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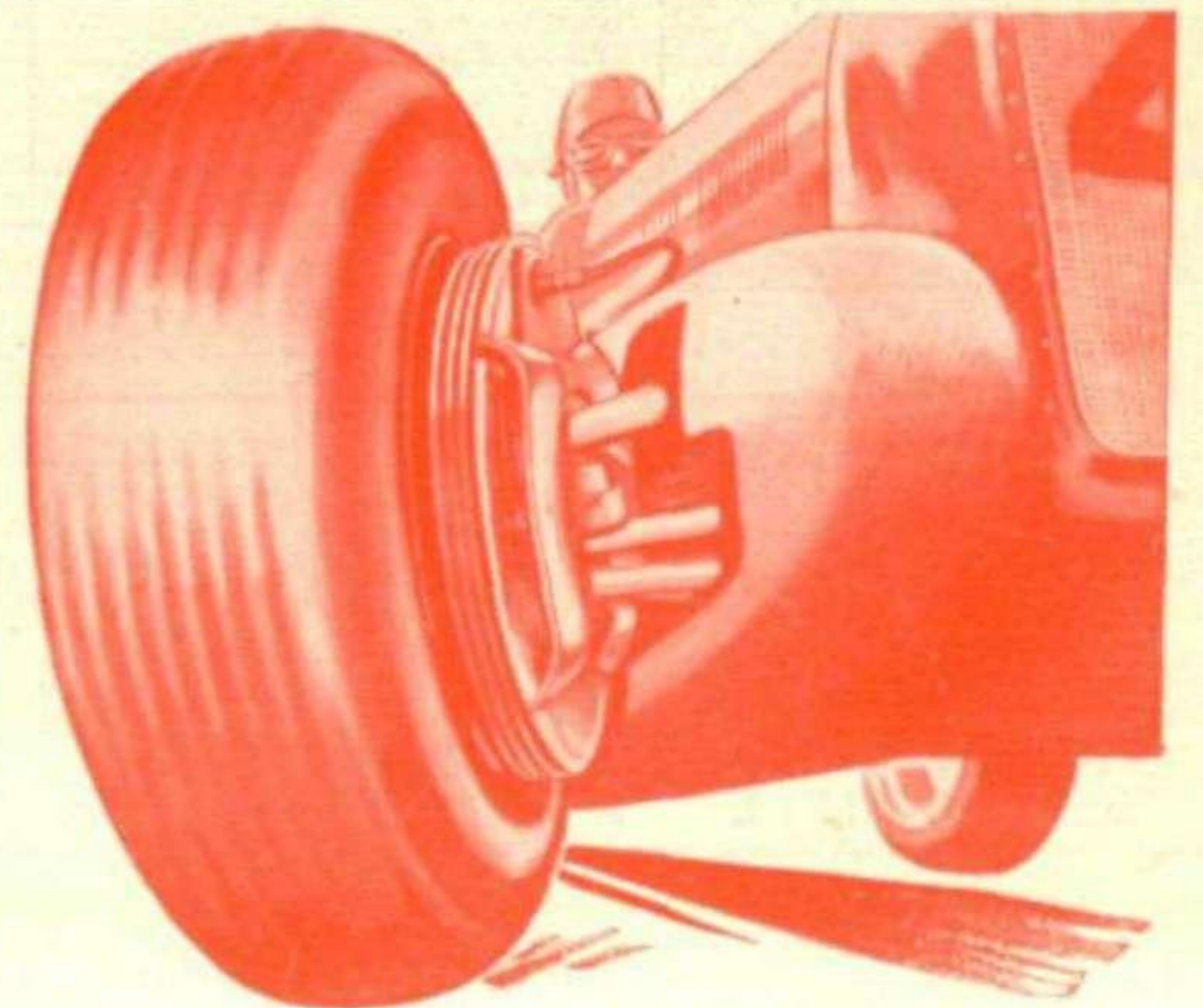


[Photo by F. Sirett

TRIALS CHAMPION—Ken Wharton, who won the 1948 R.A.C. Trials Championship, is seen climbing one of the hills in last year's High Peak Sporting Trial. This aspect of the Sport is becoming more popular, and more arduous.

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YOUR IDEALS ?	THE BUCKLER OFFERS—		YOUR IDEALS ?	THE BUCKLER OFFERS—			
High Speed Touring	50 m.p.h. (80 k.p.h.) averages on give-and-take roads wet or fine—day or night.		Compete in Sprints	Fastest British production car under 1,200-c.c. Has won an award in every sprint entered.			
Low Speed Touring	6 m.p.h. (10 k.p.h.) in top gear and the ability to climb gradients of 1 in 8 also in top gear.		Compete in Hill-Climbs	Winner Prescott Handicap, June, 1948 Third class International Prescott, in September, 1948.			
Effortless Cruising	Outstanding top gear performance gives effortless cruising.		Compete in Trials	Winner Lockhart-Bossingham Trial 1948. Numerous other awards.			
Economical Petrol Consumption	50 m.p.g. at 40 m.p.h. cruising, 40 m.p.g. at 60 m.p.h.		Compete in Races Inexpensively	The Buckler is not a racing car, but is ideal for sports car racing. One of the few cars to complete Manx Cup Race nonstop (12th at 50.74 m.p.h.). Fifth in class at Goodwood passing seven competitors on first lap. Can be driven to course, entered with certainty of not blowing up and driven home afterwards, giving thrill of racing at only cost of entry fee.			
Reliability and Low Cost Maintenance	The use of proved components of simple design, all lightly stressed, ensures reliability and low maintenance costs over long periods. Fitted with the famous Ford Ten (1,172-c.c.) engine. Mechanically quiet, unobtrusive and dead reliable. Replaced inexpensively when necessary.		Powerful Headlights	Lighting is arranged to enable day time averages to be maintained at night. Supplied with equipment to comply with lighting regulations in all parts of the world.			
Comfort	Supple suspension gives a feeling of firmness without harshness and the complete absence of pitching, sway or roll gives a delightful consistency of comfort throughout the speed range. The 51 in. bench seat takes three in comfort and is rapidly convertible to two bucket armchairs. The sponge rubber filled upholstery is shaped to give proper support. The seats are adjustable as is the height of the steering column.		Real Accessibility	Front and rear of body completely removable in 60 seconds to meet needs of owners situated far from service facilities. Screen removable in five seconds.			
Good Appearance	Stylish all-enveloping airflow body finished heavy cellulose in polychromatic or plain colours to choice.		Alternative Road Wheels	A choice of from 4.75 to 6.00 by 16—4.00 to 5.50 by 17—4.50 to 6.00 by 18, enabling wide variation of gear ratios.			
Outstanding Roadholding	A stiff multi-tubular frame free from whip, positively located divided front axle, supple springs giving large vertical wheel movements combined with correct weight distribution give impressive stability seldom achieved with light cars.		Clever Details	Double fuel tank—one as reserve or filled petrol/benzole gives rapid changeover in events. Over 10 gallons capacity giving 500 mile range. One-man hood, good quality all-weather equipment. Air cleaner. Oil filter. Radiator thermometer. Facia board engine tester—correct engine tune ascertainable at a glance. Hot air foot and leg warmers. Large luggage space. Ample room for second spare wheel. Luggage, spare wheels and petrol filler under cover and lockable as is bonnet. Aluminium bodywork. Well silenced exhaust giving unobtrusive performance. Weight under 12 cwt.			
Impeccable Steering	Correct steering and springing geometry with rigid frame give precise steering on all types of road surface.		Safety Always	Every part of the design has been carefully studied to ensure safety under all conditions. No highly stressed components are used. The brakes in particular, with a lining area of 142 square inches per ton car weight, are so lightly stressed that many thousands of miles can be covered between adjustment. Experienced drivers say that the stability of the Buckler is only equalled by modern racing cars.			
Racing Car Cornering	Correct weight distribution, high roll centre with low centre of gravity give high-speed cornering with stability.						
Smooth Powerful Braking	Girling mechanical brakes, 10 in. cast drums, a lining area of 142 sq. in. per ton, long stiff torque reaction arms give smooth powerful action. Amazing stops can be effected even when cornering at high speed on wet roads.						
Colonial Going	Just the car, 10 in. ground clearance between 7 ft. 6 in. wheelbase. Minimum body overhang. High mounting of carburettor and ignition. Will motor through 15 in. of water.						
Lively Acceleration Rapid Hill-Climbing	ACCELERATION	ROAD TRIM	RACING	GRADIENTS			
		70 Octane	Petrol/Benzole	m.p.h.	1st gear	2nd gear	Top
	0-30 m.p.h.	5.5	4.5		One in	One in	One in
	0-40 " " " " " "	8.7	7.3	20	2.2	3.7	
	0-60 " " " " " "	22.0	18.4	25		3.9	
	Standing 1/4 mile	22.5	19.5	30		4.0	7.0
	Standing Kilometre	42.2	38.0	35		4.5	7.4
	10-30 Top gear	7.5	6.6	40			7.7
	20-40 " " " " " "	7.5	6.6	45			7.9
	30-50 " " " " " "	8.6	6.9	50			8.0
	40-60 " " " " " "	13.0	10.4	55			10.0
				60			15.0
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MATTERS OF THE MOMENT

THE B.R.M. PROGRESS REPORT.

We have now received, from the Production Committee of the British Motor Racing Research Trust, a Progress Report on the B.R.M. racing car, to which we are very glad to give publicity. It reads as follows:—

"Most of the major difficulties on the production side have been overcome. Many components and special assemblies have already been delivered to Automobile Developments, Ltd., at Bourne, where they will be assembled and tested under the personal supervision of Mr. Raymond Mays and Mr. Peter Berthon.

"A production liaison centre has been set up at the head office of Rubery Owen at Darlaston. Some idea of the amount of work involved on the project may be judged from details of the supercharger which consists of 124 components and sub-assemblies involving contacts with twenty-four firms.

"In this case all the components have been completed and the final assembly is in hand at Messrs. Rolls-Royce.

"The engine is also well under way and 149 specialised items out of a total of 238 are already at Bourne. Standard Motors are well ahead with upper and lower crankcases and cylinder heads and these have already undergone hydraulic testing. The machining of parts is in progress at the Coventry Gauge and Tool Company. There has been a serious hold up in the delivery of gears, but every effort is being made to overcome this difficulty.

"The first frame has been delivered by Rubery Owen to Bourne. The machining of the gear case by Austin Motors is complete and the machining of the balance of components nearing completion.

"The brake assemblies by Girling have undergone tests and delivery will meet the assembly programme.

"The clutch for the first car, made by Messrs. Borg and Beck, Ltd., is undergoing tests.

"Provided there are no serious snags, the assembly of the first prototype will commence this month.

"A new highly specialised test house is now being completed at Bourne under the supervision of Standard Motors.

"There are considerable difficulties involved in the production of a car, which is the result of team work between forty-five firms. At the same time it brings many expert and specialised minds to bear on the problems that arise. There is every hope that the final result will be worthy of the immense effort and expenditure involved."

A full list of the many leading concerns which are lending financial and material help to the B.R.M. project appeared in **MOTOR SPORT** for June, 1948.

THE B.R.D.C.

From time to time **MOTOR SPORT** receives enquiries as to whether any special qualifications are necessary to render one eligible for membership of the exclusive British Racing Drivers Club. To clear up any doubts we contacted the club's secretary, and are able to present the following observations:

The B.R.D.C. was formed, as a *driver's club*, as long ago as 1926, being the joint outcome of occasional dinners given by Dr. Benjafield to his fellow competitors and a separate suggestion made by the late Mr. Ebbelwhite during a speech at a celebration given to Malcolm Campbell before he sailed for Daytona. With Harvey Edwards as secretary, and under the presidency of Lord Howe, the club filled a long-felt need, being fully qualified to represent the racing-driver's point of view. The attractive badge, consisting of a silver shield having the Union Flag in chief and a racing car in the British colours, was designed by Head, S. C. H. Davis' riding-mechanic.

