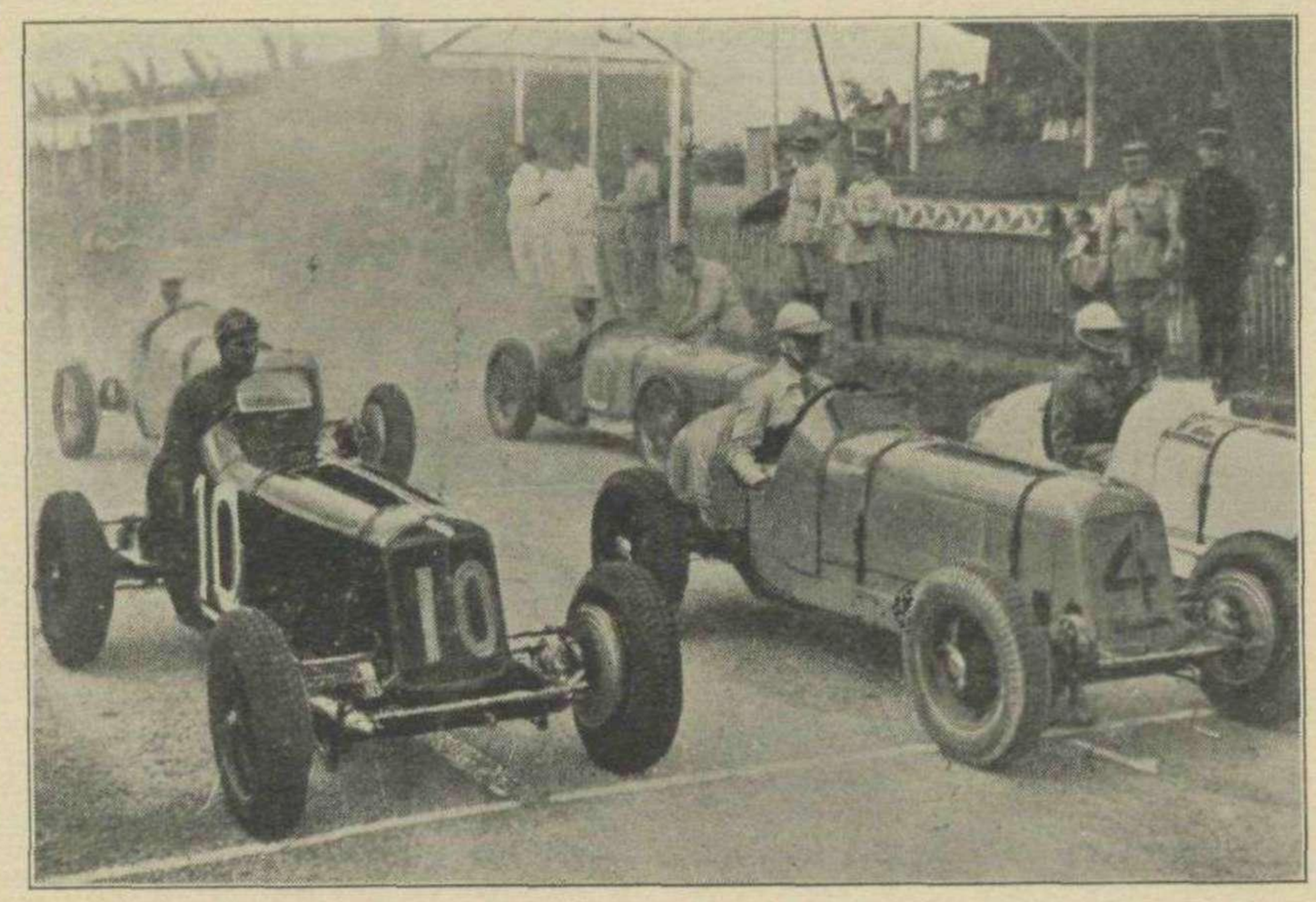
Dual: Count Lurani's Maserati leading Arthur Dobson's famous white B-type E.R.A. at the Crystal Palace circuit

1½-LITRE RACING FROM **1935**—*continued*

in the opening stages. "Bira" took 1 hr. 51 mins. 51.5 secs., an average of 52.99 m.p.h. Embiricos was third, Kautz (Maserati) fourth, Howe fifth, and Villoresi sixth.

The next big 1½-litre scratch race was the R.A.C. International Car Race, over a new, shortened circuit in the I.O.M. for a duration of 200 miles. Twenty cars out of twenty-seven entries went over, including Seaman's Delage, ten E.R.A.s, two M.G.s, two Altas, and one each of Austin, Bugatti, Frazer-Nash, Maserati, Rapier and Riley. Lehoux, on Howe's E.R.A., did the fastest practice lap, in 3 mins. 16 secs. After one lap Howe led Seaman with Cyril Paul (E.R.A.) third. After five laps Seaman led, and shortly after he had passed the E.R.A., Howe had to come in to cure carburetter flooding. After twenty laps Seaman led by 15 secs. from Paul, "Bira" was third, and Fairfield fourth. On lap 21 "Bira" got past Paul just before St. Ninian's corner, and Seaman replied with a record lap at 71.64 m.p.h. On his 27th lap, driving magnificently, Seaman clocked 72.0 m.p.h. Howe retired with a split fuel tank, and "Bira" refuelled in 50 secs. Mays broke an axle shaft. At 35 laps Seaman led "Bira" by 93 secs. and Lehoux was now third. The ten-year-old black Delage ran on faultlessly, non-stop, and won in 2 hrs. 52 mins. 1 sec. at 69.76 m.p.h. "Bira" was second at 69.23 m.p.h., 1 min. 17 secs. behind, and Paul, his face badly cut by stones, third. Fairfield's E.R.A. was fourth, Lehoux's E.R.A. fifth, and the Colegrave-Featherstonhaugh E.R.A. sixth.

The scene now shifts to the Nurburg Ring, in Germany, for the Eifel 1½-litre race, over eight laps of the 14¼ mile circuit. In practice, the new independently-sprung six-cylinder Maserati and Seaman's wonderful Delage made fastest time and a great struggle was expected. Seaman led away, but after a lap Trossi on one of the new Maseratis led from "Bira's" E.R.A. and Tenni's four-cylinder Maserati. Mays lost all hope as



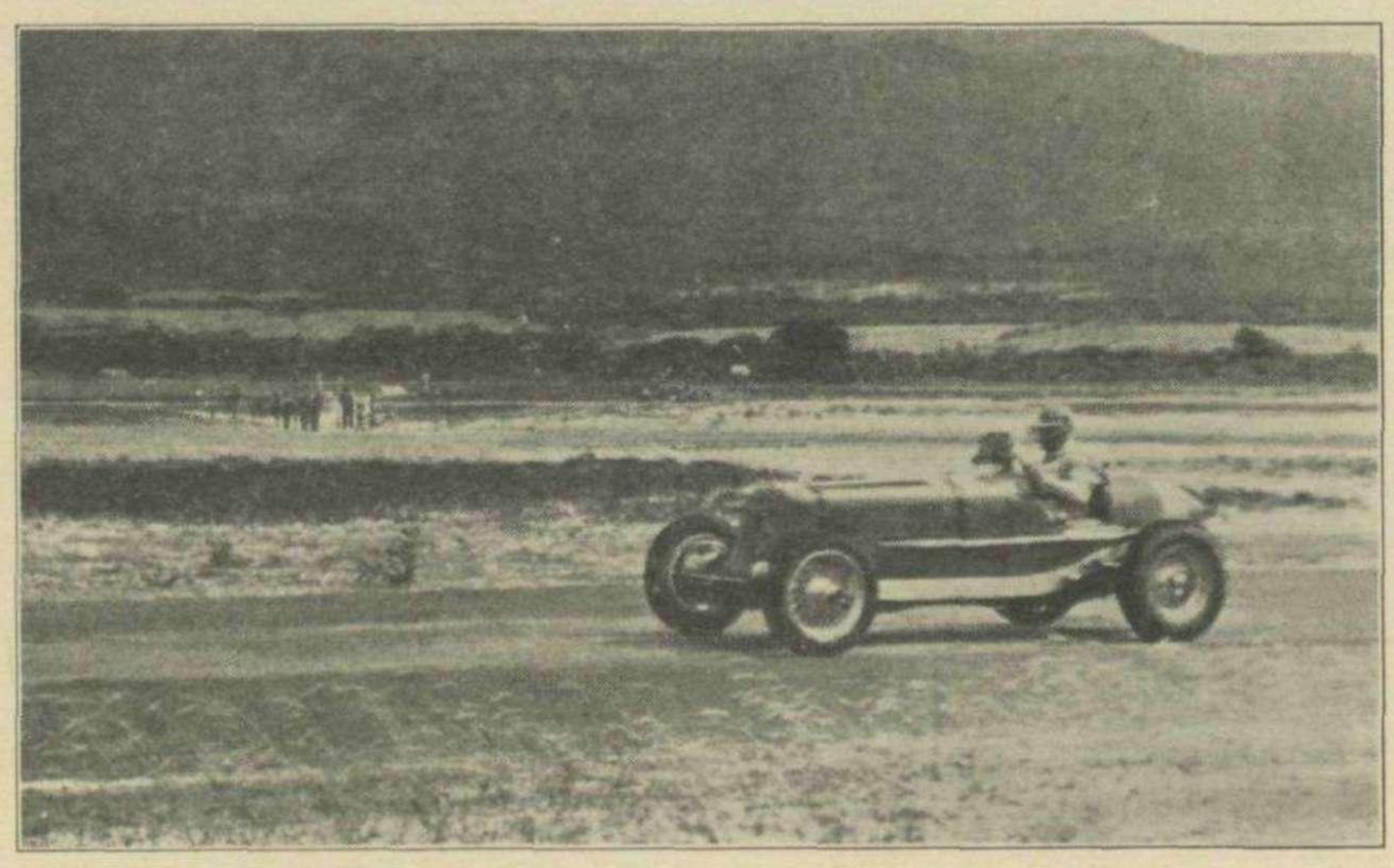
1935 : *Seaman, Mays and Fairfield in their E.R.A.s on the line at Dieppe*

he had to stop to secure a plug terminal, and Seaman ran out of road on this great first lap and retired the Delage. Thus is racing history made! At half distance Trossi led Tenni by 53 secs., "Bira" third. In this order they finished, Trossi 46 secs. ahead at 69.9 m.p.h., though Tenni lapped at 71.8 m.p.h. in an immense last-lap effort to close.

In the Milan 1½-litre race, over 40 laps of 1.6 miles, only Maseratis ran, Trossi winning from Villoresi and Belmondo.

The Picardie race was run this year as a scratch 1½-litre contest, in two heats and a final, over the Péronne circuit. Fairfield, now with a 1½-litre engine in his E.R.A., put up the best practice lap, in 4 mins. 6 secs. Rovere's mechanic was badly injured when he crashed the six-cylinder Maserati. The heats were over about 60 miles, or 10 laps. In the first heat Fairfield led until lap seven, when Trossi passed, winning in his Maserati by 7 secs., "Bira's" E.R.A. was third. In the second heat Howe led Mays, Seaman and Tongue. Seaman's Delage got ahead of Howe and Mays through the corner on lap three, but Mays repassed to lead, until the Zoller-E.R.A. retired. The old Delage won easily from Howe and Tongue. Arthur Dobson's E.R.A. retired in the first heat with lubrication failings. In the final, Fairfield led lap one from Trossi, "Bira" and Seaman. On the next lap "Bira" was second, Seaman third. On lap five Seaman crashed at Brie and badly damaged the Delage. "Bira" closed with Fairfield towards the end, until an immense battle was taking place. "Bira" equalled his record lap of 4 mins. 11 secs. and momentarily passed Fairfield, but was repassed when he cornered wide. Then, on the very last lap "Bira's" E.R.A. proved faster on the straight, and it took the lead, Fairfield hitting the bank at a corner in an immense endeavour to catch up. "Bira" won by 31 secs., at 85.7 m.p.h., a record for the Péronne circuit. Fairfield was second, McEvoy's Maserati third.

The next important 1½-litre race was the Nuffield Trophy, over 150 miles of the full Donington circuit. As before, this was not strictly a 1½-litre contest pure and simple, as 750 c.c. and 1,100 c.c. cars received a start. Six E.R.A.s ran, opposed by Austin, Riley, M.G., Alta and Maserati. After 30 laps, Driscoll's Austin led from "Bira's" Austin and Maclure's Riley. The Austins lost their lead to Maclure when they came in to refuel, and Driscoll's car would not restart, so that it was ultimately retired. Maclure then lost much time changing the magneto, and "Bira" led from Charles Martin in Scribban's E.R.A. On lap 48 the little Austin came in to the



British 1½-litre supremacy in a Far Place. Lord Howe's E.R.A. racing in S. Africa

1½-LITRE RACING FROM 1935—*continued*

and Martin led, and gradually Arthur Dobson's E.R.A. and Fairfield's E.R.A. overhauled "Bira." On the very last lap Fairfield retired with oil-pump malady, and Whitehead and Walker (E.R.A.) got home third, ahead of Dobbs's Riley. Martin won in 2 hrs. 25 mins. 6 secs. at 68.5 m.p.h., 38 secs. ahead of Dobson's E.R.A. The Albigereois G.P. came next, run as two separate races with the final placings curiously taken from the combined race times. Howe's E.R.A. did the fastest practice lap. Lehoux and "Bira" (E.R.A.s) had an immense duel in the first race, "Bira" finally winning at 93.43 m.p.h., some 37 secs. ahead. Fairfield's E.R.A. was third, and Howe went out in the first lap with gearbox trouble. Six Maseratis opposed, and Bianco was fourth, ahead of Veyron's Bugatti. Lehoux's engine went back on him, and would not start for the second race, which "Bira" won easily at 92.06 m.p.h. from Veyron and Ruesch's Maserati. The final placings were "Bira," at 93.43 m.p.h., 43.6 secs. ahead of Veyron, Ruesch third.

In the Coppa Ciano Race, Trossi's Maserati won easily from Embiricos (E.R.A.). Seaman's Delage was delayed with fuel feed trouble. The Delage returned to form for the Coppa Acerbo and, chased by Trossi and Ruesch, won at 77.1 m.p.h., by 39¼ secs. All the E.R.A.s retired, "Bira's" car catching fire, when being restarted at the pits, on account of a cracked head.