It was realised that, to succeed, membership must be restricted to genuine racing drivers and the committee consist mainly of *active drivers*. It was agreed that only drivers who had finished 1st, 2nd or 3rd at a B.A.R.C. meeting or who had competed in an open road-racing competition should be eligible for consideration as members; *this requirement is still in force.*

The club held its first big race in 1929, the 500-Mile Race at Brooklands, which was won by Barclay's and Clement's 4½-litre Bentley, at 107.32 m.p.h. When Edwards left to run the Crystal Palace circuit a comparatively unknown Irish enthusiast, Desmond Scannell, took over and he runs the club to this day, organising each year the successful I.O.M. road-races. Since the war the B.R.D.C. has been of inestimable value in assisting British drivers to overcome red tape and go abroad to race.

The present membership is approximately 300, of which 20 per cent. are active racing men at the present time and the remainder have at some time or other qualified for membership as outlined above, many of them in the early days of the Sport, such as at Brooklands before the Kaiser War or during the nineteen-twenties. There are also some associate members not conforming to the full membership qualifications and not necessarily racing drivers.

It is extremely wise of the committee to restrict membership to experienced racing drivers; perhaps it might go further and revise the list, transferring to the associate category all those who have not handled a racing car for an appreciable number of years. In this way the exclusive nature of this club would be preserved, and certainly no one who has the interests of British motor-racing at heart would wish to see the prestige of the B.R.D.C. diminish, for it has performed a valuable function for over twenty years, quite apart from organising some very excellent motor races.

Lord Howe is still President, and the Vice-Presidents are Sir Malcolm Campbell, Lt.-Col. Gardner, John Cobb, Capt. Eyston and Dr. Benjafield. The Committee comprises S. C. H. Davis, W. M. Couper, H. N. Edwards, R. J. W. Appleton, K. D. Evans, W. G. Everitt, Capt. Eyston, K. Erskine, Lt.-Col. Gardner, I. F. Connell, L. G. Johnson, G. E. Abecassis and T. A. S. O. Mathieson.

In passing, we would emphasise that **MOTOR SPORT** has ceased to be the B.R.D.C. Journal only because prevailing paper restrictions make it impossible for us to continue to supply a free copy to every member of the B.R.D.C. while still meeting the demands of our regular subscribers; because in view of the late and infrequent bulletins received from the club and the difficulty of contacting a responsible official, we were unable to serve it with adequate publicity; and, finally, because **MOTOR SPORT's** successful expansion seemed likely to suffer on account of the impression, in certain quarters, that it was a club magazine.

We are pleased to be able to announce that the B.R.D.C. has awarded the E.R.A. Trophy for the best performance during a 1948 race on the Continent with a British car jointly to Leslie Johnson and St. John Horsfall, for their victory at Spa in the new Aston-Martin.

Reports of Recent Events

KENTISH BORDER SPORTING TRIAL

Thirty-seven competitors started under watery sunshine from the "Spring Tavern," Wrotham Heath.

The route embraced four observed hills, one bonus hill, one special test and one timed climb.

All competitors got off to a good start, the first two hills and special test offering no difficulties, except to those whose motors were definitely unsuited to reliability trials. The third hill, Harp Farm, proved to be the first real hazard, failing nine out of the first twelve competitors. Total failures amounted to eighteen.

J. Appleton, in his 4,000-c.c. supercharged Allard, made a clean and beautifully-controlled ascent round the steep "S"-bend and gained the summit with power to spare. Morrish (Frazer-Nash), Birkett (Austin Seven), Palmer (supercharged Austin-Ford), Readings (Lancia "Lambda"), Waring (Allard), and Christmas (M.G. "Cream-Cracker") all made excellent climbs.

After the lunch stop, Pollyfield, a bonus hill in five sections, drew a great crowd of local spectators. The hill surface was spongy grass, tracked fairly deeply by farm carts and particularly "dicy" in parts. Appleton again showed what 125 b.h.p. could do and made an ascent which was deemed the prettiest piece of driving of the day. This was the only clean climb. Yates (Austin-Ford), Morrish, Price (Allard), Chapman (Austin), Palmer, Birkett and Readings all made good climbs into section three, the remainder getting little more than 20 yards in the first section.

The Trial ended with a timed climb at "Allington," the best time being put up jointly by Appleton and Wick (Allards) in 19.20 sec., closely followed by Morrish at 19.40 sec.

Results

THE ALEXANDER BRONZE for the best performance of the day, irrespective of Class, to a K.B.C.C. member only: J. Readings (Lancia "Lambda"), 96 points.

THE VISITORS' CUP for the best performance of the day, irrespective of Class, to a visiting competitor: J. Appleton (Allard), 100 points.

THE ALEXANDER TROPHY, for the best performance of the day in Class "A", up to 1,100-c.c.: H. Birkett (Austin Seven), 94 points.

THE BEST CUP, for the best performance of the day in Class "B," 1,101-c.c. to 2,000-c.c.: A. Day (H.R.G.), 92 points.

THE J. B. TAYLOR CUP, for the best performance of the day in Class "C," 2,001-c.c. and over: D. Price (Allard), 96 points.

THE PRESIDENT'S CUP, for the best performance of the day by a Cemian Motor Club Member only: I. Palmer (Austin-Ford), 92 points.

FIRST-CLASS AWARDS: E. Frost (Allard), 92 points; M. Wick (Allard), 92 points; W. Waring (Allard), 92 points.

SECOND-CLASS AWARDS: R. Davis (Austin), 92 points; D. Wootton (Austin), 91 points; I. Palmer (Austin-Ford), 92 points; R. Christmas (M.G.), 92 points.

THE R.A.C. CHAMPIONSHIP TRIAL

This S.U.N.B.A.C. event, held in the Cheltenham area, was a great success. The start was from Birdlip, and the first hill, Longridge, failed 17 of the 44 starters on its upper reaches. A timed restart was required on Stancombe, f.t.d. being made by Newton's H.R.G. in 3.8 sec.

Onslow Bartlett's Mercury and Hankin's Ford Ten tied for second best time, in 4.0 sec., and Burgess and Wick, in their Allards, for third best, with 4.4 sec. Burgess subsequently inverted his car in tackling the hill and had to spend a brief sojourn in hospital. Fifteen failed here. In a cross-ways driving-skill test Hunt's blown Ford Ten Special was best, in 15.2 sec., followed by Mallock's Ford Ten-engined Austin Seven in 15.4 sec. and Bailey's Riley-Special, in 16.2 sec. Mackhouse was used as a timed ascent of its second acclivity, Wilde's Ford Ten recording 8.2 sec., Sydney Allard's Allard and Best's M.G. 8.4 sec. and Newton's H.R.G. 8.6 sec. The only competitors to climb Breakheart were Holt, Wharton (Ford-Austin Special), Hunt (Ford Ten Special), Mallock, Best and Bailey. Nine cars got up Ford I, Ford II was fairly easy, Camp Hill not too difficult but rather narrow. Then came Juniper, which defeated all save Wharton, Clegg (Ford Ten Clegg) and Holt. Only Wick's Allard, with transmission trouble, stopped on Brotheredge. This was a really classic trial, Earl Howe, Col. Stanley Barnes and Maurice Toulmin attending the prize-giving that evening. It was the first R.A.C. trial since 1924 and Earl Howe called it the new Blue Riband of trials, taking a place beside the R.A.C. Hill-Climb Championship. Ken Wharton took the Championship title for 1948, winning the Gordon Crosby bronze racing car trophy that used to serve as the trophy for the Brooklands Mountain Championship.

Results

R.A.C. BRITISH TRIALS DRIVERS' CHAMPIONSHIP TROPHY (best performance): K. Wharton (1,190-c.c. Wharton). Northern Zone.

SUNBAC RUNNER-UP AWARD: G. R. Holt (1,172-c.c. G.R.H. Special). Northern Zone.

THIRD PRIZE: J. Clegg (1,172-c.c. Clegg). Northern Zone.

ZONAL AWARDS.—North: K. Wharton (1,190-c.c. Wharton). South: L. O. Bartlett (3,917-c.c. Mercury). Ulster: C. F. C. Lindsay (3,917-c.c. Ford).

SPECIAL SOUVENIR AWARDS: R. E. Holt (3,622-c.c. V8) (N.); M. Wilde (1,172-c.c. Ford) (N.); L. O. Bartlett (3,917-c.c. Mercury) (S.); K. Rawlings (1,172-c.c. Rawlings Special) (N.); G. T. Hankins (1,172-c.c. Ford) (N.); J. H. E. Appleton (4,000-c.c. Allard) (S.); T. C. Harrison (1,172-c.c. Harford) (N.).

BERKHAMSTED & D.M.C. LOCKHART-BOSSINGHAM TRIAL

In this trial the best performance up to 1½ litres was by C. D. F. Buckler (Buckler) who lost no marks, winning the Bossingham Cup and B.D.M.C. award. T. Mooney won the Lockhart Cup with a loss of 20 marks and B. H. Brown's Ford V8 Special, which lost 22 marks, the cup for best unlimited performance by a Berkhamsted member. The Appleton-Wick-Potter N.W. London M.C. Allard team took the team award, Appleton and Potter netting the Team Two-Some. First-class awards: Birkett (Austin), Chiles (Austin), Chapman (Austin), Yates (Austin), Edgar (Alvis-Riley) and Potter (Allard). Second-class awards: Harter (M.G. Midget), Hughes (Austin-Ford), Biggs (H.R.G.), Wood-Dow (H.R.G.) and Wick (Allard).

LIVERPOOL M.C. JEANS GOLD CUP TRIAL

Forty-six started and Gully proved the worst of the hills. J. Clegg (1,172-c.c. Clegg) made best performance, losing not a single mark, and won the Jeans Cup, R. E. Holt's Ford V8 lost two marks, winning the opposite class and the Wade Cup. The best Liverpool M.C. member was A. M. R. Mallock (Ford-Austin), who lost no marks, while in the opposite category H. D. Pritchard's Allard lost five marks, heading the list. Beardshaw (A.M.B.) won the Novices' Award with 15 marks lost. Holt and Clegg won the under-1½ litre Team Award for the Lancashire and Cheshire C.C. Other awards were as follows, figures indicating marks lost:

FIRST-CLASS AWARDS: T. C. Harrison (1,172-c.c. Hariford), none; G. R. Holt (1,172-c.c. G.R.H.), four; C. Corbishley (1,172-c.c. C.C. Special), two; K. Bancroft (1,172-c.c. Bancroft Special), two; A. S. Eadon (1,485-c.c. Rover), five; E. J. Newton (1,497-c.c. H.R.G.), three; G. Tyrer (1,911-c.c. Frazer-Nash-B.M.W.), six; D. G. Flather (1,971-c.c. B.M.W. Special), six; L. Poetter (3,622-c.c. Allard), eight.

SECOND-CLASS AWARDS: J. G. Lister (Austin), nine; C. L. Bold (1,080-c.c. Bold), ten; C. A. N. May (3,622-c.c. Ford), ten; A. B. Rogers (3,622-c.c. Rojar), eleven; H. Murray (G.H.), eight.

THIRD-CLASS AWARDS: A. M. Beardshaw (1,172-c.c. A.M.B. Special), 17; H. W. Begley (1,172-c.c. Ward Special), 13; H. C. Bramley (760-c.c. A.G.S.), 15; J. R. Rothwell (3,622-c.c. Singer Special), 15; B. Lomax (Riley), 13.

ULSTER A.C. VICTOR FERGUSON TROPHY TRIAL

The final trial in the year's series to determine the winner of the Premier Award for the season's best performance was held over a short course in County Down. After a map-reading section, eliminating tests were held in a quarry near Newtownards. They included tests of manoeuvrability, judgment and a speed-test of three laps round a large pile of stones—a very exciting spectacle of fast driving on a loose surface. The trial was won by C. S. Porter (H.R.G.), the present holder of the Victor Ferguson Trophy, but C. E. Robb (F.I.A.T.)—who came in fourth in the trial—maintained his leading position and returned a total of 29 points against Porter's 28 to win the trophy. First-class awards (80 per cent. of the winner's marks) go to C. S. Porter (28 points), H. H. Cowzer (27 points) and C. F. C. Lindsay (24 points). C. F. C. Lindsay also won the Ex-Servicemen's Cup, and the Montgomery Cup was retained—and has been since 1937—by Mrs. E. Dowling, driving her 22-year-old Buick.

The results of the trial were:

1st. C. S. Porter (H.R.G.) 87.8 marks lost; 2nd. S. Durbidge (M.G.) 97.4 marks lost; 3rd. W. Henderson (Austin Seven) 97.7 marks lost.

NEW CLASS I RECORDS

The Italian, Pietro Taruffi, has broken the International Class I f.s. kilometre, f.s. mile, five kilos, five miles and s.s. mile records, driving an *unsupercharged* Guzzi-engined car of unconventional form. The new speeds, for the two-way runs, are, respectively, 128.8, 126.7, 126.4, 123.9 and 79.9 m.p.h. This is a fantastic show,

Continued on page 4

Modifications to a 1½-litre INVICTA

HAVING owned a 1½-litre Invicta for some sixteen years, I may justifiably claim to know the car. It is well made, and solidly built in the traditional British style. The front axle is ahead of the radiator and visibility from the front seats is excellent, as both wings stand up nicely in view.

On the road, the car corners just that little better than most, and although, as purchased, the performance was nothing to brag about, the good road-holding plus acceleration of the order 0 to 50 m.p.h. in 21½ sec. enabled it to more than hold its own with cars having larger engines.

It is not a small car, with 9 ft. 10 in. wheelbase, 4 ft. 8 in. cwt. and weighing, with two up, about 30 cwt. This for the close coupled saloon. The tourer ran out somewhat lighter. Weight distribution is 17 cwt. rear, 13 cwt. front, and is about right on the road. Steering is exemplary and the "ride" very good if the front "shockers" are watched. The rear "shockers" don't seem to matter much. The rear axle ratio of 8/48 is low, and the engine is lively, but the weight of the car is all against brisk performance and the engine has rather more to do than it should. The "blown" version had a 9/46 axle and with a reputed 90 b.h.p. from the engine was distinctly lively. I don't think many were made, however, as I've only met two of them to date. The engine in my car, chassis No. L 171, engine No. BA 154, was reputed to deliver 45 b.h.p. at unspecified r.p.m. It has now driven the car over 80,000 miles and I see no reason why this should not be doubled. The engine has six cylinders of 57 mm. bore by 97.9 mm. stroke and alloy is used for sump, crankcase (including bearing caps, etc.) and of course, the unit constructed E.N.V. gearbox, which is a real job of work. The cylinder block is detachable and so is the cylinder head. The combustion chambers are machined all over and are to all intents hemispherical. The valves are set at 90°, with the exhaust on the near side and nearly vertical. The head, in consequence, has a peculiar "tilt" to the off side, and I mention this as it is more important than may at first be appreciated by owners of the breed. I've never had an instruction book for the car as at the time I purchased mine the manual had not been published; all my data has been obtained from scratch and may not tally with that published by the makers in every detail.

After some years of ownership I ran into quite a lot of bother with plugs and occasionally exhaust valves bent. Up to this I had been content with what the makers had sold to me, but the plug makers really set me off. Plugs were normally K.S.5s with the fins removed in order to clear the exhaust manifold, beneath which they were neatly hidden. They were not easy to change and with hot pipes one did a lot of muttering to one's self whilst endeavouring to avoid being burned. I got fed up with this and decided to attempt to cure the plug

trouble and re-design the exhaust manifolds.

Plugs on this engine either burned or oiled; there was no middle course and no amount of changing the type could effect a cure. The plug holes in the cylinder head come just under the exhaust valves and are set at a slight angle upwards of the combustion chamber. The masking of the plugs was peculiar. The 18-mm. tapped holes finishing off in a hole ¼ in. diameter eccentrically drilled at the bottom of the tapped portion. With a K.S.5 in position, a pocket was left between the end of the plug and the inside of the ¼-in. masking hole, which was itself ⅛ in. long. The volume of this



This article provides an academic study of some owner-modifications to a rather rare car and offers possible solutions to troubles that, the author alleges, beset the users of 1½-litre Invictas. So far the designer of the Blackburn engine found in these cars has not taken issue with the author, but we disclaim any responsibility for the opinions expressed or the alterations advised—Ed.



pocket and the masking hole was over 2 c.c., and represented some 6 per cent. of the compressed volume of the cylinder. At each charge, therefore, this 6 per cent. consisted of a lop-sided pocket of attenuated gas situated where it was vitally necessary that firing be instantaneous and unquestionable. The lack of these qualities was very apparent in the running of the engine. Periods occurred in the speed range which I had attributed to the carburetter, which on my car was a single 36 mm. Zenith downdraught. Evidently the makers had thought so too, as I've met these engines with two horizontal S.U.s, two horizontal S.U.s and a single Solex. None of these was any improvement over the Zenith, and to give it its due, the inlet manifold functioned very well, although naturally charge "waggle" occurred. However, I discounted the carburation theory as the makers' ignition advance (55°) had always appeared excessive, and I came to the conclusion that this large advance was due to late flame propagation across the piston crown. Measurement of exhaust gas temperatures confirmed this, and indeed the flame did persist throughout the exhaust stroke, the plug and the valve quite unnecessarily. The masking was drilled right out and the plug boss on the outside of the head was spot faced so that a T.M.L. 50 plug just came flush inside the combustion chamber. This put the spark in the right place but accentuated the burning and/or oiling tendency.

The cylinder head gasket has water holes up each side, plus a hole of 1 in. diameter between bores 4 and 5. Water

is pumped along a channel in the crankcase, up the back of the block, through the holes in the gasket into the head, and finally out through a 1¼-in. hole at the front of the head via a thermostat to the radiator. What actually occurred was that the bulk of the water went through the 1-in. hole in the gasket, thus by-passing Nos. 5 and 6 combustion chambers. This caused local boiling to take place in the cylinder head and helped to account for the burned plugs and valves. To offset this, head and block were lapped and a gasket of 25/1000-in. bright annealed electrolytic copper made and fitted, without the 1-in. hole in it. Next, two ⅞-in. holes were drilled between exhaust ports 2 and 3 and 4 and 5 to break into the cylinder head water jacket as high up as possible. Two stud flanges were wangled on the side of the head and pipes ran to join up with the 1¼-in. hole at the front. This hole was disked to ⅞ in. The thermostat was thrown away and a roller blind shutter fitted aft of the radiator in lieu.

Attention next turned to the exhaust valves. In view of the hard life led by these it was decided to offer them as much cooling as could be effected. The seats were, accordingly, made as wide as possible and a new set of phosphor bronze finned guides fitted. That portion of the guide projecting into the port was counterbored ⅜ in. clear on the valve stem to prevent it from "grabbing" the latter when really hot on full throttle work. It has proved a sure remedy. Incidentally, to give some idea of the flame velocity, I made it 245 ft./sec. past the valve, and it was, therefore, essential to offer a free passage to the burned gases. The existing two-three branch cast-iron manifolds were, as usual, pretty hefty castings, and on full throttle work ran a glorious cherry red. All this heat was, of course, reflected back to the port and valve head, so a manifold was designed to combat this in the first instance. I made up two cylinders of ½-in. M.S. each of length ½ in. greater than the span of the three exhaust ports. Each cylinder then had three rectangular section branch pipes about 4 in. long welded to it. The branch pipes were parallel in plan but tapered from 1 in. at the port to ¼ of the cylinder circumference in elevation. They were inclined upwards from the port face, to give good access to the plugs.

The hotspot arrangements on the engine were merely a pious hope and were abandoned. The two vertical take-off pipes from the new manifolds were each run to a silencer, two of which had previously been fitted in tandem by the makers, and each silencer had its own tail pipe. Silencer resistance was thus halved. As a brainwave, I had a piece of 1⅛-in. bore M.S. tube welded in the centre of the end plates of the two exhaust manifold cylinders and on assembly a 1-in. O.D. brass tube was inserted through the 1⅛-in. tubes with a funnel at one end, close to the radiator. The other end was piped inside the car and not only heats the interior but keeps the screen clear. This

was done on behalf of an elderly lady, who, in spite of her age, likes to motor quickly and aids and abets my work to this end. So much for the exhaust side of the engine.

The inlet port presented a real conundrum. At the manifold-end it was $1\frac{1}{16}$ in. diameter, reducing to 1 in. some half-inch up the port. It then opened up to $1\frac{3}{8}$ in. diameter across the guide entry point, reducing to $1\frac{1}{4}$ in. at the valve. The increase from 1 in. to $1\frac{3}{8}$ in. diameter was all on the top side of the port and the changes in diameter boded no good for efficient breathing. To make things more uniform I ran in hard solder all round the guide until the diameter of the port assumed a nice easy taper. The $1\frac{1}{16}$ in. end was ferruled up and then filed out to make a dead 1 in. entry. The manifold ports were then carefully matched up to the head ports, but no polishing was done, as I believe it more important to get good delivery *after* the valve than *before* it.

The crankcase next received attention. I had heard of very expensive things happening in this department, but as the engine design was so good as a whole, I found the blame hard to place. However, the shaft was checked over and I considered it to be capable of handling anything that could be delivered from 57 mm. bore, unblown. It has a substantial roller bearing (3 L.R.J. $1\frac{3}{8}$ in.) at the front, two "centre" whitmetal bearings of $1\frac{7}{8}$ in. bore, and a really massive ball and roller bearing at the rear. The last named is 45 mm. bore and generous to a degree. I could not visualise trouble here, except through neglect.

There was evidence, however, that the rollers in the 3 L.R.J. $1\frac{3}{8}$ -in. front bearing had been in contact with the retaining circlips in the outer race, to the detriment of both. The designer did slip up badly here, as any wear on the rear-end ball race permitted thrust eventually to come on the front bearing. I wonder how many broken shafts were due to this? This bearing was replaced by an 8 L.R.J. $1\frac{3}{8}$ in., which is the same thing, only with a plain outer race. To locate this outer race the bearing cap was recessed $\frac{1}{16}$ in. each side and semi-circular plates rivetted flush to it either side. If the rear race wears, the shaft merely floats through the front race a little and no harm is done. The whitmetal steel shells of the centre bearings had really comic staggered oil grooves in them. I fancy I know what was in the designer's mind, i.e. oil spread, but the staggering left portions of whitmetal in very dangerous shear. In fact, these portions were often found adrift after some mileage. These bearings were renewed with simple concentric grooves and an oil pressure of 60 lb./sq. in. "hot" spreads oil where it is wanted. Incidentally, as these centre bearings feed the entire crankshaft, their fitting is a matter of some moment and time spent on this part will pay dividends. All crank oil-ways were cleansed out with strong caustic soda.