So to Switzerland, for the Prix de Berne. This time the works Maseratis were not ready. The works Zoller E.R.A.s were handled by Howe, Mays and Fairfield, and there were several privately-owned E.R.A.s, Bianco's Maserati, McEvoy's i.f.s. Maserati, Ruesch's older Maserati, an old Talbot, an M.G., Baumer's Austin, and Seaman's great Delage. Fairfield did the best practice lap at 92.97 m.p.h. From the commencement Seaman led from Fairfield and "Bira." Fairfield struck trouble, and Seaman set a record on lap 3 of 91.15 m.p.h. Howe had lost time on the line, "Bira" retired with a burnt valve, and Seaman won easily at 87.88 m.p.h., 1 min. 23.4 secs. ahead of Embiricos (E.R.A.), with Tongue (E.R.A.) third, Howe fourth, Ruesch fifth, Baumer sixth, and Plate's Talbot seventh.

The 1936 1½-litre racing season concluded with the Modena Race, in which Maserati finished first, second, third, Trossi victorious. The 200 Mile Race at Donington, as an unlimited scratch contest, cannot be included, but it is both interesting and significant that Seaman's Delage won at 69.28 m.p.h. from Howe's E.R.A. and the M.G.s of Briault and Evans—the big cars nowhere. The 1½-litre score this season was :—E.R.A. four firsts, six seconds, and five thirds ; Maserati four firsts, three seconds and four thirds ; Delage two firsts, and Bugatti one second. E.R.A. had used the Zoller-blown cars and private E.R.A. owners the older Roots-blown jobs. Apparently the later B-type cars had larger blowers than the early examples, as "Bira's" 1935 "Romulus" was fitted with the bigger supercharger from the engine of his 1936 "Remus" for Picardie. ("Road Racing 1936," page 108). Incidentally, "Bira" ran the 1935 car at Monaco, I.O.M., Eifel, Picardie, Acerbo, and with the 1936 engine, at Berne, and his new car at Albi, and in the "200."

Maserati ran the new 65×75 mm. six-cylinder cars, later to become so well known in this country. They had Roots-blowers running at crankshaft speed, boosting at 18 lbs. per square inch, a compression-ratio of 5.5 to 1, and only two main bearings. They gave 175 b.h.p. at 6,550 r.p.m. and had a track of 4 ft. 1 in., and a wheelbase of 8 ft. 2 in. Seaman's Delage gained its remarkable victories by using a lower compression-ratio than E.R.A. and Maserati, enabling it to run through 200 mile races without refuelling, allied to hydraulic brake actuation which overcame the poor anchorage which Howe suffered in 1935, much reduced weight, improved suspension, better general tuning and revised valve timing in particular, and, of course, Seaman's perfect driving, which both humoured his car and saved time in cornering. In some respects the performances of the lone Delage indicated the comparatively small advance of 1½-litre design since 1928, and certainly Seaman's handling and preparation of it stamped him there and then as one of our greatest drivers, quite apart from his subsequent endeavours with Mercédès-Benz. The Delage was estimated to give about 200 b.h.p., and gave a foretaste of its potency by winning two small 1½-litre races at Donington at the beginning of the season.

Apart from purely 1½-litre races, 1½-litre cars did outstandingly in some other big races. Fairfield's E.R.A. was second in the British Empire Trophy, "Bira's" E.R.A. won the International Trophy from Mays's E.R.A., Tongue's E.R.A. won at Cork, Arthur Dobson's E.R.A. was second at Limerick to an M.G., an M.G. won at Phœnix Park, and, as already mentioned, Seaman won the "200" from Howe's E.R.A.

[*To be continued*]

BOOK REVIEW

"Road Star Hat Trick," by Prince Chula of Thailand. 8/6.

These days we get in so much less motoring than formerly, and the weekly motoring Press is so curtailed—MOTOR SPORT too, for that matter—that the library takes on a new significance as a means of sustaining enthusiasm. We have just had an opportunity of reading Prince Chula's "Road Star Hat Trick" and thoroughly recommend it. This book, in smaller type than Prince Chula's earlier works, runs to 213 pages, wherein is contained a most valuable cross-section of the 1937 and 1938 seasons. "Bira" ran in fifty races in that time, driving E.R.A., Maserati, Delahaye, Delage, B.M.W. and H.R.G. cars, and these are most interestingly dealt with.

From this book one gleans many interesting "behind scenes" facts, and there are notes on the social activities of "Bira" and Prince Chula which make an absorbing background to the racing accounts. The illustrations comprise twenty-one good photographs, and there are tables of "Bira's" races from 1936 and an analysis of his Gold Star scores. Press reports are quoted liberally, and Prince Chula adds his own pungent comment when he disagrees with them. We were especially interested in the references to the correspondence which took place between the organisers and the entrants concerning the handicapping of the Phœnix Park Race, and to the manner in which "Bira" responded to Prince Chula's well-known signals in the 1937 T.T., in which "Bira" had permission from Munich to handle a works B.M.W., when the B.M.W. pit-signals had failed to speed him up. As many people believe that the rebuilt Seaman Delage never ran successfully, it is worth noting that although it retired with clutch trouble at Picardie, it was faster in practice than when Seaman drove it and faster than "Bira's" E.R.A., and at Phœnix Park it lapped at 102.3 m.p.h., equal to "Bira's" 1936 lap-record with the 3-litre Maserati, before retiring with a broken rear spring. It was not raced in 1938.

Naturally, "Bira's" part in racing is predominant throughout the book, but Prince Chula is delightfully impartial, and his particularly straightforward style of descriptive writing makes his race accounts very easy to follow. As we have said, he is not afraid to be an outspoken critic when the need arises, and a typical example is his exposure of the unnecessary attention which the lay Press devotes to little-women drivers. He observes dryly that "They do not even wear clothes which make anything like as interesting a photograph as a woman lawn tennis player." We learn of the interest displayed in the E.R.A. when it was demonstrated in Siam, and, incidentally, that "Bira" always celebrates his victories in water, leaving Prince Chula to the champagne. Having read this book we strongly recommend it as a refresher course to war-depressed enthusiasts. It will not be reprinted, but a few copies are still available from White Mouse Garage, 113a, Dalling Road, London, W.6, at 8/6 each—or less than the cost of five gallons of "Pool."

THE FORD "ANGLIA" SALOON

AN EIGHT HORSE-POWER CAR DESIGNED EXPRESSLY FOR WAR SERVICE, THAT IS LIVELY, ECONOMICAL AND WHICH HANDLES WELL

WE had a Ford "Anglia" saloon for test just when the ban on the purchase of new cars came about, and those friends whom we encountered during a 200 mile experience of the car naturally wanted to know what was the object of trying a new car when no further production for home consumption is permitted. There are several answers. In the first place, purchase of new cars is still permitted to those who can convince the authorities that they use a car sufficiently seriously to make a secondhand vehicle an inefficient substitute. It seems likely that key personnel with a big annual mileage to cover and large business houses requiring fleets of cars for their travellers and executives, will be able thus to absorb dealers' stocks of new, unlicensed cars. That there exists a market for new cars even under the present restricted motoring regime is proved by the average of some 3,000 new cars taxed monthly since the war began. Then, those who have contemplated a new car and are now prevented from obtaining one will adopt the next best course, and seek a little-used secondhand car of recent type, so that test impressions of a demonstrator "Anglia" with some 10,000 miles behind it, reproduce very faithfully the characteristics of any shop-soiled "Anglias" which come on the market, and, being taxed, can be purchased without restriction. As the war may be a long one and car-production lethargic for a while after, a good car is now a very sane investment.

With these thoughts in mind, we set out to investigate the 8 h.p. Ford "Anglia" on the very week-end that the new-car ban came into force. This model was expressly designed after war broke out to meet existing motoring conditions in this country. It is just the sort of car which many enthusiasts must resort to now, and an extremely practical supplementary means of transport in normal times, so no excuse is needed for what follows.

The "Anglia" differs from the peace-time Ford Eight in having a changed frontal aspect, a more convenient facia, and a roomier body with a useful rear luggage locker. The first impression is of the very generous space provided within the steel, two-door saloon, the easy entry and egress provided by the large doors and flat-folding backs of the bucket front seats, and the excellent visibility afforded by the four large windows and wide rear window. The driving position is definitely good, the central gear-lever and umbrella-handle central brake-lever splendidly positioned, and the pedals, with treadle accelerator, well placed. The screen pillars are a trifle thick, and neither front wing can be seen, but in this respect the Ford is merely following the present trend. The new facia is a great improvement, having centrally grouped instruments and controls, which permit of a full width, very useful shelf for oddments. In the centre panel the layout, reading left to right, is:—ignition key and lighting switch; screen-wiper control; clock; choke; Cooper-Stewart speedometer; screen-winder above; starter control; ammeter; dash-lamp switch; and fuel gauge. The speedometer reads to 90 m.p.h. which would be useful if the owner ever applied forced-induction, and it has a total mileage recorder, but no trip. This applies to the "De Luxe" model; the other has a simpler facia layout and a fixed screen. The horn push is in the wheel centre, and the direction indicator control, which is self-cancelling, likewise. The lighting switch turns left for side lamps, and right for headlamps, and a visible indicator in the lamps would be worth having. Masked, the headlamp illumination is adequate. The interior of the "Anglia" is astonishingly roomy and upholstered in leather-cloth, both front seats being adjustable. There is space for small parcels above the rear squab, and the rear locker is really roomy, and its lockable lid lets down to accommodate extra cases, being held by webbing straps in any intermediate position. This is a new arrangement, the spare wheel being carried horizontally below the luggage compartment, and not in the rear panel, as formerly; jack and tools live with it.

BRIEF SPECIFICATION

Engine: Four-cylinders, bore 56.64 mm., stroke 92.56 mm. Capacity 933 c.c. R.A.C. rating:—7.95 h.p. Tax £10. Side-valves. Downdraught carburetter. Coil ignition.
Gearbox: Three speeds and reverse. Central lever. Synchromesh on second and top. Ratios: 5.5, 10.76 and 18.72 to 1. Reverse: 24.48 to 1.
Suspension: Transverse leaf springs. Double-action hydraulic shock-absorbers. Front spring nine leaves, rear, ten leaves.
Brakes: Girling system. Dashboard hand-lever. 8 inch front drums, 7 in. rear.
Dimensions: Wheelbase: 7 ft. 6 in. Track: 3 ft. 9 ins. Length: 12 ft. 8½ ins. Width: 4 ft. 9 ins. Ground clearance: 6⅛ ins.
Fuel Range: 7 gallons—approximately 280 miles.
Turning Circle: 33 ft.
Price: "Anglia" two-door saloon: **£140.**
Makers: Ford Motor Co. Ltd., Dagenham, Essex, and 88, Regent Street, W.1.

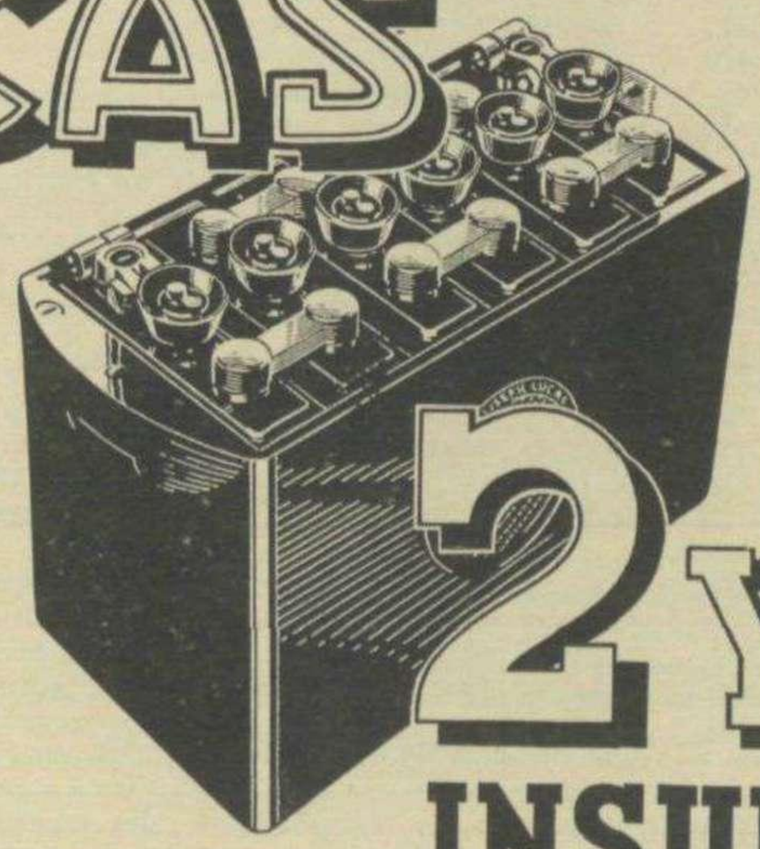
Having decided that for an "Eight" the war-service Ford offers remarkably good accommodation, it is most pleasing to find that it handles very much as the enthusiast wishes. Although making a utility car, Ford has not resorted to low-geared steering, for which we confer on him our blessing. The small thin-rimmed wheel of the "Anglia" merely asks 1¾ turns, lock to lock, the actual ratio being 10 to 1, and consequently the car can be driven one-handed on the open road and in dense traffic with equal unconcern. Nevertheless, the steering is really light, and has quick castor action. Quite a lot of road wheel movement is returned and over bad undulations quite a swinging action is set up, but this can be ignored, for it is never really unpleasant, and column judder is absent. There is a tendency to over-steer, slightly affecting accuracy at times, but this live, high-geared control is generally good and quite refreshing these days. Couple hard suspension with this quality, and you see that the "Anglia" is unexpectedly controllable for an ordinary inexpensive car. Although the stiffness of the transverse suspension gives rise to a good deal of up and down motion, the car actually rides very well over bad surfaces. Under very acute cornering there is a lifting tendency of the rear wheels, but undue rolling does not occur. The brakes are fully in keeping with these other control factors, in the well-established Girling manner. They go on with a minimum of lost motion, and are truly progressive and very powerful, albeit considerable pressure is demanded for that admittedly rare emergency halt. In all ordinary applications the action is delightful, and Mr. Girling definitely allows one to hurry unconcernedly through busy thoroughfares, secure in the knowledge that speed can be killed surely and with no diminution of control. The pull-out hand-lever, used for parking, has been quite cured of any sticking tendencies, and operates nicely.