The B.H.B. pistons had five rings, i.e., two compression, one stepped scraper, one slotted above the pin, and one slotted below. The block was sleeved and bored to give 2/1000's clearance (I know, but wait!); the rings were renewed in the following layout: two compression (narrow), one compression

(broad), and one slotted above the pin. The bottom ring was omitted. The con-rods were then drilled each side (in the axis of the gudgeon pin) at the big-end with $\frac{1}{16}$ in. diameter holes at an included angle of 28° , meeting on the centre of the whitmetal face. At each rev., therefore, oil is thrown out on to the cylinder wall on those faces where the gudgeon pin ends pass. These faces are comparatively lightly loaded and the oil finds its way round to the thrust and inertia faces easily. I cannot understand why cylinder bores are so ill-treated as to have oil scraped from them when they need it more, perhaps, than any other part of the engine, and I do believe the Invicta bores ran dry and so caused rapid wear. For 36,000 miles the bores have remained good, and seem good for as many miles again. I thank the wee holes in the rods for this.

The engine was re-assembled and then it dawned on me as I was replacing the head that, owing to the aforementioned "tilt," the inlet valve guides were swamped with oil. Drain pipes were fitted in three places on this side of the head to run oil back to the sump and soft felt-packed glands fitted to the guides to seal the valve stems. This appears to be successful, as I've never oiled a plug since.

As a matter of further interest, the mean little $\frac{3}{8}$ in.-bore crankcase breather was replaced by one of $1\frac{1}{2}$ in. diameter, with an air filter. The oil-filler cover in the rocker box was opened out to 3 in. diameter and another filter fitted here. In consequence, there is no condensation in the engine now and the water of combustion that does pass the bores and guides evaporates rapidly away. Hence sludge formation is nil and oil-ways remain clear; and so long as this state of affairs endures, bearing failure will be unknown.

When re-assembled the engine was run-in (minus the head at first) at gradually increasing speeds by application of a 350-c.c. motor-cycle engine to the crankshaft front extension.

A brief run was sufficient, and with a song in my heart (pardon the quote), I put the Invicta away until petrol was available. I found I could attain and hold 5,900 r.p.m.—80 m.p.h., and 0 to 50 m.p.h. in $18\frac{3}{4}$ sec. Not bad, but still not good enough.

So I fitted an oil coil and scrounged a 9/42 back-end, ex-Standard, borrowed three Amals, fitted them one per two cylinders and had another go. 90 m.p.h. and 0-50 in less than 18 sec., and above all pulling propensities in top to rival a diesel. The other three Amals will be added before basic returns, as after all I can always go back to the Zenith when 17 m.p.g. begins to pall.

Was it worth while? Yes it was! I've got a thoroughbred car that can't be turned over on corners. It seats four comfortably and the bodywork is excellent. It has everything necessary for motoring, and many of the moderns haven't.

To conclude. I have one or two more ideas which will have to stay put for the nonce. One is the fitting of 8 to 1 compressions pistons, but not on "Pool." They are on hand and have a specially shaped "hump" to "squish" the gas

up to the plug. They also have six compression rings in three sets of two.

The other is more ambitious and entails cutting 1 ft. 9 in. out of the chassis, mid-section, thus doing away with the little bit of prop.-shaft aft the gearbox and bringing the wheelbase to 8 ft. 1 in. The radiator will drop 6 in., tucking in behind the axle and, with 6 in. removed from the alloy scuttle, will restore the *status quo* of the bonnet line. The floorboards will go on the bottom flanges of the 6-in. chassis members, and, with new steering arms to restore correct geometry, and a light two-seater body, a trials car of some moment should materialise. If anybody with an Invicta fancies the idea, I know where a spare chassis is stored. I can't, for family reasons, set about mine yet, but I'll willingly give all the assistance I can.

REPORTS OF RECENT EVENTS

—continued from page 2

for Gardner's M.G. records are beaten by nearly 10 m.p.h. without resort to forced induction. Taruffi's Guzzi engine relied on British Lodge plugs.

N.M.M.C. AUTUMN SPORTING TRIAL

Seven observed sections were included in this N. Midland M.C. event, as well as two special tests for deciding ties. The length of the course was approximately 15 miles. The entries numbered 37 but only 25 competitors presented themselves at the start.

Results

(Note: No competitor finished the course with a clean sheet, nor were there any ties to be decided by the special tests.)

MEMBERS' TROPHY: T. C. Harrison (1,172-c.c. Harriford), 8 marks lost.

COMMITTEE CUP: J. Clegg (1,172-c.c. Clegg Special), 5 marks lost.

NORTON TEAM TROPHY: "The Tacklers"—R. E. Holt (3,622-c.c. V8), 27 marks lost; J. Clegg (1,172-c.c. Clegg Special), 5 marks lost; G. R. Holt (1,172-c.c. G.R.H.), 18 marks lost.

FIRST-LASS AWARDS: T. C. Wise (3,622-c.c. C.W.8), Y.S.C.C., 12 marks lost; K. Bailey (1,503-c.c. Riley), L. & C.C.C., 18 marks lost; G. R. Holt (1,172-c.c. G.R.H.), N.M.M.C., 18 marks lost.

SECOND-LASS AWARDS: B. K. Thompson (1,172-c.c. Ford Special), L. & C.C.C., 20 marks lost; R. H. Hunt (1,172-c.c. Ford Special), L. & C.C.C., 21 marks lost; J. G. Lister (1,172-c.c. Austin), Y.S.C.C., 21 marks lost.

BUGATTI OWNERS' CLUB

A. C. Whincop won the 1948 Victor Ludorum Trophy, which was duly presented to him at the annual dinner at Grosvenor House, on December 4th—we offer him our belated congratulations.

HANTS & BERKS POINT-TO-POINT

C. D. F. Buckler (Buckler) won the Hants & Berks M.C. Point-to-Point contest held on December 12th.

HAGLEY & D. L.C.C. WINTER TRIAL

The premier awards were as follows:

SUPER SPORTS CARS:—WHITTINGTON CUP.—K. Wharton (1,190-c.c. Wharton). *First-class Awards*: L. J. Oliver (747-c.c. Austin), R. W. Merrick (1,172-c.c. Dellow, S.). *Second-class Awards*: J. W. Cox (1,172-c.c. M.G., S.).

OPEN CARS:—GROVE CUP.—P. Atkinson (747-c.c. Austin). *First-class Awards*: W. A. Penn (1,172-c.c. Dellow), G. A. Waldron (1,172-c.c. Dellow). *Second-class Awards*: J. de Blaquiére (747-c.c. Austin), S. Cracknell (933-c.c. Forstin).

SALOON CARS:—SIDDAWAY CUP: F. D. Lawton (993-c.c. Austin).

THE R.A.C.'s MEETING WITH THE CLUBS

ON December 9th, the R.A.C. held its annual meeting with club delegates. Some sensational revelations were made during this meeting, notably that Silverstone will be available to clubs who wish to hold meetings thereat on Saturdays, and to individuals for daily testing from Mondays to Thursdays inclusive, at fees not yet settled, and that General Competition Rule 20 will be revised as from January 1st, so that each club will be allowed to apply for *only one permit* for a Closed Invitation Trial or Rally, invited clubs to include seven and not five as formerly. This ruling also applies to Closed Invitation speed trials or hill-climbs (*i.e.*, one per club, seven invited clubs). Closed events and race meetings are not affected. Other noteworthy R.A.C. decisions revealed at the meeting were: That combined A.C.U./R.A.C. permits will be discontinued; that Silverstone will be closed on Sundays; that permit fees have been revised, the scale to all clubs for closed permits being 5s. up to 25 entries, 10s. for 25 to 50 entries and £1 1s. over 50 entries, the maximum permissible entry to be declared in Supplementary Regulations; that every competitor in any R.A.C. permit event must hold a 5s. National Competition Licence, and that the International Licence fee is now £1 per annum. It was also announced that a Sub-Committee was sitting for the purpose of drawing up rules governing the type of competition car that will in future be permitted in public-road events. Earl Howe took the Chair and the full Competitions Committee was present—it was very bad form, however, for certain members of the Committee to leave before the meeting was declared closed. During the afternoon the British Hill-Climbing Championship Trophy was presented to Raymond Mays and the British Trials Drivers' Championship Trophy (curiously this is our old friend the B.A.R.C. Mountain Championship Trophy and as such, quite unsuited to its present role) to Ken. Wharton. The following is a necessarily brief résumé, with Editorial comments within brackets, of the more outstanding matters that came up for discussion:—

Morrish (Bristol M.C. & L.C.C.) commented on the cost of chestnut paling at club speed events, recalled the use of ropes for spectator-control at Silverstone, and asked if, in future, the R.A.C. would sanction similar leniency for clubs. Earl Howe said the R.A.C. was far from satisfied with the Silverstone safety arrangements, but they were the only ones possible and they did have 600 volunteer marshals to help them. Safety measures must be retained and he expected an improvement at Silverstone on May 14th.

Heal (V.S.C.C.) asked would club meetings be permitted at Silverstone? Earl Howe said yes, at fees not yet settled, and so would car-testers, at all events as a short-term policy; the circuit was at present only leased on a short-term basis. Clubs would have to provide all equipment, but would get the services, if was hoped, of a track manager. [Alas, clubs will be required to provide their own fencing, which sounds costly and complicated. As clubs wish to declare 1949 fixtures, fees should be published as soon as possible. Earl Howe fully agreed.]

Fred Craner (Derby & D.M.C.) caused a stir by saying the Silverstone G.P. had been widely publicised as the first Grand Prix to be held in this country for 25 years, completely overlooking the Donington Grand Prix. This misnomer still persists in R.A.C. correspondence. Why has it not been

corrected? He likened the C.C. to blue jays scratching in a sand-pit, saying 76 clubs and centres have agreed 1949 dates without a clue as to whether they can use Silverstone. Gordon Bennett (Jersey) complained of the unfortunate proximity of Silverstone and Jersey 1949 fixtures. Scannell (B.R.D.C.) complained of unelastic drafting of race regulations, pointing out that the Silverstone regulations said drivers *must* complete laps under observation, whereas the Italians did not do so. The word "may" would obviate future lapses. Earl Howe said delay in the Silverstone release to clubs, etc., was occasioned by having to negotiate with the Ministries involved and with Rootes Securities, Ltd. He agreed about the word *may* rather than *must* in race rules. International dates are fixed in Paris the previous October and constitute a jig-saw. This year's first Silverstone race was to have been on Whit Monday, but that clashed with Monaco, so they agreed to May 14th. He felt that the Silverstone G.P. was still the first *British* G.P. for 25 years. [But we understand how Craner feels, and were careful not to quote the R.A.C.'s terms of reference in MOTOR SPORT.] Craner then asked if bank holidays were impossible for Silverstone. Earl Howe explained that the police say they cannot cope with Towcester horse-racing and Silverstone traffic on the same day, but in future he felt there must be give and take, as Towcester happens every bank holiday. H. R. Godfrey (J.C.C.) said Bond arrived late at Silverstone and wasn't allowed to practice, but the Italians were. Earl Howe said Col. Barnes knew the facts about this. [No answer was forthcoming.]

Scannell wanted the same entry fees and starting money for all entrants, but Earl Howe said the travel expenses of the Italians had to be defrayed. Sedgwick (B.D.C.) asked what Silverstone cost and how much the "gate" raised. The Chairman of the R.A.C. said until they know what repairs to the runways will cost no figures could be given, nor had they got the "gate" tied-up. [But when the figures are available they must be made public.] Craner queried why the R.A.C. has stated that no permits will be entertained for racing at airfields other than Silverstone. He called for withdrawal of the embargo, so that clubs could negotiate for other airfields. The R.A.C. Chairman said no monopoly or embargo was envisaged. The R.A.C. had provided Silverstone solely for the good of the sport. It was the Air Ministry which had banned airfield racing. Goodwood, as a private circuit, was in order. [And a vote of thanks might well have been accorded the Duke of Richmond and Gordon, who was present, for so generously allowing testing on his circuit, free of fees or red-tape.] Carson (V.S.C.C.) proposed a vote of thanks in respect of Silverstone. The topics of racing on public roads in England and how to define a sports car then took up much time without getting any nearer solution than they had at last year's meeting. A Jersey representative next spoke entertainingly on the desirability of Daily Press support and Earl Howe said one of the big newspapers might well experiment to discover if increased sales would result from publishing good motor-racing news. [We have preached this since before the war. And, which no one mentioned, the *Daily Graphic* did back Goodwood.] The R.A.C. is still trying to recover Donington. Earl Howe said the matter of the abolition of purchase tax on racing cars is receiving attention, but no one has yet been able to define a racing car to the satisfaction of the Customs and Excise authorities. Suggestions are welcome.

The trials-discussion was hampered because the club delegates had no idea that changes were being made in the permit system until they were at the meeting. [Clearly, they should be notified well in advance, so that they could discuss tactics before this meeting. A unanimous vote agreed to holding the meeting a month earlier this year. Why not in October, so that delegates coming long distances will at least be able to see the Motor Show while in London?] Birkett (Hants & Berks M.C.) felt that the final of the Trials Championship wasn't truly representative, because entries were limited on account of the late appearance of the regulations. [But Wharton has since won the Gloucester and there is no disputing his right to his title.]

Onslow Bartlett wanted a ban on dope fuel, Z.F. and Timpken locked diffs. and oddly-bodied specials. Toulmin (C.C.) said a Sub-Committee on "Specials" was to take action, and methanol might go on the ration, if used too obviously. Flather (Sheffield & Hallamshire C.C.) asked the R.A.C. to ban methanol in trials. The 20 m.p.h. average in the Championship Trial came in for much discussion, many delegates considering it resulted in dangerous-looking speeds on semi-inflated tyres, but it was explained that, with no time-limit, undue congestion from parked cars, even "decoking of engines," could occur during a trial. [Surely good marshaling is the answer; a maximum time schedule in mud trials does mean complicated delay cards and a

tendency to hurry that may be misconstrued as racing.]

Wharton neatly terminated the retreaded-tyres argument, saying it is a fallacy that these are better for trials than new tyres, but that "vacuum-pressures" can ruin a tyre first time out and you can get two or three retreads for the price of one *good* new tyre. As 18 in. and 19 n. sizes are not easily obtainable, he felt reasonable remoulds should continue to be permitted. Birkett then explained, for the benefit of the casual, the Hants & Berks M.C. public-liaison arrangements. [Their distribution of cards to householders likely to be affected by a trial may be too elaborate for some organisers, but at least the local police should be told of forthcoming trials in their area, and the route.] Toulmin thought average-speed in trials must be left to organisers. He deprecated hand-cutting of tyre grooves. Jane (Lancia M.C.) queried whether inter-club team trials and rallies were exempt from the new one-closed-invitation-event-only rule. Col. Barnes (C.C.) said rallies *sans* driving contests were not restricted and one C.C. team trial per club, six to a team, would be allowed as an extra event. Flather commented that his club offered to organise the Championship Trial, but the R.A.C. subsidy went to S.U.N.B.A.C. Best (Bristol M.C. & L.C.C.) inquired when the General Competition Rules would be re-issued; he had no idea protests had to be made within one hour of a Steward's decision and that neither Earl Howe nor Col. Barnes troubled to enlighten him, on a relevant occasion during the Championship Trial. [Delay at the F.I.A. in revising the Rules is apparently to blame, but as this matter cropped up in 1947, surely a reprint of the existing G.C.R. would have been worth while?] The Scottish delegate announced a proposed speed hill-climb up a mile long course on the old Rest and Be Thankful Road, for July 2nd, which looked like taking place. This was a bright feature of an otherwise rather epiclyc (wheels within wheels) meeting.

It was revealed that during 1948 the C.C. met 12 times, and in less than five months, after "basic" was "standardised," issued 134 permits.

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OLD BEAN

Christmas delvings into matter contributed to MOTOR SPORT during the war, but unused when peace broke out and we had to change somewhat the make-up of the paper, produced, amongst other things, an article by R. Brookes on his experiences with a 1925 Bean Fourteen. This article is too long to publish in this busy day and age, but, although we have only encountered three of these massive cars in the past twelve months, some of Brookes' findings are not without interest. He first rebuilt his car, using the rear part of a Cluley two-seater body with a 12-gallon Bedford fuel tank in the dickey to supplement the Bean's 11-gallon reservoir. This, and new wheels with 6-in. section tyres, improved roadholding, but 30 in. by 3.25-in. tyres were required in front before the car would steer. Eventually a Morris Six steering box replaced the original worn-out box. The vast, long-stroke 75 by 135-mm. engine gave 32 b.h.p. at 2,400 r.p.m. from 2,380 c.c. and some 12, 25 and 50 m.p.h. on 2nd, 3rd and top gears. This was improved by substitution of an S.U. for the Smith's carburetter and by rigging a second magneto above the original instrument, driving it by cycle chain. This magneto fired an additional set of plugs normally intended to be used in conjunction with a coil set which the makers listed as an extra. The owner's difficulty here was to find the cash for the four additional plugs needed, but at the time Jowetts were offering a set as a prize in a letter-writing competition, so an entry was sent

in and four E.R. plugs duly arrived! A guard over the exposed chain to defeat oil-fling, and a new vernier-coupling to look after the increased load were also necessary, after which starting and acceleration were improved, the weak mixture setting could be employed even in winter, while water temperature fell from 92 deg. C. to 85 deg. C. Other ingenious modifications were a Berkshire electric screen wiper with variable control provided by a resistance from an old radio set, electrically-heated ex-R.A.F. clothing for the driver, controlled through the resistance formerly used in the Bean's headlamp dimmer, bucket front seats from a Morris Oxford, and a dumbiron apron so arranged that it could be clipped up to the radiator for starting and automatically released by a spring and held by a clip to rubber buffers on the dumb-irons when the engine had ceased to cough. An induction-actuated trumpet wind-horn was another addition. It was given a long lever for sensitive operation, embarrassing if the driver's sleeve became entangled with it in traffic! Apparently these old Beans "had something," including 16-in. front brakes, for Brookes' specimen did 110,000 miles without needing a rebore—at which period a dealer declared her market value as 30s.! A possible snag was the drag on the gear-lever when trying to change ratios with the oil cold. Although a suitably massive lever was provided, one owner preferred to start each morning in top gear to "avoid loss of face;" fortunately he lived on a slope. After

which bit of unwarranted journalism we can only conclude by recalling that one of the former Editors of MOTOR SPORT ran a Bean Twelve with a Fourteen engine and used it for pioneer experiments with portable radio. But that was twenty-five years ago.

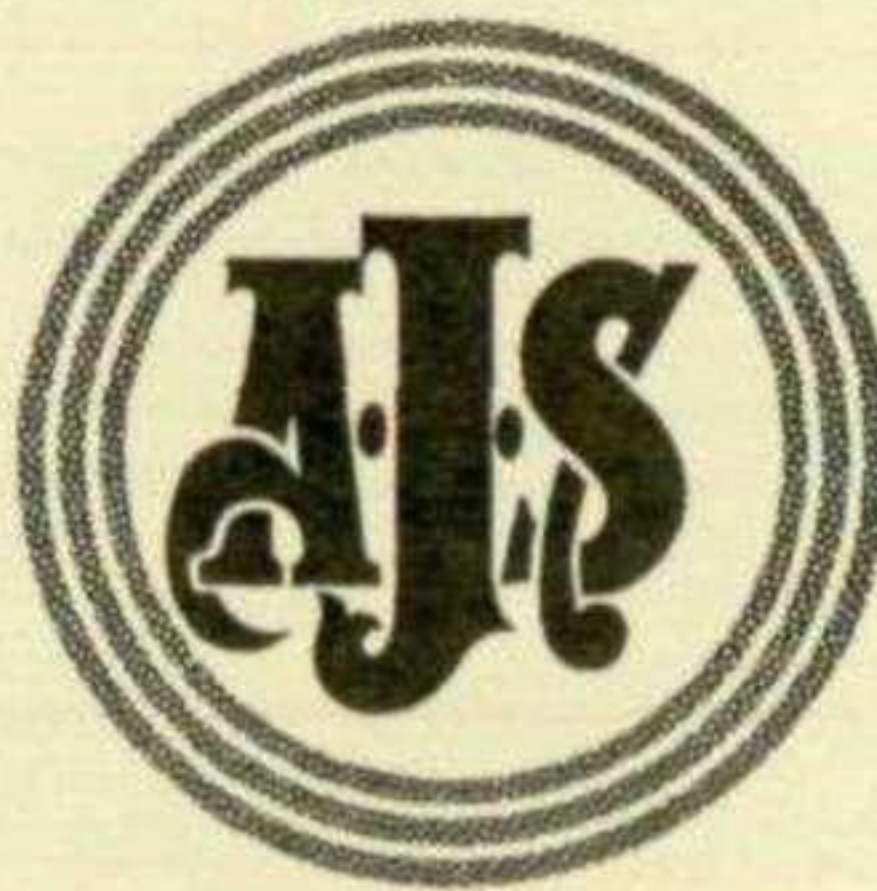
ANOTHER LUCAS SUCCESS

A Lucas NTT2 magneto was used by Graham, West and Monneret on the 500-c.c. parallel-twin A.J.S. motor-cycle with which they established new records at Montlhéry in the 500-c.c., 750-c.c. and 1,000-c.c. classes for 2, 3, 4 and 5 hours, 500 kilometres and 500 miles, at speeds of 107 to 111 m.p.h. The machine used petrol/benzole fuel, not racing dope, and beat the existing records, established by a Belgian F.N., by a handsome margin. The Lucas racing magneto, for single or two-cylinder engines, will spark consistently up to 10,000 r.p.m., while its light weight and small dimensions make it especially suitable for the purpose for which it is intended. The magneto body is cast in Electron and embodies an Alnico magnet of special nickel-aluminium-cobalt alloy possessing exceptional magnetic properties and being particularly resistant to de-magnetisation. The armature runs on large ball-bearings and the magneto is effectively waterproofed. Lucas provided the ignition equipment on the world's fastest car and before Christmas they delivered the first ignition set for the B.R.M.

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WE renewed acquaintance with the 1½-litre H.R.G., which we knew intimately in its pre-war Meadows-engined form, under conditions calculated to bring out the very best or worst in a car. Although the Great Fog had lifted, we had not gone many miles from the H.R.G. works when darkness, dense patches of drifting mist and frosty roads were encountered. With screen lowered, we made for home without giving much thought to the car. But, after we had thawed-out, it occurred to us that, considering the hazards, we had made a very reasonable journey-time and had held, and eventually passed, a very racy-looking solo motor-cycle whose rider was obviously trying hard along the twisting parts of the route. Not only did the H.R.G. stick nicely to the none too adhesive surfaces, but its acceleration was clearly of a very useful order. We were impressed, too, by the lightness of the steering in view of its ability to take the car round corners with little more than wrist-movements, and by the ability of this out-and-out sports car to idle along happily on a 4-to-1 top gear when the fog really closed in.

The next day these preliminary good impressions strengthened. Using the car for a domestic journey involving much London traffic, it proved entirely practicable for the job in hand. Everyone and everything stowed away nicely with hood and side curtains erect, and the interior was then sufficiently snug to occasionally mist the inside of the windscreen. The off-side rear-view mirror provided an adequate view under these all-enclosed conditions, while signals could be given easily through the side-curtain flaps, these afterwards being held shut by push-button fasteners. Later, this weather protection proved able to keep out heavy rain.