Satisfied that the "Anglia" handles really well, you realise that the engine must be working equally commendably if the car has been swung so briskly through traffic and opened up away from towns, with never a thought. Actually, this fairly long-stroke, side-valve unit of 56.6×92.5 mm. (933 c.c.), with its generous water passages, fully forced lubrication, three-bearing crankshaft and downdraught carburation, cruises this 1,570 lb. saloon with no effort at all at 45-50 m.p.h., and gives 55 m.p.h. when occasion demands. At such speeds it is quite quiet and unstressed. On the middle gear of 10.76 to 1, it gives brisk acceleration up to 30 m.p.h. to the accompaniment of a healthy power-roar. The maximum on first gear is about 18 m.p.h. It also pulls down to a very low speed in top, the four-point rubber suspension masking vibration, and, at saner speeds, it opens up well from small throttle openings. For instance, it was possible to amble up past Croydon aerodrome at 20 m.p.h. in top until the steepest part of the hill, and then accelerate at once, breasting the summit at over 30 m.p.h. without changing down. This is a most useful quality, especially as the gap between second gear (10.76) and the top ratio of 5.5 to 1 is rather noticeable. For gear-changing, the engine speed mounts instantly. The stiff gear lever has a short travel. The synchromesh is good, if not hurried, and it does not spoil double-declutch changing if this is preferred, when quite quick downward changes are possible. The lever moves rather stiffly out of gear (care is still needed not to hit reverse from first), but the positions locate well, and are normal. The clutch takes up smoothly once the rather high pedal position is mastered; engagement occurs at the end

THE FORD "ANGLIA" SALOON—continued

of its travel. The Ford clutch feels essentially durable, is light, and does not slip. The front of the car keeps rigid over all road surfaces, and only slight weaving of the hinged top panels of the bonnet is evident, and the body is free from drumming and major rattles, as one expects of modern, welded-steel construction. The twin screen-wipers were apt to catch-up on the screen base, but they work powerfully, and, by reason of a vacuum tank, independently of throttle openings, commencing even with the engine stationary. The rear-mirror is a trifle small and involves slight stooping. The ammeter shows a most healthy charge and Ford dependability permits one to happily ignore, if not to forget, the absence of oil-gauge and thermometer. Swing-out ash-trays are provided, not only both sides of the facia, but both sides of the rear seat. Being a special war-service job, the "Anglia" is fully equipped to comply with prevailing regulations. The lamps are properly blacked-out, the running-boards whitened, and the door-lock conveniently located on the driver's door. A spot-lamp, controlled by a tiny switch on the extreme right of the facia, its upper half shaded, is fitted for fog-driving. The bulb is purposely removed from the interior lamp. but the facia lighting throws plenty of illumination in the front compartment. This proper war-time equipment is invaluable, and is further enhanced by the easy running at 20 m.p.h. in top gear, with no tendency to stall immediately below this pace, and the very clear instruments, each one illuminated separately most effectively. Even unlit, the speedometer reading shows up well in the dusk, a clear white line indicating the 30 m.p.h. position. Checked over three-quarters of a tankful, the fuel consumption worked out at least 40 m.p.g., and much of the mileage was in traffic, with much stopping and restarting, and no possibility of effective coasting. The tank holds 7 gallons, an excellent range of some 280 miles, and if the fuel gauge is somewhat indecisive at intermediate readings, it accurately indicates when the tank is almost empty, which is the main thing required of it. The engine starts easily from cold if some choke is given, and maintained until it is pulling normally. No heat or fumes enter the car, and the windows in the doors wind fully up or down—under conditions of torrential, driving rain the presence of visors would have been appreciated, and on the car tested there was a slight leak at the top of the screen above the driver. Equipment includes driver's anti-dazzle visor, stop lamp, bumpers, mud-flaps on front wings, etc. The bonnet catches work fairly easily, both top panels of the bonnet opening. Turning to technicalities, the engine has a three-bearing fully balanced crankshaft, chain-driven camshaft, alloy pistons, coil ignition with automatic advance and retard, and thermo-syphon cooling. It gives 23.4 b.h.p. at 4,000 r.p.m. The main bearing area is 24.25 square inches, and the oil pump delivers from a 4½ pint sump at the rate of 3.41 litres per minute at 1,000 r.p.m. The fuel supply is by camshaft pump. The drive goes via a single-plate clutch to the three-speed gearbox with synchro-mesh on top and third and by torque-tube drive to the three-quarter floating rear axle. Suspension is by transverse springs with oil-less shackles, damped by double-action, adjustable hydraulic shock-absorbers. The pressed-steel wheels carry 4.50″×17″ India "Standard" covers. Electrical equipment is Ford 6 volt, with 63 amp. hr. battery under the bonnet. The welded steel body has safety glass screen, synthetic enamel finish, and cloth-lined roof. It has easy-clean contours and chrome door handles. The de luxe "Anglia" costs £140, and the standard saloon £130, and the annual tax is £10. In conclusion, we have long been used to getting excellent performance and impeccable service from our babies, but to get full accommodation for four persons and their luggage, and still get a full 40 m.p.g. on Pool petrol, stamps the Ford "Anglia" as the ideal war-service car, and the sort of vehicle which the enthusiast will find an excellent supplement to the sports-car long after the war is over.

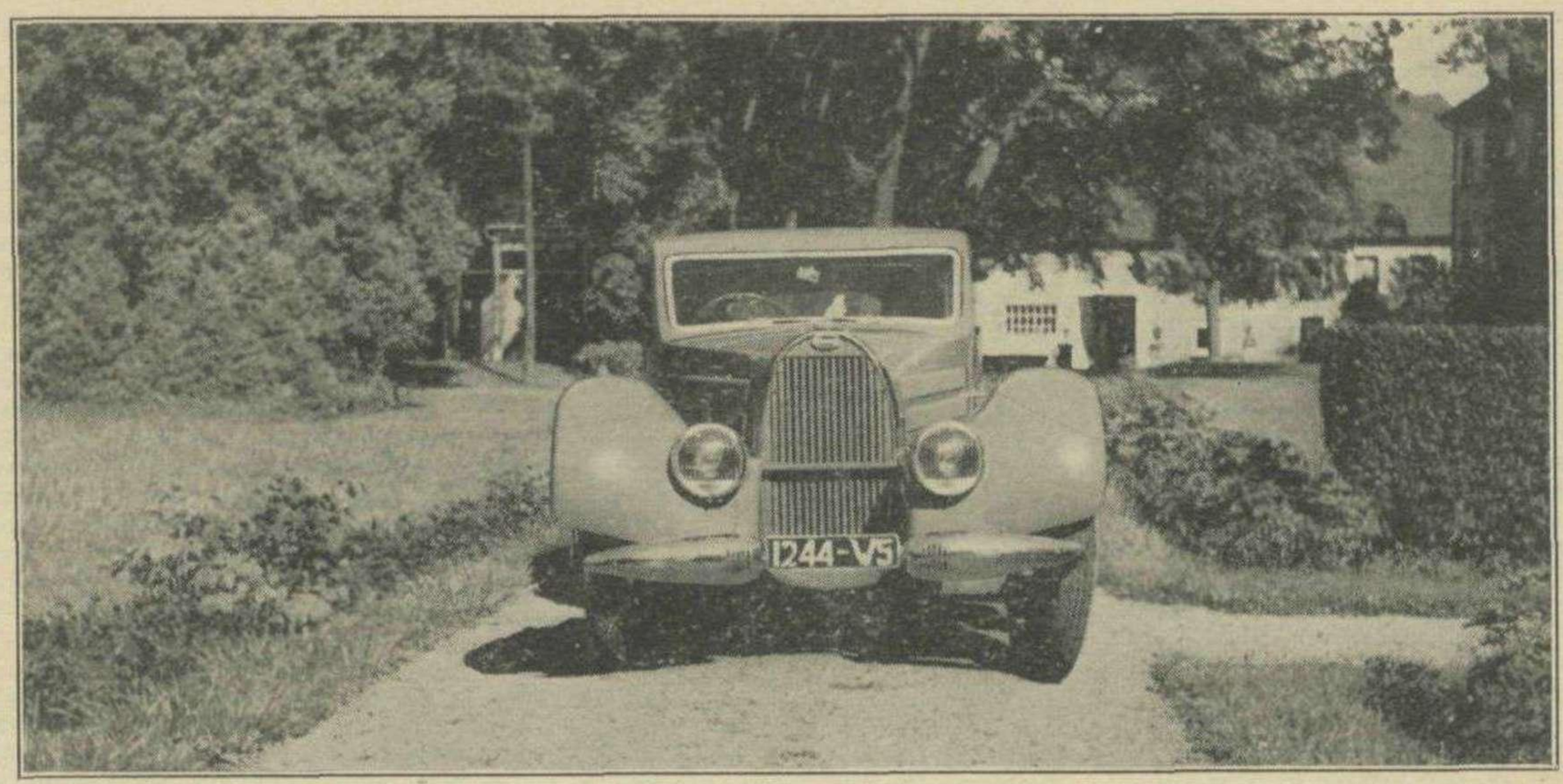
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THE VINTAGE-MODERN AXIS

[Cecil Clutton's article on Vintage Sports-Cars published last March was very well received by those who are interested in vintage sports-cars, but not a few readers made it clear that they are not. So it occurred to us to invite Mr. Clutton to write a similar screed on modern sports-cars, thereby enabling us to present a long non-vintage article in his inimitable and enjoyable style, while proving that, confirmed vintagent that he is, he is not biased and has, in fact, a definite appreciation of the better moderns. We hope modernists will appreciate this review of present-day sports-cars from a unique angle. We have not edited Mr. Clutton's views, and would emphasise that they are not necessarily those of the Editor or Proprietor of " Motor Sport."—Ed.]

RECENT articles in MOTOR SPORT have sung the praises of Edwardian motors and vintage sports-cars. This continues the series with a critical review of modern sports-cars, from the vintage point of view. It is the hope of the writer that it will be followed by another, from some other pen, dealing in the same way with vintage sports-cars from the viewpoint of a modernist. [We shall be delighted to give consideration to such an article if any outraged modernist will oblige ; here is an opportunity for those who chide us for devoting too much space to " real motor cars " to air their grievances.—Ed.]

There are several ways of tackling such a review, but the method of individual comparative criticism does not seem particularly profitable. It is therefore proposed to sketch the transition from the principles of vintage design to those now current, and then proceed to consider how far the modern sports-car answers the requirements of the genuine connoisseur. The vintage sports-car ceased to be made after 1930, and the true modern type was not born till 1935. In the intervening five years darkness reigned, and the ethics of design were forgotten.

The object of all sports-cars is to afford good acceleration, high maximum, high cruising speed, good brakes, good road-holding, durability and reliability. The best of both vintage and modern machines fulfil all these requirements, but the vintage type was only able to do so at the expense of some personal comfort, and by the use of a low weight per c.c. ratio. Except in so far as our idiotic system of taxation is concerned, the use of small, high efficiency engines has little to recommend it, and despite all the advances of science, the modern sports engine giving 40 b.h.p. per litre at 5,000 r.p.m. is no match in point of durability for the vintage type, giving, perhaps, 25 b.h.p. per litre at a peak of 3,500 r.p.m. Unless, therefore, a small car is definitely desired, there is no advantage in high volumetric efficiency, except from the aspect of taxation. This form of lunacy surely cannot last for ever, and we should not allow ourselves to be unduly hypnotised by it, whatever may be the case in the " family conveyance " market.

The vintage sports-car, then, consisted of a light flexible chassis with stiff road springs and heavy shock-absorbers ; a relatively large, inefficient engine ; a light body, unstreamlined, but with frontal area reduced to a minimum.

By 1930, the public began to demand larger, more luxurious bodies, and when they got them, these bodies soon cracked up on the whippy chassis ; so the chassis were braced up, strengthened, and wonderfully cross-gartered till they weighed the earth. To stop this mass of metal larger and larger brakes were required, so that axle assemblies became heavier and heavier, and the evils of unsprung weight, not serious with the light assemblies of vintage days, became a real bogey. To cap it, the public also demanded tiny, but immensely flexible engines, and so there came about a buzzing swarm of horrible little six-cylinder units, geared at anything down to 6 to 1 ; and as no one knew very much about aluminium, nor directional cooling, the mortality of valves, plugs and cylinder bores was quite dreadful, while petrol consumption became steadily worse and worse.

Lastly, there was a call for trans-atlantic style comfort at all speeds, so the monstrous chassis were fitted with road springs which would have done nicely for a perambulator, but were not conducive to roadholding.

Small wonder, then, at the wave of enthusiasm for vintage motoring which reigned among genuine enthusiasts during the early and middle thirties. And because vintage cars are cheap nowadays, and the real enthusiast does not mind a little personal inconvenience, much of this enthusiasm still remains ; because, at the expense of personal comfort, the best vintage machines can still do practically all that the modern type can achieve.

But this must not blind the vintage enthusiast to the fact that the best modern sports-cars show a tremendous advance upon the designs of the twenties, and it is only when designers have clung to vintage principles, and fruitlessly tried to adapt them to conditions entirely beyond their capabilities that a bad modern sports-car has resulted ; and there are quite a lot of them. Therefore, to conform to both modern standards of luxury and vintage standards of performance it is essential to adopt principles of design which are totally different from

THE VINTAGE-MODERN AXIS— continued

anything which has gone before. Nothing in the way of compromise is any good.

This has been achieved in various ways. Independent suspension has brought about lower unsprung weight than ever before, despite even the immense brake drums now necessary. This, in turn, has enabled designers to fit flexible springs which, in conjunction with rigid chassis, command road-holding which is at least as good, and sometimes better, than anything of vintage times. Nor are these rigid chassis heavy as were those of the early thirties, for tubular construction has enabled rigidity to be combined with lightness.

So far as coachwork is concerned, much greater seating width than heretofore is permissible, entirely owing to advances in streamlining. The modern technique of body construction has also kept the weight down, and improved the inherent rigidity of the coachwork.

For what it is worth, volumetric efficiency has gone up, on an average, by about 20 per cent., but it must be conceded that advances in metallurgy and cooling have regained an astonishing degree of durability, while the various sorts of idiot-proof gearboxes no longer make top gear flexibility a *sine qua non*.

But not all modern sports-cars conform to this Elysian pattern; many manufacturers are still groping along on ten-year-old lines, and, more astonishing, quite a lot of them contrive to sell the things. It is, of course, true that the need for independent suspension has not been so apparent in England as elsewhere, because our inadequate roads precluded sustained high speeds, and their billiard table surface hid defects in plain suspension which soon became evident when the innocents ventured abroad. But when we return to motoring on tank-battered highways, it is unlikely that manufacturers vending the old type of suspension will meet with an enthusiastic public. Quite apart from this, with non-independent suspension that is sufficiently flexible to suit modern requirements, any violent application of the brakes merely winds up the springs like a clock, and all pretence at steering vanishes.

It is simply astonishing that a famous and expensive British sports-car retains the most homely sort of front axle layout, together with brakes which can only with caution be applied with full ferocity. This particular machine really affords a most interesting object lesson.

When it first came out, in about 1934, it was reasonably light, and although the engine bore a startling resemblance to a unit which first saw the light of day in the early '20's, it nevertheless managed to push along with quite a rush. But because the chassis was light and flexible, the luxurious bodies fell to pieces, and the chassis had to be strengthened quite a lot, after which the unhappy engine could no longer drag the thing along. So the manufacturers enlarged it by quite a large piece, but still used the old gear-ratios, and although they begged and implored their clients not to cruise at more than 70 m.p.h., the bearing metal continued to pour from the agonised connecting rods like molten lead from the plumber's ladle.

So then the manufacturers made a wonderful bearing metal which did not melt any more; but even so, people who had paid all that amount of money considered that they were entitled to expect a safe cruising speed of more than 70 m.p.h., and as this represented a piston speed only a fraction under 2,500 feet per second, there was still the sound of lamentation in the land.

So the manufacturers gave up the idea of producing a fast car at all, and they provided a gear which accelerated nicely, and another on which the motor was practically unburstable; but neither of them would get the apparatus up to its potential maximum.

It is interesting to note that high performance vintage cars generally gave off about 2½ h.p. per cwt. at cruising revs., and the car we have just been discussing does roughly the same. But whereas the vintage cars had very small frontal areas, the modern, equally unstreamlined machine is very wide; and this has just made all the difference, because it has been shown that with a decently streamlined body it will proceed with quite phenomenal speed and economy.

At long last, it is freely tipped that independent front suspension is nearing production, and when this becomes a fact, there is no doubt that in conjunction with reasonably streamlined coachwork, we shall have a very fine sports-car indeed.

When Mr. W. O. Bentley set about designing the V12 Lagonda, he took for granted the fact that the wealthy connoisseur generally requires luxurious comfort, as well as 100 m.p.h. performance, and is not yet ready for advanced streamlining. This, he rightly concluded, can only be done by making no concessions to the horse-power tax.

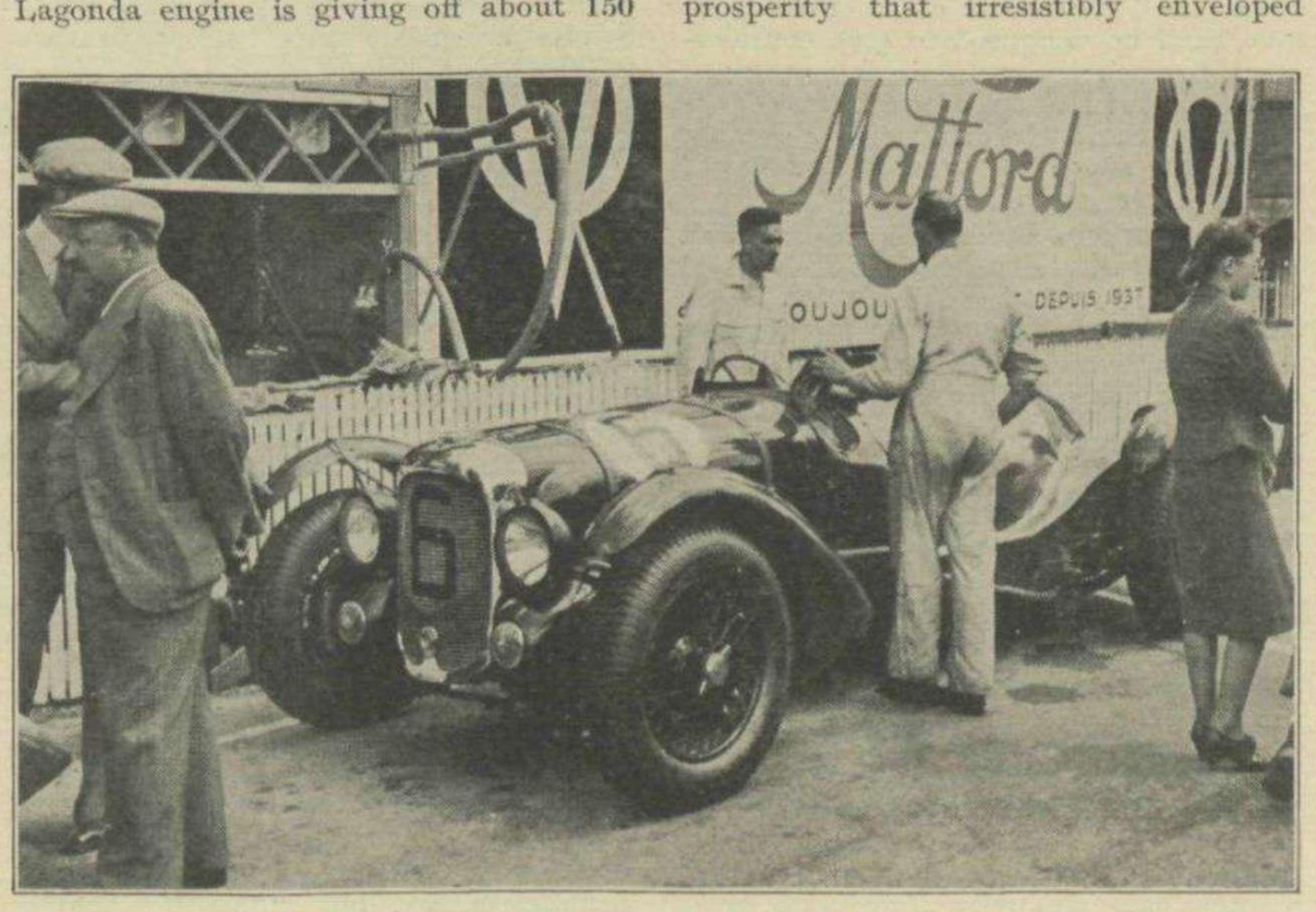
This means to say that by using many small cylinders of short stroke it may be computed that at a piston speed of 2,500 f.p.s. (approximately 4,500 r.p.m.) the Lagonda engine is giving off about 150 h.p., whereas a normal six-cylinder unit of the same capacity would not be making much more than 100 h.p.; and this is sufficient to justify a gearing giving a cruising speed of 85-90 m.p.h.

It must, nevertheless, be admitted that there is rather a lot of the Lagonda to class it as a genuine sports-car, and the steering is very low geared; but had Le Mans taken place this year, it is believed that Lagonda would have competed with a more compact chassis. One also understands that a four-carburetter model would by now have been on the market, and this would undoubtedly have improved the all-round performance, and, in particular, flexibility at low revs.

One of the difficulties of independent front suspension is that unless the centre of gravity is much lower than was necessary with the vintage type of chassis and springing, the car is very inclined to rolling and other forms of instability. In the Lagonda, Mr. Bentley has contrived to combine reasonable head-room with remarkably low build, thus attaining exceptional stability and roadholding; but at the same time, the difficulty of achieving such conditions is considerable, and the probability is that front wheel drive will become increasingly prevalent on that account. The admirable Citroen is the outstanding example of this at the moment.

Rear independent suspension hardly seems to repay the difficulties and expense of manufacture, except on cars that are so powerful and light that wheelspin is a serious problem. With saloon coachwork, independent rear springing is a pronounced inducement to rolling, but with such cars as the open 3½-litre S.S. Jaguar four-wheel independent suspension clearly has a great deal to recommend it.

Independent suspension in itself is not a panacea for all ills. Many manufacturers having heard—albeit somewhat tardily—about the unalloyed bliss and prosperity that irresistibly enveloped



The great V12 Lagonda in true sports guise—at Le Mans

THE VINTAGE-MODERN AXIS—continued

every manufacturer whose motor car sported independent suspension, stepped round to the nearest junk-heap and bought a bit of independent suspension in a paper bag (before the paper shortage, that was), and nailed it (most insecurely, in many cases) to their comic chassis. This generally resulted in what may be described as the retractable undercarriage type of independent suspension, which, though useful for flying machines, is but imperfectly suited to instruments of terrestrial transport.

But, although the 4.3-litre Alvis is an up-to-date design, and Daimlers are effectively invading the field of the "fast tourer," it must be regretfully admitted that apart from them and Lagondas, we must look to the Continent for the outstanding sports-cars of to-day.

In France, Delage, Delahaye, Talbot, Hotchkiss and Bugatti are the principal exponents. Delage and Hotchkiss, as always, tend more to the class of "fast tourers," while Delahaye and Talbot are of more definitely sporting calibre. Bugatti, of course, stands alone and inimitable among motors.

The first four are all very similar in general layout, but particular mention must be made of the Delage's Cotal electric gearbox, which gives as many varieties of gear change as a clash box with a clutch stop, but has the added merit that it can be operated without taking the hand off the steering wheel. It has the further advantage over preselector and synchromesh boxes that it can be worked without the clutch, so that where the accelerator is on the right, the left foot can be used to work the pedal brake, while changing down, thus avoiding the vexatious toe-and-heel business.

The Delage system of independent front springing by transverse leaf springs and radius-cum-torque arms is widely adopted, and has the merit of simplicity as well as being almost roll-proof, given a reasonably situated centre of gravity.

Straightforward, six-cylinder, push-rod engines of 3½ to 4-litre capacity give from 31 to 36 b.h.p. per litre at only 4,000 r.p.m. on compression-ratios around 6.3 to 1. An average enough make-up, in all conscience, yet the faster models can show maxima of 100 m.p.h., and acceleration figures of 9½ seconds from 0-50 m.p.h., and 13½ for 0-60. Equivalent British sports-cars are some 20 per cent. slower all round, and, on an average, weigh 5 cwt. more; yet they do not afford appreciably better accommodation.

Nor has France been idle in the matter of cheaper sports-cars, and Citroen and Peugeot are so overwhelmingly popular as to take the place of Morris and Austin in England. Yet each is a machine with which no enthusiast need be discontented (though the Citroen's three-speed gearbox is a pity), combining the comfort, roominess, cheapness and economy of our British "family" cars with thoroughbred handling and very respectable performance. Why can't (or won't) our people do it too?

In all cases, high-geared steering is the order of the day—the Talbot, in particular, only needs 1½ turns from lock to lock—yet all are finger light, even with 6 inch section tyres. Why, then, should other makers require four turns to produce steering which is not as light, and utterly lacking in responsiveness or accuracy? Modern traffic conditions require high-geared steering as never before, and inferior workmanship and design are the only reasons for low-geared ratios.

The low ratios found on Grand Prix machines belong to entirely different conditions, where the fantastic speeds and powers have put heavy work on the tiller quite out of the question.

Bugatti has failed to advance with the times, yet the current types 57 and 57C remain, perhaps, the machines which still appeal more than any other to the genuine connoisseur. Despite normal suspension, the roadholding is such as none can surpass, and there is little doubt that the practice of passing the front springs through the tubular front axle, combined with the thirty-year-old system of reversed quarter elliptics behind, are largely responsible for this result. The latest models have the ingenious non-adjustable hydraulic shock-absorbers, which combine low-speed comfort with high-speed stability of the highest order.

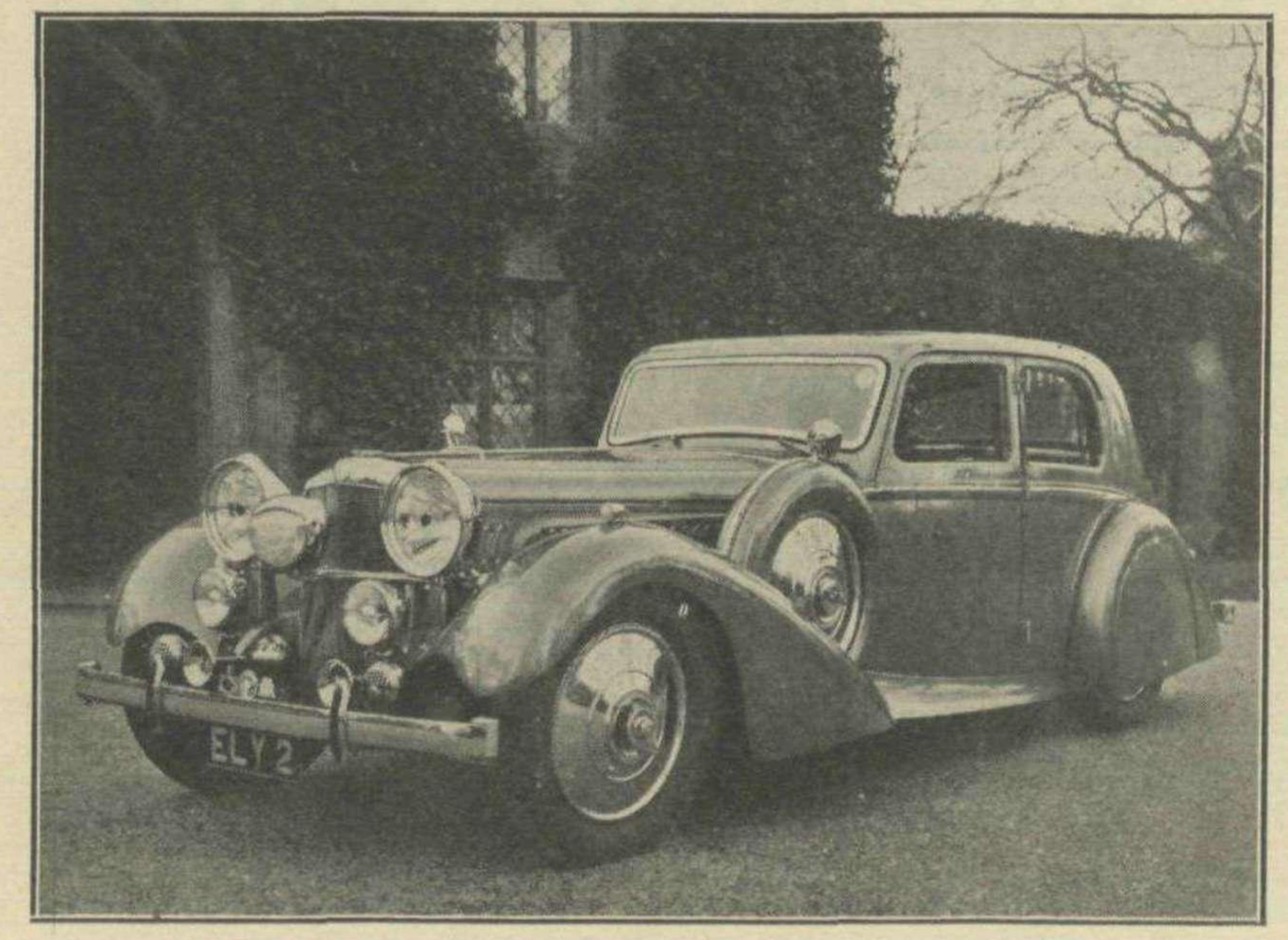
Bugatti steering is, of course, a by-word; there never has been a Bugatti with play in the steering, and the whole thing has the sensitiveness of a good chemical balance.