Pottering about London we had no reason to give a thought to such sports car maladies as oiled plugs or overheating, while the vivacity and light steering made the H.R.G. a rapid means of negotiating West End traffic. When we parked the H.R.G., pavement users, sensing something different, would pause to join us in admiring it. Certainly the appearance of the car cannot fail to warm the cockles of enthusiastic hearts. The radiator is set really well back, the long bonnet, high-set Lucas headlamps and clean grey finish are imposing, and the body shape, hood up or down, blends well with the car as a whole. Moreover, the frontal aspect, with massive tie-bar bracing the wing supports, central Lucas fog-lamp and tubular axle, is really satisfying to true believers. The lines of the car are practical as well as aesthetic, for both front wings are visible to the driver and the headlamp beams really do light up the rapidly unfolding scenery—factors the streamstylers conveniently overlook.

Other good features noticed in closely

examining the H.R.G. are: Rigidly mounted wings; cut-aways for the doors; interior door catches, easily reached through the side-curtain flaps; trailing doors; effective twin Lucas screen-wipers with motor box set unobtrusively before the passenger; an excellent full-length "tonneau" cover, zip-fastened down the middle, which enables the car to face life in the open without getting wet seats; indicator windows on the side lamps, both easily visible; a screen that can be folded

THE 1½-LITRE H.R.G.

Engine: Four cylinders, 68 by 103 mm. (1,496 c.c.), R.A.C.-h.p. 12; 61 b.h.p. at 4,800 r.p.m. Compression ratio 7.2 to 1.

Gear ratios: 1st, 14.36; 2nd, 9.08; 3rd, 5.87; top, 4.0 to 1.

Tyres: Dunlop 5.50 by 16 on centre-lock wire wheels.

Weight: Without occupants, but ready for the road with approx. 2 gallons of petrol, 15 cwt. 2 qr.

Steering ratio: 1½ turns lock to lock.

Fuel capacity: 9 gallons (range approx. 270 miles).

Wheelbase: 8 ft. 7½ in.

Track: Front, 4 ft., Rear, 3 ft. 9 in.

Overall dimensions: 12 ft. 2 in. by 4 ft. 11 in. by 4 ft. 4 in. Ground clearance: 6½ in.

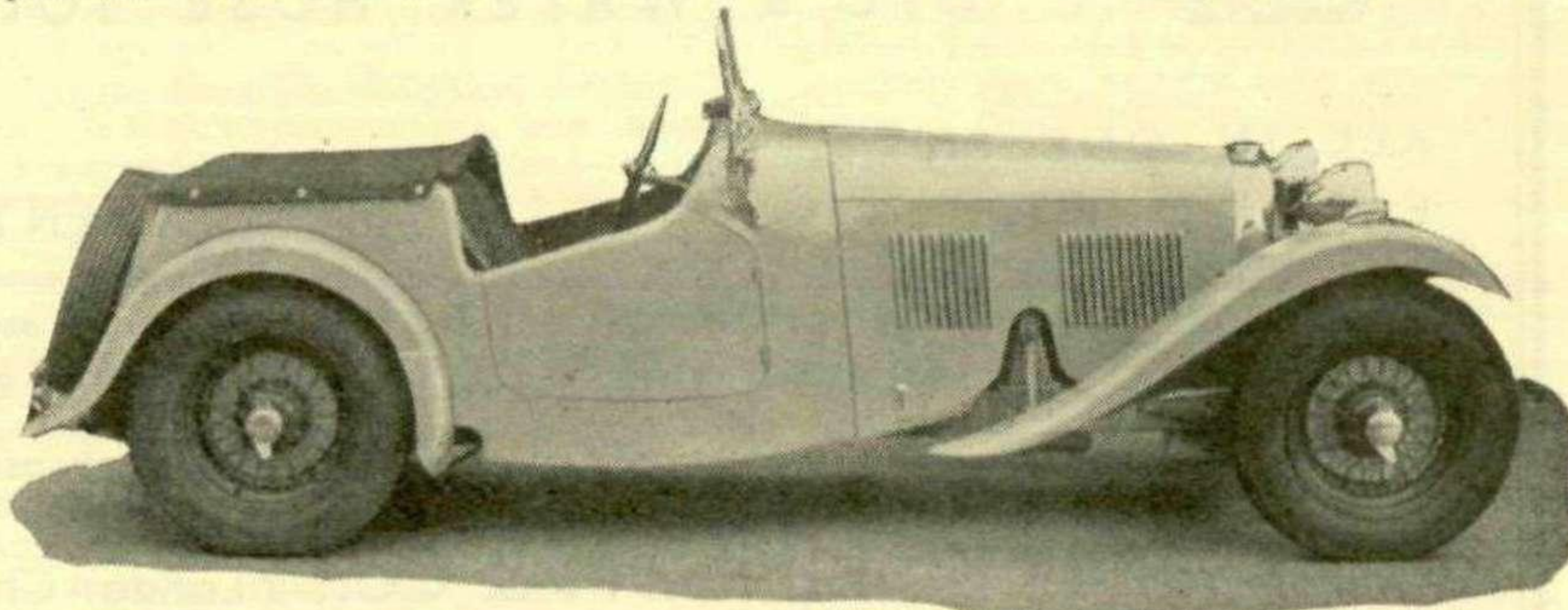
Makers: H.R.G. Engineering Co., Ltd., Oakeroft Road, Kingston By-Pass, Surbiton, Surrey.

flat and re-erected while you are driving; a large luggage platform behind the seats intended for luggage but offering seating to persons who fold up and who have insensitive posteriors. At the back of the car the spare wheel is held by a strap incorporating the "1,500-H.R.G." insignia, the nine-gallon fuel tank no longer being exposed so that its filler now protrudes from the near side of the body.

The bonnet has simple press-and-turn fasteners and opens to reveal not only the engine, but a neat bulkhead carrying the coil, a spare set of L 105 Champion plugs, fuse-box and S.U. electric fuel pump. On a shelf behind this are the two Lucas 6v. 50 amp.-hr. batteries, tyre pump, jack, tools, grease-gun, hub nut hammer, oil-can, etc., with plug spanner and handle for the excellent hydraulic jack held to the sides of the shelf by clips. The side curtains and starting handle are stowed in a compartment beneath the aforementioned luggage platform, and the hood folds on to this, out of sight below the "tonneau" cover. The body was built by Automarine Coachbuilders, Ltd., of St. Leonards.

Contemplating the engine, which is a four-cylinder overhead-camshaft Singer unit adapted to H.R.G.'s specialised requirements, on the near side one finds the two S.U. carburetters, neat Bugatti-pattern four-branch exhaust manifold, shielded from possible petrol drips by a metal guard, and a water-pump driven by a rather small belt. This belt jockeys over a pulley carrying an extension to accommodate a fan, if such is required. On the off side are the Lucas dynamo and distributor, an A.C. by-pass oil filter and, fairly accessible between, the dipstick. On this side, too, the Marles steering box is mounted, a thought flexibly, on the chassis side-member. The oil filler is in the valve cover. It is all delightfully accessible.

We may as well continue with the "interior story," for it is just as satisfactory. The bucket seats, upholstered in red leather, have a rather stiff adjustment, but are well placed and comfortable, although the driver's seat might have come further forward, while it was rather too long in the cushion and shallow in the base of the squab for personal comfort. The big spring-spoke steering wheel has a finger-grip rim and a neat button in its centre actuated a mellow, if subdued, horn. The facia is refreshing in this octagonal age. It carries eight Jaeger dials and five high-grade pull-out controls, besides the "usual offices." Speedometer



NICE LINES.—The set-back radiator, centre-lock wheels, cut-away doors and roomy rear compartment of the H.R.G. are evident in this picture.

and rev.-counter have 5-in. dials, the former reading to 100 m.p.h., and incorporating trip and total mileage readings, the latter going to 6,000 r.p.m., being free from coloured divisions and incorporating an electric clock. The 2-in. dials comprise oil gauge reading to 100 lb./sq. in., oil and water thermometers, a properly calibrated but not very accurate fuel gauge, ammeter, and vacuum gauge. All are in decent view, rev.-counter before the driver, have white hands on black faces, and speedometer and rev.-counter read absolutely steadily. Unfortunately, although two dash lamps are provided, they do not illuminate the smaller dials. The pull-out controls, each of which is labelled, work nicely and actuate the mixture control, starter, dash lamps and fog lamp, one being a spare switch. The remaining fascia appointments are the usual ignition-cum-lamps switch and ignition warning lamp. There are no cubby holes, but each door has a really useful pocket. The door catches are none too easy to operate when seated, and the doors tended to stick, although they shut with a nice action. The pedals, of which the accelerator is right-hand, are rather small, which tires the foot, and close-set, although not embarrassingly so. There is room for one's clutch foot between the pedal and the conveniently-located foot dipper. Ingress and exit call for no more of a contortion than is expected with a small sports car, but the rear mudguards and base of the body do accumulate a lot of road dirt, detrimental to coats and stockings. Mud flaps on the front wings would probably

effect a cure. The passenger has ample leg room and driver visibility is very good.

On the road the H.R.G. proves very fast and very safe while being driven fast and is a vastly satisfying car to handle. Essentially alive, it admirably suits its owner's whims. In a hurry 4,000 and 4,500 r.p.m. come up as a regular thing on the indirect ratios, giving speeds of 36-40 and 53-60 m.p.h., respectively, in second and third gears, while it settles to a cruising speed of 70 m.p.h., with a genuine maximum of 80 m.p.h. in hand. The engine is completely free from vibration periods or flat-spots and thoroughly enjoys turning over fast, emitting a happy power roar from 50 m.p.h. onwards and burbling pleasantly in a mild way when cut before corners. It is safe up to 5,000 r.p.m., although mechanical noise, doubtless harmless but disturbing to the sensitive, commences at 4,000 r.p.m. and becomes fairly pronounced by 4,500 r.p.m. On the gears we attained normal maxima of 26 m.p.h. (5,200 r.p.m.) in 1st; 43 m.p.h. (4,800 r.p.m.) in 2nd and 66 m.p.h. (5,000 r.p.m.) in 3rd gear, although mindful that piston speed was still below 2,500 f.p.m., we reached nearly 70 m.p.h. in 3rd gear on one occasion. Such performance is enlivened by the sense of life imparted by the hard suspension and by the impeccable cornering qualities, making fast motoring in the H.R.G. a very enjoyable experience. The car is notorious so far as hoarding the coupons is concerned, it is such fun to drive.