The double o.h.c., straight-eight, 3.3-litre engine is now silent and smooth throughout its range of over 5,000 r.p.m., and it will pull away in top gear from 10 m.p.h. without pinking, even on inferior petrol. Alternatively, the perfectly chosen ratios (4.17, 5.37, 7.5 and 11.6 to 1) will send you soaring into the 80s as an easy cruising speed. Ninety--ninety-five m.p.h. is the limit of the unblown 57, but the Roots-blown 57C can exceed 105, and accelerate from 0-80 in less than 23 seconds, with a saloon body. The 57C is also smoother and more flexible than the 57, while the relative b.h.p. are 160 and 130, both of which are outstanding from only 3.3 litres, especially in conjunction with petrol consumption of 17 m.p.g.

The finish of a Bugatti is now second to none in the world, yet the pre-war chassis price in England was only £675 for the type 57 or £780 for the 57C. One can only hope that the war and Jean Bugatti's tragic death on August 12th, 1939, will not stop production when the world returns to sanity once more. It is a pity that the sale of Bugattis in this country has not been more energetically handled.

In short, it may be said that the modern Bugatti is the absolute apotheosis of vintage design. What would be obsolescent in any other make, the great Ettore has raised to an individual perfection that is a thing of its own. Whatever happens in automobile design of the future, there will never be another Bugatti; he is as unique in the world of motoring as are Bach, El Greco and Jane Austen in the arts.

Italy has given us four wonderful little sports-cars in the 1,100 and 1,500 c.c. Fiats and Lancias. The Fiats may be described as like a smaller edition of current French design, and although cheaper than the Lancias, they are perhaps the better cars. The 1,100 c.c. Balilla model has also raced with great distinction, especially in the hands of Gordini, and many readers of "The Motor" will remember the stirring article which Gordon Wilkins wrote in that estimable journal about one of these cars with a streamlined saloon, and the truly staggering figures which it returned under test. The standard saloon weighs



Typical of to-day—the **4.3** *litre* **6***-cylinder i.f.s. Alvis*

THE VINTAGE-MODERN AXIS—continued

only 16½ cwt., the engine develops 32 b.h.p. at only 4,000 r.p.m., and the maximum speed is 70 m.p.h., so that at £198 it is difficult to think of better value for money.

The small Lancia has not reached this country, but it is in all essentials a miniature of the Aprilia, which is particularly interesting from a vintage point of view, since it is so similar to the old Lambda series from which it was clearly developed, via the Augusta. The body is adequately, but not excessively streamlined, and the complete car weighs 17½ cwt. Having regard to this, and an engine capacity of only 1,352 c.c., acceleration figures of 15½ seconds for 0-50 m.p.h. and 25 seconds for 0-60 are beyond praise. Coupled with this is a maximum of 80 m.p.h., petrol consumption of over 30 m.p.g., real comfort, and a cruising pace around 70 m.p.h.

Gear ratios are difficult to space on a car of this size and type. Those chosen (4.1, 6.1, 9.21 and 14.42 to 1) are good, but while they are too wide for the best effect, it is hard to see how they could have been altered without some sacrifice. The truth is that with a small, high-revving, not very flexible engine one really needs five forward speeds. On the Lancia, a series giving 4, 5, 7, 10 and 15 to 1 would make all the difference in the world.

The Lancia front suspension is by the well-tried tubular springs working in guides, but the rear suspension is now independent as well, with a transverse leaf spring. As a result, the car is more subject to rolling than the old Lambda, and the universal joints gave a certain amount of trouble in the earlier models. Independent rear springing with a saloon body, too, nearly always seems to produce an annoying hammering effect, and altogether there seems little to be said in its favour under normal circumstances. The cheapest Aprilia saloon costs £495, which cannot be called cheap, but it must be conceded that the finish throughout is reasonably good.

What of Alfa-Romeo? A good car it once was, but now it is a flash, badly finished, thoroughly unreliable, undurable and unsatisfactory piece of machinery, that finds its principal market among Jew-boys to take their . . .; anyway, to go down to Brighton for the weekend. Long since routed from Grand Prix racing, in the Mille Miglia this year they finally lost even such supremacy as they may have had in the sports-car field. *Sic transit*!

To Germany it has fallen to build the most advanced of all sports-cars, the B.M.W. Mercédès is no longer in the field; the S.S.K. was, indeed, a memorable machine, even if rather impracticable, but the Type 540K is rather a bad bodge, that is neither here nor there.

Germany, too, has a fair selection of cheaper sports-cars, relying on streamlining and quite small, inefficient engines, which give good cruising speed and economy, but poor acceleration. Adler is perhaps the best example.

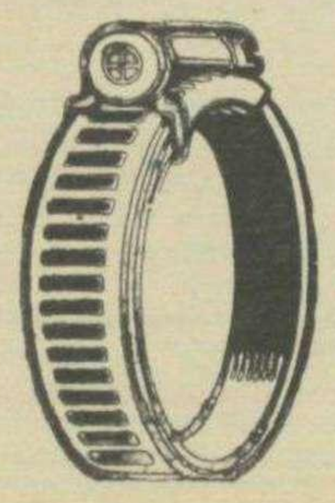
The first B.W.M.s to reach this country some six years ago came as a real shock, being quite unlike anything one had met before. In particular, the "dead" feeling of the steering seemed peculiar, but later one was to get used to it as a usual feature of independent front suspension. Later models became faster and faster, culminating in the miraculous types 320 and 328. Unfortunately, the price as imported into England seemed high, having regard to the not very superior finish; nor had the clutch and transmission kept pace with the increased power; but despite this the German B.M.W. undoubtedly remains the design of the moment. The capacious four-seater saloon on the 320 weighs only 18¾ cwt., and does 80 m.p.h., while the 328, whose 2-litre, 16 h.p. rated engine gives off 80 b.h.p. at 5,000 r.p.m. (and is capable of half as much again, as was shown in the Mille Miglia), weighs 14½ cwt., can easily top 100 m.p.h., and accelerates from 0-50 m.p.h. in 7 seconds, or 0-60 in 9½! As is only to be expected, such a machine is not particularly flexible, but it is reasonably economical, and the petrol consumption is around 20 m.p.g.

Summing up, one sees how the wheel has turned full circle in the last decade. The best vintage machines coupled high cruising rates at easy engine speeds with good acceleration and superb road holding. Now, after a period of doubt and tribulation, the sports-car of to-day has recaptured these attributes, but coupled with greater comfort and silence than ever before.

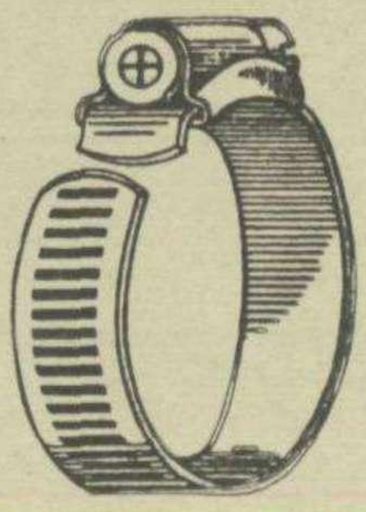
Yet no amount of logical argument can displace from one's affection the unique and indefinable character of the leading machines of the vintage era—Frazer-Nash, Alvis, Bentley, 30/98 and others—and there are many enthusiasts who for years to come will still keep faith with some otherwise forgotten warrior of the distant twenties.

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SOUND AT LE MANS

[The article " Sound and Speed in Motor-Racing " in the July issue was so favourably received by so many people that a reader, who insists on remaining anonymous, offers some observations on sound at Le Mans. Apart from being an excellent study of sound effects, this article gives a very vivid impression of how the Le Mans circuit presents itself to the driver of a medium-fast sports racing-car, and as there will, alas, be no " Les 24 Heures du Mans " this summer, we think the account will be welcome.—Ed.]

MAY I take you round Le Mans, in sound? I know almost every inch of that lovely circuit by the noise which happens there.

First, an engulfing silence at ten-to-four, as one stands incredibly lonely in that little white circle—a silence broken only, so it seems, by a spasmodic tick from an S.U. pump left on to avoid forgetting it when the flag falls. There is no sound when the flag does fall; you just run when you see the fellows doing so higher up. One at a time, at first, the engines burst into life—then all at once, with that great surge of sound you all know so well. You do not hear your own engine start, it is drowned by the thunder of the man next door; but you feel it and thank merciful heaven, hoping only that all the pots are there.

She is away, pinking rather a lot up a slope which is far steeper than it looks, as those who have tried to push a dead car home will agree. For an hour or more things are too hectic for you to appreciate sounds properly; too many cars to pass and passing, for the field has not yet really strung out.

Then, since all is apparently going well, you begin to settle down and the tension is relaxed. Funny little snatches of sound or song from the loudspeakers as you flash past the pits, and then immediately the clatter of stones and brickbats on wings and panelling where the road always gets broken up at the fork . . . You must keep close in on the rough stuff in a modestly fast car, for the big ones have to take this corner to the right of the central white line, or else they get very involved with an adverse camber.

Over the top, revs. dropping a little against the gradient and down towards the esses. On with the anchors and down to third, ditto and down to second: you know those noises all too well, but imagine also the comforting surge of extra braking as each gear snicks safely home. Incidentally, you can recognise many of the cars at night by their sound-behaviour on the over-run. The Delahayes and Talbot-Darracqs with their soft, lambent bluish flames which trail lazily from the pipe with a noise like silk flags crackling in the wind; Gordini's Simcas with their raspberry overtone; the V12 Lagondas like all the raspberries in the universe, the best over-run noise ever; the H.R.G., with little staccato, regular stabs of orange flame, and a noise like hitting the undershield with a copper clouter . . .

Into the esses now, being careful to give her all she can take and no blipping. Acute displeasure registered at certain lady driver who is the Blipper-in-chief. Shall kill myself one day trying to pass that dame too near a corner, so as not to have to follow her through it!

Not much reaction to sound between the esses and *Tetre Rouge*, the delightful corner on to the long, long straight. Too busy watching the revs. in second, up to third, see if there is time to let that Alfa pass, down to second and get position for the corner . . . .

You can just hear stones whipping against the palisade as you open up in the corner—if you start well over on the left. Which you must do, if you are to cut over to the inside at the crucial moment and avoid arguments with another adverse camber on the main Le Mans-Tours road.

Pæans of glorious sound now, as you take her up to " 5,000 " in second. Into third exactly under the bridge, same spot every lap, " 5,000" again and top just by a cottage on the left which says " Quinquina—Vin tonique." Swing gently right now, through the trees (which Belle-Croix swiped in 1939, ending up in a woodman's living room), and out into open country approaching the Café de l'Hippodrome.

With no sound from behind, but with a terrifying whistle from that curious air-intake atop the bonnet, one of the V12 Delahayes sweeps past at 130 odd. Scarcely any exhaust note either, but a whipping from the tyres you seem to hear for miles. Here comes Sommer in pursuit, with the blown Alfa saloon, a suspicion of blower noise forewarning you. He doffs his straw hat as you pull over, and immediately the air is vibrant with sound, and stinging dust, and the dry stench of benzole.

Relax now, and make yourself comfortable in the seat, until that gentle, well-banked right-hand curve with white railings on the left warns you that the straight is nearly over. Plenty of time to pass that little Simca " Mouse " which buzzes like a bee in search of flowers, as the driver eases his foot from time to time to spare the engine. Ahead, Maestro Gordini himself makes an angry and incredibly penetrating high-pitched drone with the 1,100 c.c. model. It is, perhaps, the noisiest vehicle on the course except for the D'arl'mat Peugeots with their pretty cluster of straight-through pipes. The Lagondas are dead silent until they get really cracking, and then the heavens are split open: the Peugeots do this all the time.

Mulsanne hairpin now, and gently with those anchors because the road surface is melting badly. You get good warning of this, for the tyres are making a funny sniffling noise on braking, but heed it well. It is absurdly easy to lock all four wheels and carry the road with you; criss-crossing black streaks speak eloquently of those who have " motored on to Tours."

After the corner, the high fencing to left and trees to the right produce a queer resonance which puts a pulsation into your own exhaust note. " Wong-eee, wong-eee " it goes, slowly at first, about one cycle per second, but quickening as the revs. increase, and then, just as you get into top, you are in open country, and the comparative stillness is extraordinary. You feel you can hear the very valve-springs squeaking.

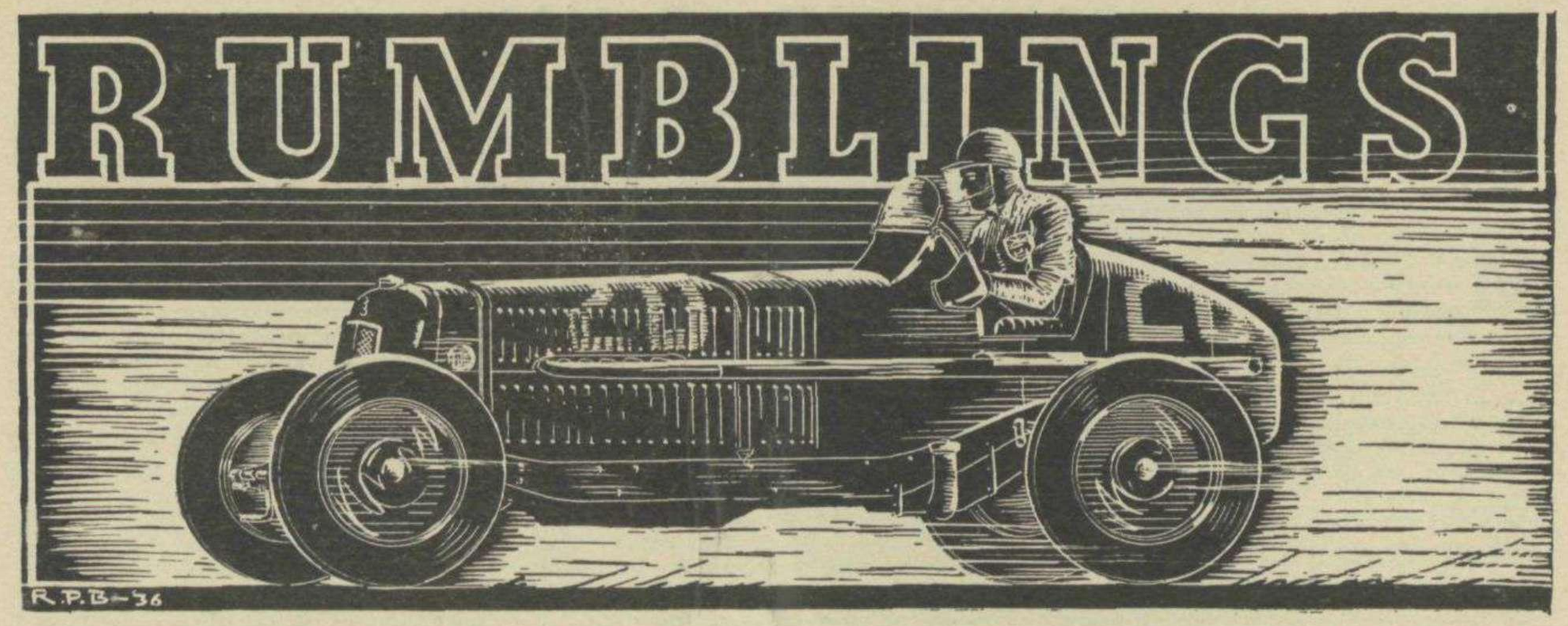
A fast right-hand bend, which seems perilously fast because the trees close in just at that point and suddenly magnify the sound, then brake and down to third for the slower right-hand bend which precedes the brick surfaced left-hander called Indianapolis. Your chief memory of this section of the circuit is being passed, between this bend and Indianapolis, by Armand Hug (or his co-driver), in one of the Watney Delages, and thinking " young man, thou'rt going too fast," while waiting for the inevitable thud, bonk, bang, tinkle-tinkle, hiss . . . . The Delage is off the road, or nearly so, and the road itself full of broken glass and earth and oaths.

Leaving the right-handed, right-angled Arnage corner, you come to that fast, winding and very narrow stretch which continues until after White House. Sounds rise and fall as the country is more open or more closely wooded here or there, and there is a sharpish hump which plays funny tricks with the tail when it is wet, but you are chiefly occupied with not bouncing into the way of the big stuff. Some of them, like Wimille in that vast and very silent Bugatti, sail quickly past with no trouble at all. Others there be that hum and ha, and *then* nearly shave your whiskers off.

White House is dangerous, but not " phonetically interesting." Beyond it, you have a moment's brief respite before the pits and the great effort to distinguish the rude message hung out, and to remember to work the lap counter.

Then it all starts over again, until suddenly they say " one lap to go " and you put in an extra good one to counteract the pit stop just a little. Switch engine off before the pits—it probably pre-ignites and runs backwards with a whiff of chuffing sound from the carburetters—then put the switches on again in case the other man forgets. Into your pit, and mechanically you go through those so carefully rehearsed routines. You are stone deaf, and hear almost nothing until the other man climbs aboard and your coma is banished by the welcome blast of your own car's exhaust.

He is gone, and over the loudspeakers come the first words you have heard for three hours or more—" *La voiture . . . . , numero . . . . a quitte son stand de ravitaillement . . . .*" A wash, a meal perhaps, then a deep peaceful sleep, lulled by the music of Herr Doppler's phenomenon.



Racing Fuels

WE should really be most thankful that after nearly a year of war we can still obtain petrol for a certain amount of motoring, and that the price of this precious fluid has not risen excessively. Petrol is strictly rationed and has depreciated materially in octane value, because our mechanised fighting units burn this fuel in very large quantities. It is a profound thought that if modern aero-engines ran on fuels of the sort that have been deemed essential for first-line racing cars for the past seventeen years, doubtless we should now be able to tank-up with good fuel, just as if the war had never happened. Modern racing fuels contain some 50 per cent. and upwards of alcohol for ordinary racing, and sprint fuels approach a 100 per cent. alcohol content. A fuel composed of 60 per cent. methyl alcohol, 30 per cent. benzole and 10 per cent. aviation petrol is generally suitable for a racing engine with a b.m.e.p. of 180-200 lbs. per square inch. For sprint or short record runs the alcohol content may be increased at the expense of the benzole, but for normal racing this would be likely to result in damping out after corners, and, fortunately, the let-up for cornering will compensate for the lower cooling characteristics of the fuel. The Derby-Miller which Mrs. Stewart used to handle so successfully was started on straight petrol, and the throttle could not be fully opened until the alcohol fuel was brought in. Even so, alcohol fuel used to deposit in the lower part of the centrifugal blower casing to an extent sufficient to cause corrosion, and the casing had to be drained carefully before the car was put to bed. Similar trouble was experienced in a Schneider Trophy Napier "Lion" motor, in which the magnesium alloy filters disintegrated; they were replaced in gun-metal. In spite of this shortcoming, starting difficulties, and the very heavy consumption because so much is only coolant, alcohol is the base of modern racing fuels and is responsible for the very high output possible from present-day racing engines. Its use was favoured by motor-cyclists at Brooklands around 1922, and at this period the famous 3-litre T.T. Vauxhall cars were run on an alcohol-blended fuel. Other major components of racing fuels include benzole, petrol, toluol, and acetone, and, to a minor degree, ether, water, naphtha, oil, xylene, cyclo-hexane, tetra-ethyl-lead, and oxygen gas. Benzole can be employed in much greater quantities than petrol on account of its higher anti-knock value and better latent heat value. It is an excellent binder of alcohol and petrol, and increases the water tolerance of such mixtures. Its high freezing point (about 5°C.) makes it of small use for aero-engines. Petrol is really only valuable in a racing fuel on account of its wide boiling range, which assists starting and improves distribution. Air Ministry D.T.D. 224 specification fuel is preferable, or D.T.D. 230 in a leaded variety. Toluol is akin to benzole, but has a freezing point of —70°C., which obviates freezing troubles. Its value as a dye and a war material renders it costly and difficult to obtain. Acetone is of value in binding an alcohol-benzole-petrol mixture, and has an anti-knock value between that of benzole and alcohol. It attacks certain light alloys, however. Ethyl ether has been used to assist starting with fuels of very high alcohol content, but having an anti-knock value only about half that of commercial petrol, it was not generally successful. Water has a great cooling effect, and at one time was used in as great a proportion as 25 per cent. In an alcohol mixture it was necessary to use benzole and probably acetone also, to obtain a blend, as petrol will not blend with alcohol otherwise, if more than 4 per cent. of water is present. Even then, low temperatures or a little extra water result in separation. Injection was rather a different story, but even then the effect on lubrication was severe, and the only satisfactory way to inject water without washing oil from the cylinder walls and diluting the sump contents seems to be by the Arnott method, described in MOTOR SPORT last May. Naphtha appears useful only as a binder of alcohol and petrol if benzole is not available, and xylene likewise, with possibly a slightly wider boiling range. Cyclo-hexane is very rarely used, being expensive, difficult to obtain, and tending to pre-ignite before detonating, but it can be employed to adjust distribution characteristics. Oil is added merely for purposes of lubricating supercharger components, valve stems and upper piston rings, but it has a severe pro-knock tendency, and should never

RUMBLINGS—continued

be used in greater than 2 per cent. quantities. Tetra-ethyl-lead imparts a high anti-knock value to petrol, up to the addition of about 5 c.c. per gallon. It does not improve alcohol or benzole, so there is little point in using lead with blends in the region of 90 per cent. alcohol/benzole : 10 per cent. petrol, to an extent greater than 1 or 2 c.c. per gallon. In any case, the fluid is not available to ordinary mortals, and would only be used in fuels blended by the petroleum companies. Lead dope seriously harms overheated exhaust valves and frequent examination is necessary. At Indianapolis, where the rules confined competitors to petrol fuels, it was said that lead fluid to the extent of 10 c.c. per gallon was used to obtain the desired anti-knock values, but in this country such methods are regarded with suspicion, because such a high content would have no additional anti-knock value, it would result in valve and plug failures, while, even if it were to permit higher compression pressures without knocking, they would not be realised, because internal overheating would lower volumetric efficiency so that the h.u.c.r. would never be reached. Hence the use of alcohol, which requires only half the weight of air and keeps engine temperatures much lower by its higher latent heat of vaporisation. When petrol was the only available fuel it was thought that oxygen-injection would enable more fuel to be burned, and Eldridge carried a cylinder on the big Fiat when he went out for the Land Speed Record at Arpazon. His passenger turned the tap on for the first run, but forgot to cut off the supply thereafter, consequently it was exhausted before the second run. As the speed was identical, it was concluded that oxygen had no particular value. The experiment was repeated, if memory serves correctly, on an Austin Seven engine at an Inter-'Varsity speed trial, but didn't the engine blow up ?

The Rolls-Royce aero-engines used in the record-breaking motor boats " Miss England " and " Miss England III," piloted respectively by Segrave and Don, ran on a 50/50 toluol/ethyl alcohol fuel. The Rolls-Royce engine used in the seaplane which won the 1931 Schneider Trophy Race used a 70 per cent. benzole : 20 per cent. petrol : 10 per cent. methyl alcohol blend, on which it developed some 2,350 b.h.p. Given more throttle, this engine gave about 300 more b.h.p. when it took the World's Speed Record, in which form it used a blend of 60 per cent. methanol : 30 per cent. benzole : 10 per cent. acetone. In both cases tetra-ethyl-lead dope was added. Damping-out at around 200 m.p.h. was experienced if acetone was not used. Sir Malcolm Campbell used similar fuels in " Bluebird," but Eyston's Rolls-Royce " Kestrel " motor in " Speed of the Wind " and Cobb's Napier " Lion " in the Napier-Railton ran on non-alcoholic fuels. M.G. used 50 per cent. methanol: 20 per cent. ethanol : 15 per cent. benzole : 12.5 per cent. petrol : 2.5 per cent. distilled water, with a b.m.e.p. of 335 lbs. per square inch. The 1½-litre Delage of 1927 was run on " Eleosine," composed of 50 per cent. ethyl alcohol and 50 per cent. benzole, with 1 per cent. addition of castor lubricant.

Having emphasised the extremely important part which alcohol has played in the development of the present-day racing engine, it may be as well to point



RUMBLINGS—continued

out that two distinct types of alcohol are employed—Ethanol and Methanol. Ethanol is a product of the fermentation of grain alcohol, a by-product of the manufacture of molasses, or a product of other vegetable matter. Methanol is usually a synthetic product which may be made by passing carbon-monoxide and hydrogen over a catalyst at an elevated temperature. Ethanol = C_2H_5OH. Methanol = CH_3OH. Methanol possesses advantages in respect of latent heat, calorific value, and volatility and is not subject to Excise Duty. Ethanol seems less prone to pre-ignition, and is less extravagant, but it has to be denatured with 25 per cent. benzole, or similar, to avoid duty, in which case the latent heat value might be improved by admixture with methanol.

At this point it might be argued that, as alcohol blends permit satisfactory combustion under the highest conditions of supercharge and compression pressure that engines have been able to withstand mechanically at present—up to the equivalent of a compression ratio of 19 to 1 or more—exact design of combustion chambers cannot any longer be of much importance. In other words, inefficient head design could be masked by increasing the alcohol content. While this may be true to some extent, it must be remembered that the greater the alcohol content, the higher the fuel consumption, and the greater the distribution and starting difficulties. The former may be of little consequence for sprint work, but could matter quite a lot in road-racing or record breaking. This was very nicely demonstrated by Seaman with his rebuilt Delage, which used to get through 200 mile races without a pit-stop, at a time when the E.R.A.s had to refuel in that distance, because the Delage used a lower boost and could run on a "milder" fuel, and so achieve a better consumption. On the other score, the need to use an extreme alcohol blend will court the possibility of faulty pick-up from corners and even failure to restart after a pit-stop, detrimental in both road and track racing. Considerations of this sort will obviously make a designer strive to achieve good head formation and port layout, and/or reduce compression-ratio, even with alcohol fuel at his disposal. The fact that supercharging reduces the volatility of the fuel, as Banks pointed out in connection with his work on special fuels for the Rolls-Royce Schneider Trophy engines in 1933, has considerable bearing on this aspect, as the better the combustion chamber design, the more petrol may be blended in, and if the head design will not permit of this on account of either detonating or dangerous overheating of valves or piston, pre-heating, with consequent reduction in volumetric efficiency, is the only cure. This question of the effect of supercharge on volatility is happily overlooked by persons who say that the fuel is atomised by the churning it gets in the blower, but perhaps they are only concerned with boosts of a few lbs. per square inch.

Not every race organiser of recent times has permitted special fuels. Until 1928, Le Mans regulations stipulated ordinary French petrol, inferior even to British No. 1 spirit. This kept compression-ratios to under 6 to 1, and very rich settings were used to keep down detonation. Later, an unlimited proportion of benzole was permitted, and race speeds rose accordingly. In our own sports-car races and motor-cycle T.T. races, a 50/50 petrol/benzole mixture is usually allowed. Such a mixture can be safely employed with compression-ratios of up to 7 to 1 unblown, or up to a little over 6 to 1 using a very slight boost (in engines of up to 70 mm. bore). If the regulations allow standard leaded petrol to be mixed with the benzole, slightly higher ratios are possible.