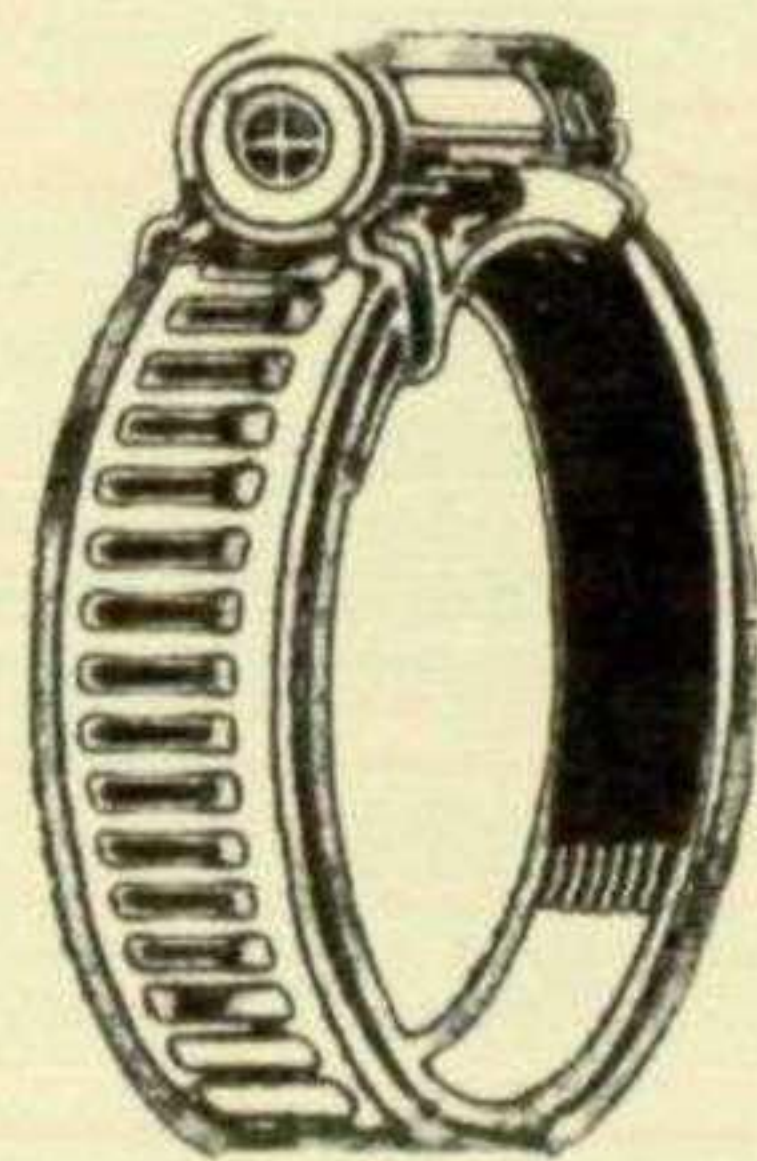
On the other hand, the H.R.G. can be perfectly docile and quiet, running down to 500 r.p.m. in top gear and pulling away

from 10 m.p.h. in that ratio, so that in normal driving one changes up at around 18 m.p.h. in 1st, 30 m.p.h. in 2nd and 42 m.p.h. in 3rd, keeping the revs. between 3,200 and 3,600. In top the engine pulls away strongly above 30 m.p.h.

Acceleration is of a really high order and we did 0-50 m.p.h. as a mean of a two-way run, two up and screen erect, in 11.25 seconds, while 0-60 m.p.h. occupied 17 seconds. On the road, again with screen erect and against a considerable wind, the highest speedometer reading was 82 m.p.h. (over 4,000 r.p.m.); the speedometer is accurate almost throughout its range, being one mile-an-hour optimistic at 70. At night, in the wet, down a not very long straight, 78 m.p.h. was recorded.

Engine speed goes up most willingly, encouraging a drop to third at high road speed. The gear change embodies synchromesh, but this operates properly only with slow movements and normally double-declutch or clutchless changes will be made, rendering the selection of lower ratios on the approach to corners a joyous feature of driving the car. The change, it must be confessed, was not entirely to our liking. The rigid, remote lever is rather too far forward, especially for the 1st to 2nd movement, which is longer than that between 3rd and top, while it tended to catch up at times, the nuts securing the ball-gate worked loose and insufficient depression of the clutch adversely affected gear-changing. The lever moved very slightly with the flexibly-mounted engine but this was not evident to the hand. Reverse position is protected by spring-

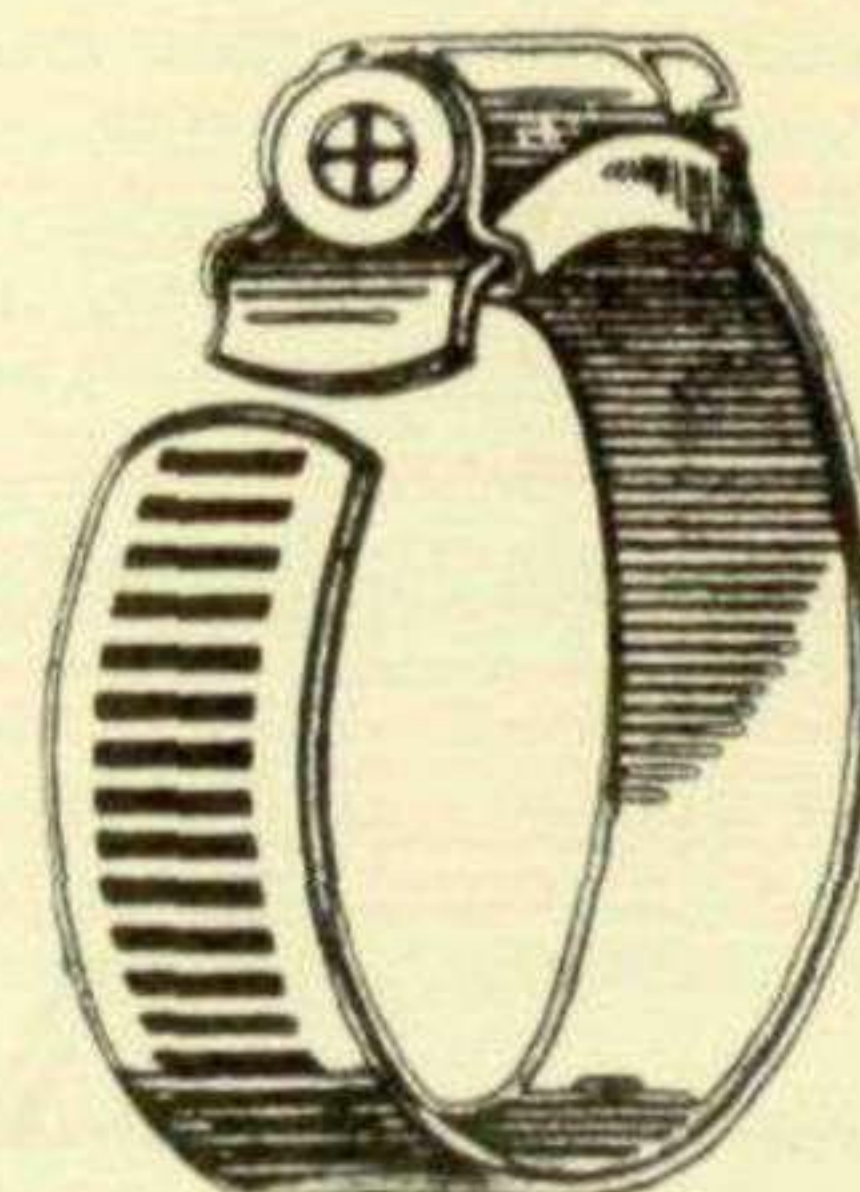
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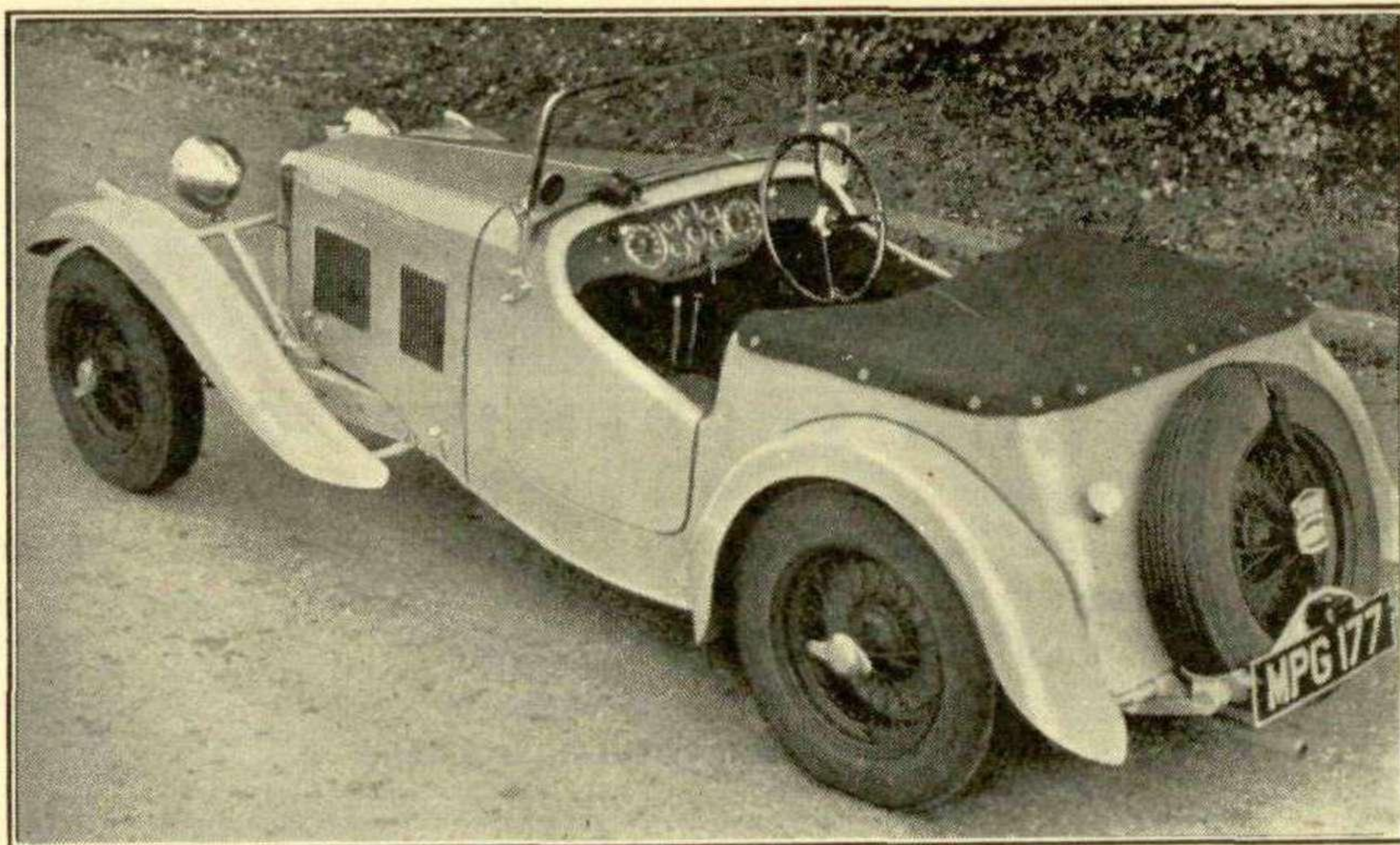
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action beyond the second gear position, adequate safety measure normally, but not entirely foolproof if very hurried, brutal racing-changes are being made. It is not possible to "heel and toe." Normally rapid changes go through very nicely and it is only when ultra-rapid action is sought that our criticisms apply. Actually the lever can be positioned farther back if desired and it is possible to effect a rapid change direct from top to 2nd when required. There is very little gear noise. The clutch is very smooth and positive, but heavy to operate, which the small pedal area emphasises.

Roadholding is of a very high order, materially assisting the driver to maintain high cruising speeds. The car is sprung very solidly, on $\frac{1}{2}$ -elliptic springs damped by friction shock-absorbers at the front and by underslung $\frac{1}{2}$ -elliptic friction and hydraulic damped springs at the back. Indeed, the tyres, at 16 lb./sq. in. pressure, seemed to do most of the work at the front, resulting in some bouncing on bad surfaces and giving rise to the thought that slightly softer springs or smaller section tyres might be an improvement. There is no denying that the ride is a hard one, particularly at low speeds over bad roads, but the car takes this punishment well, and there is not a trace of roll however fast the car is put round corners. Because of this lack of rolling and an almost complete absence of tyre protest, a driver accustomed to modern supple suspension takes some time to appreciate the cornering capabilities of the H.R.G., simply because he eases up, awaiting some sign that the car is approaching its limit of adhesion. In this way he misses the best of the fun. The fact is that the H.R.G. gives no indication, unless it is the mildest rear-end breakaway on a wet, leaf-strewn surface, that it is nearing the limit of its cornering abilities. It just goes round unbelievably fast with no sliding, no roll, no protest. Wet or dry roads make little difference, and once faith has been gained, one flings the car into bends with complete confidence. Very few modern cars can corner as fast. Technicians may argue that soft suspension, permitting considerable wheel deflection, is productive of even faster cornering, other factors being equal, but usually these elusive additional provisos are *not* equal and, in any case, we prefer to corner on a level keel without tyre howl, which, after all, is a characteristic that has endowed the vintage car with one of its greatest charms. Besides its ability to corner so very fast, the H.R.G. is one of those rare cars in which you can flick the steering from side to side without producing the slightest suggestion of canting or disaster.