Alcohol is of little use to the R.A.F. because heavy consumption and icing-up must be rigorously avoided, nor are extremely high compression-ratios deemed desirable, so that leaded petrols of 100 octane value are largely employed. Which is why we are rationed these days to limited supplies of a fuel variously called cess-pool, puddle fuel and ruder things, although it says much for modern sports engines that they protest really very moderately at being deprived of the anti-knock elements found in the better commercial fuels.

One final point about racing fuels. The reason why weather conditions can so thoroughly upset carburetter tuning is because the nearer a mixture approaches chemical purity, the more constant its boiling point becomes, and special fuels often boil over a very close temperature range. such as a range of 10° C., as against petrol's range of 170° C. Thank you, boys. Class, dismiss!

Why Not Termites?

If the war really is due to go on for another two years or more, some of us will be looking around for fresh interests. Why not start thinking in terms of termites, which is Yank for model racing cars? Out there, petrol-driven model racing cars are all the rage, and the speed record is up to 63 m.p.h. Casually picking up a copy of the "National Auto Racing News" you find reports of race meetings at Michigan, Pennsylvania, Chicago, and New York. Lots of clubs seem to have banked concrete or board tracks on which to race the termites, electrically timed, round the pole. It must be fun, and good to watch. Alas, in this country, Mr. Hamley never gave a public demonstration of the petrol-models he was importing, and only one reader has written to us of a model he has built. We do not like the evident sameness of the models America races, but we might find some good entertainment on more varied lines for practically Pool-less days, had we her facilities. I don't profess to know how much a track costs, but a pole set up on a bit of open space from which troop-'plane traps have been rolled away would do for a start. Models are the problem. You can buy a ready-to-run termite from go-ahead America for $49.50, but it would look odd to us because, while at first sight it would pass as a scale model Indianapolis car, actually, it seems that fans across the pond build only replicas of midget racing cars, and so their models look odd to us. But in case you feel this way, the firm making the De Palma Special is De Palma Industries, 3347 Bay-chester Avenue, Bronx, New York. Who will be the first racing-driver to start the craze?

THINGS IN GENERAL

THE news that Rolt, after doing great deeds at Calais, is reported a prisoner is an announcement we all regret, especially those who saw him do equally great, if more peaceful things, with the E.R.A. the one and only Freddie Dixon tuned for him. It may not be generally known that Rolt comes from an old family seated in Flintshire, where, I believe, he was brought up. While I was always a bad hand at genealogy, I fancy he is a grandson of that General Rolt, described charmingly as " a British Soldier," in memory of whom a semi-circular seat has been erected overlooking the wonderful view of the Vale of Clwyd, at Tremeirchion, and who, if my memory does not fail me, lies resting in the ancient churchyard of that tiny hamlet.

In fact, the General, who has handed down his gallantry to his descendant, slumbers not far from the tomb of the famous first vicar of the parish. That ecclesiastic is said to have been a very learned man in his day, naturally meeting the fate of all learned men of the period by being reputed to have had commerce with what the Welsh politely call the " Gwr Drwg." The agreement was, according to legend, that the aforesaid Evil Spirit was to be entitled to possess himself of the vicar's body, whether buried within the church or without. So many stories exist about the simplicity with which cunning peasants, to say nothing of learned churchmen, could be one too many for the devil, that it will hardly surprise you to hear that our vicar also pulled it off by having himself buried in the wall of the church, that being, according to ecclesiastical law, neither within the church nor without. As far as I could gather from his effigy, he continues to be very well pleased with himself. Tremeirchion, which you ought to visit in happier days, lies a little off the main road between Holywell and St. Asaph; it is also a place of pilgrimage for Boswellians, for Dr. Johnson's Mrs. Thrale came of the still-ruling local family, and she also is buried in the church.

* * *

The only time I can remember when motorists had something like a square deal was when Mr. Morrison was Minister of Transport, for that statesman discovered the remarkable law that, the faster the traffic, the more of it the roads will hold. Unfortunately his successors were prompt in branding this axiom as a heresy, and a heresy it remains to this day, having been replaced by the axiom that, the more motorists are discouraged from using the roads, the more room there will be for any who remain undiscouraged. It may really be that discouragement is, at present, a necessary evil, but the bull-dog character of the English race is well seen by the number of those who still use the roads. What with teaspoonfuls of petrol, fantastic shades designed to prevent the emission of driving light, the ukase that parts of the cherished car should be besmeared with white paint, the driver's life could not be a happy one, but when it comes to people coming home late, risking death at the hands of an amateur sentry who has made some sort of vague signal to stop, it begins to look as if the garage would be the best place for the car. Those who carry on in spite of all obstacles are supposed to lock their doors and take away their ignition keys (if any) every time they leave the car, under pain of finding all tyres deflated when they come back.

All these things must be suffered cheerfully, but I wonder whether the police, who ought to know something about car thieves, have ever been asked by the Great Panjandrums to say exactly how long a locked door and the absence of the bit of tin called an ignition key hold up the enterprising people who, when caught, explain that they only took the unattended car for a little joy-ride. However, I comfort myself with the thought that Jerry has had so long a training in being law-abiding that, if the parasites ever do arrive, they will respect the symbolic locked doors, and will understand that the use of unattended cars is *verboten*.

That is, if any of them escape the attentions of the host of military and semi-military people who are itching to get a pot-shot at them.

* * *

As the carburant question is a matter of national importance, I think I needn't apologise for returning to the subject. Last month I quoted a story about a man said to have found Calor Gas an efficient substitute for petrol, the tale being exploded by the Editor, who asked for confirmation at the fountain head. Since then, I have met one of the company's engineers, who told me quite unofficially that the reason for discouragement was the certainty that, if successful, experiments with the gas would lead to the usual swinging taxation being placed upon it; a thing which obviously wouldn't be fair to the multitude of country consumers who use this most useful invention. To my mind, a belief of that sort shows how the real national interest is obscured by the mania for making life impossible to those who want to use the roads, and also shows the difficulties met by those who try to discover some substitute for imported petrol.

But the man responsible for the original idea of using this butane gas now alleges that he has invented a way of compressing town gas into the Calor containers, though smiles and hope have not resulted in his giving me a demonstration. I hope his experiments won't end in an unpremeditated visit to the stratosphere!

Talking of ersatz carburants, the following story is current in the village in which I live. A man of optimistic mind drove rather too far in order to visit an old friend, who, as it turned out, had made up his mind to renounce alcoholic drinks for the duration, and who, desiring to banish temptation, presented the hero of the story with his last bottle of Plymouth gin, a special affair which was wrapped up and cradled with care on the back seat. The friends parted with regret at a late hour, and all went well until, not very far from home, our hero was pulled up by a posse recognisable, in spite of armament and fierce looks, as our grocer and other leading tradesmen.

The word was given that papers must be produced, after which, everything being in order, the driver was told that he might proceed. Alas! all the engine did was to cough, splutter, and finally dry up! The posse was clear that the car couldn't be allowed to stay where it was, and it was equally clear that, without the essential juice, it couldn't proceed. At last the bottle of gin came into mind, so, in despair, the driver proposed to sacrifice it by pouring it into the tank to see whether it would do the trick. But the posse was horrified at what they thought was a most Fifth-Columnist idea, so, after a lot of discussion, it was decided that the liquid should be used in a more Christian fashion, and that the posse would, in return, get car and driver home somehow. Quite a pleasant hour or so was spent by the barriers until, the bottle empty, the posse was relieved by another squad. As soon as the splendid fellows were off duty, they pushed car and driver to the top of a long hill which leads into our village, scrambled aboard, and, as soon as gravity failed to get them any further, they piled out joyously to push car and driver in triumph to their garage a mile away. There isn't much wrong with England, is there?

J. D. A.

ODD SPOTS

Mr. and Mrs. K. N. Hutchison have moved to Couchmore House, Littleworth Common, Esher, and wish it to be known that they are at home to their trials-minded friends, given a little warning of a proposed visit. Hutchison has plans for a new trials motor after the war, so his Bugatti-bodied Allard-Special is for sale to anyone interested.

* * *

An R.A.F. pilot, recently decorated by H.M. The King, used his T.T. Replica Frazer-Nash, painted camouflage, to drive to and from Buckingham Palace.

* * *

A London firm is advertising car camouflaging from 70/- for an 8 h.p. model.

* * *

There is a twin-carburetter, twin-magneto G.N. " Mowgli " V-twin racing engine in a South London shop window.

* * *

The " Brooklands "-bodied Austin Seven illustrated last month is for sale in Lewes for £10.

* * *

The Maserati which won at Indianapolis in 1939 and again this year, driven by Wilbur Shaw, was a Type 8 C.T.F. The Maserati driven by Riganti was a Type 8 C.L.

Letters from Readers

Sir,

May I beg the use of a little space to draw the attention of vintage enthusiasts to a most excellent specimen I have discovered? It is just outside Chalfont St. Peter, on the Amersham road, and is presumably to do duty as a barricade when we are invaded, and could be had, one assumes, by anyone willing to leave something on four wheels in its place.

The car itself is a two-cylinder Riley, with an open touring body arranged on the stalls, dress circle and balcony style, and an almost completely round radiator. The engine turned easily by hand, and was obviously "whole," and the car seemed, from a fairly cursory examination, to be in quite good order, apart from lacking tyres. It has an additional transverse spring at the back, a right-hand gear change that goes forwards and backwards and not round corners, and a wonderful "master cylinder" for supplying the carbide lamps which over-adorned it. The date I should put at 1908.

If anyone who lives fairly near and has storage room for it, would care to get in touch with me, I would be glad to co-operate in salving the car and supplying the substitute; it really seems a worth while effort if anyone still has the time and inclination in these days of alarm and despondency.

I am, Yours etc.,
PETER J. ROBERTSON-ROGER.

Chalfont St. Giles.

* * *

ENTHUSIASTS IN THE SERVICES

Sir,

Although times seem to have got worse since I received this month's copy of MOTOR SPORT, I should be very pleased indeed to meet any enthusiast in the Services in this district—I think your suggestion an excellent idea.

I am an Austin and Bugatti enthusiast myself, and at the moment I have on the road, on basic rations, an Austin Special, which I have been building since last September! It is essentially a 1924 "Chummy," rebuilt with a "65" body, and I intend fitting an Ulster type blower as soon as possible.

Wishing you every success.

I am, Yours etc.,
C. O. TITLEY.

620, Foleshill Road,
Coventry.

[In accordance with the announcement made in the June issue, we suggest that enthusiasts in the Services who wish to meet or correspond with Mr. Titley, should write to him direct and suggest possible meeting places and times. We are sorry this correspondent is, so far, the only civilian to offer companionship to enthusiasts isolated from their friends by war service.—Ed.]

Sir,

I would very much like to obtain some M.G. parts with the help of your readers.

I would like an M.G. 1933 J.2 body shell complete with doors, if possible black in colour; also a windscreen, hood, hood frame and rear tank. The chrome on the windscreen does not need to be in good condition.

I am, Yours etc.,
JOHN F. MACLAGAN.

Morenish,
Sledgate Lane,
Wickersley, Rotherham,
Yorks.

[Will vendors please write direct.—Ed.]

* * *

Sir,

I have a particularly good 1934 Riley Nine "Kestrel," which is fitted with a slightly special engine, including non-standard camshafts, inlet port lay-out, and a Scintilla Vertex magneto.

After the war, I intend installing either an Arnott or Centric low-pressure supercharger system, and should be very pleased if either yourself or any of your readers could provide me with any experience of blown Riley Nines of about the same vintage as mine.

Incidentally, further to your census of cars in use, the Riley is taxed for the year, and is run with the aid of a very meagre supplementary ration.

I must end with the fervent hope that MOTOR SPORT will be able to continue to be published.

I am, Yours etc.,
G. H. G. BURTON.

"Perybryn,"
Whittington,
Nr. Oswestry, Salop.

* * *

Sir,

Yours is a splendid effort in keeping MOTOR SPORT going for us; I hope you will be able to keep on with the good work.

The article in the June issue about racing sounds gave food for thought, and stirred many memories. Surely the most inspiring of all is that crisp blipping which drifts across the track from the Paddock on the early morning air; while the most dramatic (though unwelcome) to my mind is the actual absence of sound when there has been an accident which obstructs the track and all the cars string out in silence behind the scene of the occurrence waiting to proceed. The only complete stoppage of this nature which I have witnessed was at Donington when Bilney's tragic crash occurred in the Twelve Hour Sports-Car Race.

May I venture to add my M.G. Magnette to your census. It has motored fitfully about since the war began, but I have effected a change from active motoring to what may be called passive enthusiasm.

When the ration is finished, the procedure is to retire to the garage and tinker; preferably in the company of a fellow enthusiast. On this system, my well-loved old motor has acquired a polish where good cars should be polished: axle, back plates, track rod, etc.; and all springs have been dismantled and the plates polished. Everything comes in for attention in due course, including alignment of ports with manifolds with even more care than usual, and balancing of wheels.

The result is gratifying, for one gradually attains that tune and condition only associated with the works entry on the starting grid while at the same time indulging in a purely motoring activity without using up coupons.

I liked "On Some Unwritten Laws of the Game" in last month's number; but please, if I drive my sober motor about with its screen flat because I like the rush of air, may I be permitted to wear a pair of goggles? or is this taboo as well?

Can you tell me if it is still possible to obtain photographs from the Master Klemantaski? If so, how?

I am, Yours etc.,
H. NEVIL, HOLDSWORTH.

Harrogate.

[This plan of carrying on motoring in the garage is truly commendable. Goggles, being an essential, might be allowed, at any rate, on the open road.—Ed.]

* * *

Sir,

Like most other people, I am full of admiration for MOTOR SPORT; not only because it is carrying on in war time, but because, if anything, it is maintaining an even higher standard of excellence than before.

It is therefore most disheartening for your avid readers to have to make fruitless enquiries for "this month's issue" for some fortnight or more after the first of the month. Indeed, I believe that a certain number of regular readers has been lost on this account.

Could it not be managed that the date of issue, in future, should coincide more closely with "about the first of the month"?

I am, Yours etc.,
CECIL CLUTTON.

London, W.11.

[While apologising for late publication, we would remind Mr. Clutton that a war is still on, and that, important as we think MOTOR SPORT is, essential Government work has to come first. The latest publishing date so far is the eighth.—Printers.]

SOME WAR-TIME THOUGHTS

RECENT war laws and activities seem to be causing some unnecessary worries. Immobilisation, for instance. It is perfectly logical to suppose that paratroopers might try to seize cars and to immobilise accordingly. If they have managed to hold up the advancing L.D.V. Corps and troops, they will have time to uncross plug leads and stick wires back into coils, and find substitutes for ignition keys. So something more drastic is called for, the easiest of which seems to be to remove the distributor rotor. This has given rise to terrible tales of police who see a key in place or a door unlocked and either let all the air out of the owner's tyres according to one school, or waste hours standing guard, according to another. Extremists tell of further bits of machinery being removed by the police, although official instructions suggest that this is not encouraged unless a police mechanic is consulted. Surely, in the case of an open car when a bit of engine *must* be detached, the logical procedure is *to leave the ignition key in place*, so that any doubting constable can spin the engine on the starter to make sure it has been immobilised. If steering, gear-change or road wheels have been locked this should be evident, and the only possible snag might concern a locked fuel tap, when the engine might start up on the float chamber contents, and run long enough to give the impression it was not immobilised. So open-car owners should not need to worry over what is, after all, a sensible regulation. Nor can we imagine the police tampering with any closed vehicle of which the doors are locked and the ignition key removed. Quite how a girl of fourteen will combat a desperate paratrooper, or how just locking up a saloon will prevent such a gentleman from smashing a window and using a skeleton ignition key to get away, I cannot see. Nor can I quite comprehend why the law looks at private cars and conveniently forgets other vehicles. I hope conscientious motor-cyclists will devise their own immobilisation schemes, and I hope that pedal cycles left unattended for long periods will be placed under lock and key.

The ban on purchase of new cars without a licence, which came into force on July 20th, may well stimulate the used car business. If you hardly agree, may I remind you that new car registrations have averaged over 3,000 a month since war began, and that the figure for May was 3,603? Although this represents a decrease of 24,665 over May, 1939, it does show that there is still an appreciable buying public left, which must now look to the secondhand market to meet their requirements. Properly reconditioned used cars may well be in steady demand, especially as basic and supplementary fuel rations are assured up to the end of October.

This voluntary offering of aluminium wear is highly commendable, but the piles of ancient pots and pans, and the truck-loads of brass-knobbed bedsteads you see about, look a little lonely beside the acres of old cars that still occupy breaker's premises. I realise that good money will eventually have to be paid for this metal, whereas the pots and pans are gifts from patriotic housewives. However, it occurs to me that probably quite a lot of garages and secordhand traders would willingly give away at least one old car apiece, perhaps as some return for having been granted extra petrol, and given, in some cases, useful Government repair contracts. If a band of enthusiasts went round asking to be allowed to tow away such cars and break them up in some appointed place, so that the aluminium, iron and steel thus recovered could be deposited in local scrap collections in convenient form, I think quite a reasonable response would be forthcoming. Doubtless, extra petrol would be willingly granted by local authorities to the tow-car, and this seems a chance for club members, especially in country districts, to have some fun and do good work of National Importance at one and the same time. Moreover, they could be relied on to spare good motor cars and real veterans . . .

NO RETURNS

Several letters have been received from readers complaining of their inability to procure "Motor Sport." Newsagents will not order copies if they have not received a definite order from their customer.

If you are on National Service and are being moved about the country, kindly send in your subscription and your change of address, and the copy will then follow you wherever you go.

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A SELECTION OF MOTOR SPORT ROAD TESTS

THAT HAVE APPEARED IN PAST ISSUES

If you do not see the road test that you require write us a letter. We may have it in stock, but not published below.

Make of Car	Issue
A.B.C. 11 h.p. 2-cyl., 2-seater	Feb. 1926
A.C. 2-litre, short-chassis, 15.7 h.p. 2-seater	July 1936
A.C. 2-litre, 16.40 h.p., 3-seater	Oct. 1927
A.C. 2-litre, 16.66 h.p., 2-seater	March 1926
A.C. 2-litre, 16.66 h.p., 4-seater	June 1934
A.C. "Ace" 16/80 h.p.	July 1937
Alfa-Romeo, 1½-litre supercharged 6-cyl. Charles 2-seater (1929)	March 1934
Alfa-Romeo 1¾-litre supercharged 8-cyl. "Zagato" 2-seater (1932)	July 1934
Alfa-Romeo 2.3-litre supercharged 8-cyl. "Zagato" 2-seater (1933)	Aug. 1936
Alfa-Romeo 2.3-litre supercharged 8-cyl. 4-seater (1931)	Aug. 1932
Alvis 11.9 h.p., 4-cyl., "Firefly" saloon	Feb. 1933
Alvis 4-cyl., 12.60 h.p., 2-seater	July 1931
Alvis 6-cyl., "Silver Eagle" 4-seater coupe (1929)	Aug. 1931
Alvis 6-cyl., "Silver Eagle" 4-seater	June 1930
Alvis 3½-litre saloon	Feb. 1936
Alvis Speed Twenty Vanden Plas saloon	Feb. 1935
Alvis Speed Twenty Charlesworth saloon	Feb. 1934
Alvis Speed Twenty 4-seater	June 1932
Alvis 12/70 4-door saloon	July 1938
Ansaldo 2-litre, 4-cyl., o.h.c., 4-str.	Sept. 1924
Armstrong-Siddeley 20 h.p., 6-cyl. 4-seater	July 1933
Aston-Martin Mark II, 11.9 h.p., 2-4-seater	Jan. 1935
Aston-Martin Ulster 11.9 h.p., T.T. 2-seater	Oct. 1935
Aston-Martin Le Mans 11.9 h.p., 2-4-seater	June 1933
Aston-Martin International 11.9 h.p., 4-seater	Aug. 1932
Aston-Martin T.T., 11.9 h.p., racing 2-seater	Dec. 1931
Aston-Martin 11.9 h.p., 2-seater	Jan. 1930
Aston-Martin 2-litre Speed model	May 1938
Aston-Martin 1935 Ulster	Aug. 1937
Auburn 30 h.p., 8-cyl., supercharged 2-seater	June 1935
Austin Seven Boyd Carpenter 2-str.	Sept. 1930
Austin Seven "65" 2-seater	Jan. 1934
BENTLEY 3½-litre, 6-cyl., Vanden Plas, 4-seater	Nov. 1933
Bentley 4¼-litre, 6-cyl., Park Ward saloon	June 1936
Bentley 6½-litre, 6-cyl., long-chassis saloon (1928)	Dec. 1936
Bentley 4¼-litre Vanden Plas coupe	Aug. 1938
Bentley 8-litre sports 2-seater	April 1938
Bugatti 3.3-litre 8-cyl., Type 57 saloon	May 1934
Bugatti 2.3-litre 8-cyl., Type 55, supercharged, 2-seater	July 1932
Bugatti 2.3-litre, 8-cyl., Type 43, supercharged 4-seater (1930)	Dec. 1932
Bugatti 2 3-litre 8-cyl., Type 43, supercharged 4-seater	May 1930
Bugatti 3-litre, 8-cyl., Type 44, saloon	July 1928
CITROEN, Twelve f.w.d. saloon	July 1938
Crossley 20/70 h.p., 4-cyl., s.v. 4-str.	Nov. 1925
Crossley Ten. 1½-litre "Regis" saloon	Jan. 1936
Crossley Ten, 1,122 c.c. 4-seater	April 1932
Crouch Anzani 12.30 h.p., 2-seater	Aug. 1924
DARRACQ 12.32 h.p., Weymann saloon	Sept. 1924
Delage 14 h.p., 2-litre, 2-3-seater	June 1927
Delage 8-cyl., sports saloon	April 1930
Delage D.8 120, drophead coupe	May 1938
Delahaye 3.5-litre "Coupe des Alps" drophead coupe	Aug. 1936
Delahaye 3½-litre drophead coupe	Dec. 1937
D.K.W. "Special" saloon	Feb. 1938
ESSEX Terraplane 8-cyl. 4-seater	Sept. 1935
Excelsior 5½-litre, 6-cyl., super-sports test chassis	Sept. 1927
FIAT 20.70 h.p., 6-cyl., 2-4-seater	April 1933
Fiat "Balilla" saloon	May 1934
Fiat "Ardita" 17 h.p., 4-cyl., saloon	Feb. 1934
Fiat "Balilla" 10 h.p., 2-seater	Jan. 1935
Fiat 6 h.p., Type 500, coupe	March 1937
Frazer-Nash 6-cyl., 1½-litre (Blackburn) 2-seater	July 1933
Frazer-Nash 4-cyl., 1½-litre T.T. Replica push-rod o.h.v. 2-3-str.	Nov. 1931
INVICTA 4½-litre low chassis, 4-str.	March 1931
Invicta 4½-litre Weymann saloon	June 1929
Invicta 4½-litre saloon	Dec. 1929
Isotta-Fraschini 45 h.p., 4-seater	Oct. 1926
LAGONDA 2-litre, 4-cyl., twin o.h.c. 4-seater	Jan.-Feb. 1928
Lagonda 2-litre, 4-cyl., twin o.h.c. supercharged 4-seater	Oct. 1930
Lagonda 4½-litre, 4-seater	May 1936
Lagonda 4½-litre Rapide 4-seater	May 1935
Lagonda 4½-litre, 4-seater	Jan. 1934
Lagonda Rapier 10 h.p., 4-seater	Sept. 1934
Lagonda 16.80 h.p., 6-cyl., 4-seater	Jan. 1933
Lagonda 3-litre, 6-cyl., 4-seater	March 1932
Lagonda 2-litre, 4-cyl., twin o.h.c., 4-seater (1928)	March 1931
Lancia Aprilia, Type 238, saloon	June 1938
Lea-Francis 1½-litre supercharged T.T. 2-seater (1929)	June 1934
Lea-Francis 1½-litre supercharged special T.T. 2-seater	Sept. 1933
Lea-Francis 1½-litre supercharged "Hyper" 4-seater	Aug. 1930
Lea-Francis, 14 h.p., 6-light saloon	Dec. 1938
Leyland Eight (1929), 2-seater	Feb. 1938
MERCEDES-BENZ Type 540K, 5.4-litre, 8-cyl., supercharged, 2-str.	April 1937
Mercedes-Benz Type 500, 5-litre, 8-cyl., supercharged, 2-seater	Nov. 1934
Mercedes-Benz 12.40 h.p., supercharged 2-seater	June 1925
Mercedes-Benz 36.220 h.p. supercharged, 2-4-seater	April 1928
Mercedes-Benz 33.180 h.p., supercharged, 4-seater	Aug. 1927
Mercedes-Benz 2.3-litre, saloon	April 1938
M.G., 6-cyl., Mark I, 4-seater	May 1931
M.G. Magna, "L" 2-seater	Nov. 1933
M.G. Midget "P" 2-seater	Aug. 1934
M.G. Midget "J3" supercharged, 2-seater	May 1933
M.G. Six Mark I, saloon	Aug. 1930
M.G. Midget Double-Twelve racing 2-seater	June 1930 & Aug. 1930
M.G. Midget "J1" 850 c.c. 2-str.	Sept. 1932
M.G. Magnette "N" 4-seater	Feb. 1935
M.G. Midget "PB" 2-seater	April 1936
M.G. 14/40 4-cyl., 3-speed, 4-seater	Oct. 1925
M.G. Midget "T" 2-seater	Jan. 1937
M.G. 14/40 h.p., 4-cyl., super-sports, 2-seater	May 1927
O.M. 6-cyl., 2-litre, 4-seater	Oct.-Nov. 1928
PACKARD V12-cyl. 57 h.p. coupe	Feb. 1934
Peugeot "201" 4-cyl., 1 122 c.c. saloon	Sept. 1931
RAILTON Terraplane 4-seater	Oct. 1934
Railton Light Sports tourer	Dec. 1935
Railton Cobham 28.8 h.p. saloon	Sept. 1938
Riley Nine "Monaco-Special," two-carb. saloon	March 1931
Riley Nine, 4-seater	June 1931
Riley 16 h.p., Big-four Kestrel saloon	June 1938
SINGER 1½-litre, 6-cyl., Le Mans 2-seater	March 1935
Singer Nine, 4-seater	March 1933
Squire 1½-litre, 4-cyl., 2-seater	Aug. 1935
S.S. I special-bodied 2-seater (1933)	Feb. 1934
S.S. I coupe	June 1933
Steyr Type XII, 14.35 h.p., Weymann saloon	Aug.-Sept. 1928
Stutz "Black Hawk" supercharged 4-seater	Jan. 1930
Stutz 5-litre, 8-cyl., 4-seater	Dec. 1927
Sunbeam 3-litre 6-cyl., (twin o.h.c.) fabric saloon	Nov. 1927
Sunbeam 6-cyl., 21 h.p., (push-rod) Speed Six saloon	Dec. 1933
TALBOT "90" Brooklands-bodied 2-4-seater	April 1931
Talbot "105" sports saloon	April 1934
Talbot 3½-litre saloon	March 1936
Talbot Ten "Rally" 4-str.	Oct.-Nov. 1936
Talbot "105" Vanden Plas 4-str.	Nov. 1932
Talbot "90" 4-seater	Nov. 1930
Talbot Ten sports coupe	June 1938
Tatra 4-cyl., 1,154 c.c., coupe	Dec. 1932
Terraplane, 8-cyl. 29 h.p., 4-str.	July 1935
Triumph 2-litre "Vitesse Six" saloon	April 1935
Triumph 10 h.p. "Gloria Southern Cross" 2-seater	June 1935
Triumph 10 h.p. "Gloria" saloon	Jan. 1934
Triumph Nine "Southern Cross" 4-seater	June 1932
Triumph Eight "Gnat" 2-seater	Aug. 1931
Triumph Eight, supercharged 2-str.	Dec. 1929
Triumph Dolomite 14/60 saloon	June 1937
VALE-SPECIAL 832 c.c. 2-seater	Aug. 1933
Vauxhall 30/98 O.E. 4-seater (1925)	Jan. 1936
Vauxhall 30,98 O.E. 4-seater (1924)	Dec. 1930
Vauxhall 20/60 h.p. "Hurlingham" 2-seater	Feb. 1930
Vauxhall 17 h.p., 6-cyl., "Cadet" saloon	Sept. 1931
Vauxhall 14 h.p. "Stratford" 4-str.	Sept. 1933
WINDSOR 4-cyl., 11 h.p., "Special" 2-3-seater	Nov. 1926
Wolseley Hornet Swallow 2-seater (1933)	April 1934
Wolseley Hornet (12.08 h.p.) saloon	Sept. 1930

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