The steering is high-g geared by all but the starkest standards, asking $1\frac{3}{4}$ turns lock to lock, with a moderate turning circle. Nevertheless, at speed it is remarkably smooth, light steering, with just the right degree of castor action, which, by the way, is adjustable as required. No return motion is transmitted, save when the car is being held round a rough-surfaced fast bend, nor does the column move about to any extent. And, so far as the controversial over- and under-steer is concerned, neither is discernible—the H.R.G. just goes round corners with the minimum of conscious steering. So light is the action that wandering is set up along the straight unless the wheel is gripped



GENUINE SPORTS CAR.—This view of the 1½-litre H.R.G. shows the well-filled instrument panel, easily-detachable front wings, useful "tonneau"-cover and strap-secured spare wheel.

very lightly and accurate placing is not fully attained until the driver becomes accustomed to this light action. It is "spongy" steering in the modern manner, but only about quarter of an inch of free movement at the wheel was evident after 4,000 miles' wear. The suspension and roadholding characteristics can be summed up by remarking that the sense of "life" imparted by the solid springing is not unpleasant and is entirely excused by the complete lack of rolling and the fine roadholding qualities.

The brakes, with 11-in. drums and Bowdenex cable operation, have always called for fairly heavy application, but while this was true of those on the car presented for test, they were also disappointing when crash-stops were tried, retardation fading noticeably when speed had been reduced to about 15 m.p.h. The heavy pressure required proved tiring and detracted from progressive braking and, although attention to the cockpit adjuster, rather inaccessibly placed in front of the driver's seat, made some improvement, the brakes, although adequate for normal main-road motoring, were never really good. A pleasing hiss accompanied light application, but this deteriorated into a squeal under heavier pressure on the pedal. In contrast, the racing-type fly-off hand-brake, if a trifle near the passenger, had a very nice action, held effectively, and proved efficient on gradients.

To the foregoing analytical account of the H.R.G.'s performance and layout characteristics must be added a few miscellaneous observations. The engine starts fairly promptly from stone-cold with use of the mixture control, which can be locked fully-out, or held against a spring, as required, and the car soon pulls away strongly. It never gets very warm, however, water temperature being normally only 60–65 degrees C., rising to 85 degrees C. in prolonged traffic driving, and oil temperature 40–45 degrees C. Oil pressure varies with engine speed, normally showing 40–60 lb/sq. in. The vacuum gauge sits on zero at just over 30 m.p.h. in top gear. Dynamo charge is very reassuring, while at night the

lamps are very good, and the rear number plate is well illuminated. The front-works are reasonably rigid and the bonnet does not flex. The engine dislikes present-day fuel and "pinks" vigorously at quite high throttle openings when accelerating, but as there is no hand-throttle control, the driver can do little to combat it. A hand-throttle would be appreciated. The engine "runs-on" viciously for a while after being switched off.

Apart from such aspects of its specification as hard suspension, centre-lock wheels and set-back radiator, the high gear ratios of the H.R.G. must appeal to the die-hard enthusiast. Top gear is 4.0 to 1, third gear 5.86 to 1, and this must contribute materially, together with the car's modest avoirdupois, to the really excellent fuel economy. Driving either really hard or in spirited fashion through traffic, for a total of 600 miles, we attained 28.9 m.p.g., with no attempt to achieve a warmer engine and hardly any coasting down hills. Driving more quietly 35 m.p.g. is attainable, and with special needles in the S.U.s this figure can be attained even with liberal use of the throttle. Indeed, driving carefully, but still using adequate acceleration, we covered 18 miles on half a gallon, bringing the overall consumption to 32.3 m.p.g. In the course of this 600-mile test no water and one quart of oil was required, nothing was done save to tighten the ball joint of the rear-view mirror, which had worked loose over South-East London's appalling roads, and the only defect was failure of the ignition warning light, and the breakage, through crystallisation of a hood-securing peg.

Regarding the H.R.G. as a whole, its many good features blend to make it a very pleasing car indeed and one equally at home on a shopping expedition as when averaging 50 m.p.h. on a long journey. As an enthusiast's car, able to get through towns unobtrusively in a smooth willing manner and to cruise at 70 m.p.h. or more on the open road on 1½ litres, it is an irresistible proposition. But when you consider that it is suitable for all forms of competition work, has, indeed, a fine record in trials, sprints,

Continued on page 11


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★ Allard 2-Seater being driven by L. Potter and C. A. N. May in the Alpine Rally 1948. Photograph by courtesy of the 'Motor'

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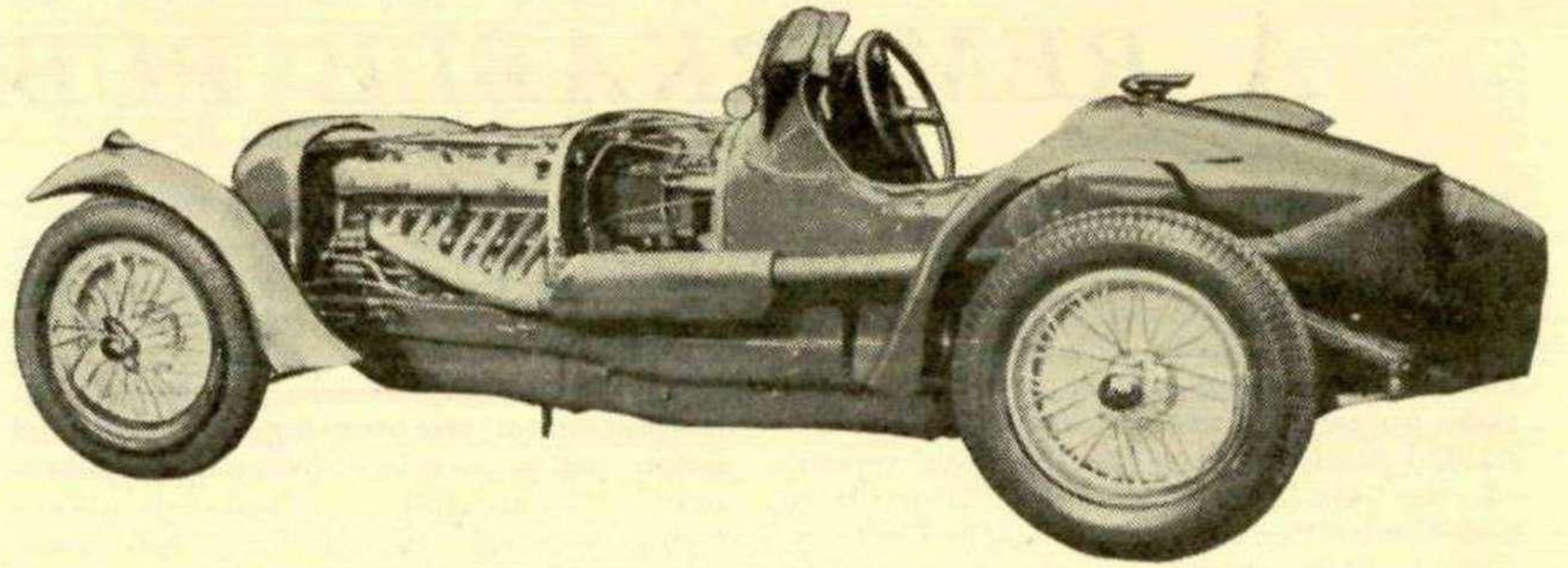
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A Taste of the Real Thing



THE REAL THING.—The supercharged 2.9-litre straight-eight Maserati in the trim in which we tried it on the road.

REALLY fast and exciting cars are apt to be exceptionally thirsty, so that in this age of austerity MOTOR SPORT gets fewer opportunities for sampling them than was once the case. Consequently, when Mr. R. Dutt, of Prima Motors, suggested a run in a supercharged 2.9-litre Maserati two-seater we accepted with alacrity, conscious that for too long we had driven all too few really satisfying motor-cars.

Quite which car was being presented was—and remains—something of a problem, despite the very few sports-equipped Maseratis in this country. Crampton is known to possess a very choice "2.9," while just before the war we spent a distinctly damp day at Brooklands putting the watch on a similar car owned by Lt. Torin, R.N. This latter car was reputed to have been dismantled and the components stored at a London garage during hostilities. There seemed a strong possibility that the car Dutt proposed to introduce to us was, in fact, the ex-Torin Maserati. It was a very stark two-seater with the same style of quite-generous fixed cycle-type wings and the same type of radiator cowl. True, the car with which we were confronted had a small rev-counter in what looked to be the original location in place of the large affair favoured by Torin, while small but very effective headlamps were found, whereas the Torin car had normal lamps. But such changes could easily have resulted during re-assembly, and the car had certainly been registered, commanding the £10 annual tax. Whatever this present car's history it was unquestionably a very intriguing road car, which looked, sounded and smelt very good to us.

The engine was the familiar twin o.h.c. straight-eight Maserati unit, businesslike rather than showy, with a Roots supercharger sucking from a carburetter on the near side. A starter at the rear on the near side operated on a flywheel ring, the battery being centrally placed under the scuttle, while the dynamo drove the magneto on the off side. Equipment consisted of the aforementioned sturdy wings, those at the rear with a decidedly sporting flare, the lamps, a horn actuated by a push-button set centrally beneath the scuttle cowl and two aero screens, but, at the moment, no hood. Not that one would ever erect it, had it been there! Nor were there doors, the cockpit being distinctly a 1½-seater. The wheel came more than into one's lap, the rigid central gear-lever moved decisively with almost a heavy action and short travel, yet as quickly as one could push it about; the pedals, with accelerator central, were close set, but not dangerously so, and the ratchet-less handbrake was outside the car.

At first we had some bother with starting the machinery, but transference of the rather wet plugs to a domestic gas-oven and subsequent vigorous towing behind a long-suffering Standard Fourteen did the trick. We had planned to repair to the Denham By-Pass for our motoring, but starting operations rather delayed matters and the return of the previous day's fog, together with slow-moving traffic, a woman in white shirt-sleeves conducting infants across the highway, restive horses and a bicycling policeman rather hampered operations still further.

However, after Dutt had shown us how and attained 4,000 r.p.m. in top past his girl-friend and the parked Standard, we took off a rain-coat in order to get into the driving seat and proceeded to discover how badly out of practice we were. For this Maserati is a real motor-car and demands to be treated like one! The revs. rise like lightning to 4,000 r.p.m. or more in the gears, the upward changes—or downward for that matter—going through most satisfactorily. The acceleration, too, is most inspiring and, getting into top at around 4,500 r.p.m., the engine noise is dominated by a truly joyful wowl of the straight-cut rear axle gears, which ceases the moment one lifts one's throttle foot, returning, as one opens-up again, as if to encourage more and more throttle, for it is a grand sound. The steering is high-g geared and calls for considerable concentration, a certain chassis-flexibility for'ard making really fast cornering sometimes hectic—perhaps more the car for Prescott than for Shelsley Walsh. The hydraulic brakes, with separate master-cylinder front and back, could be stamped-on and were effective. But, although this was real motoring and no mistake, the Maserati, taxed, by the way, for road use, was unexpectedly trustable, coming down to 1,000 r.p.m. or less in top gear without protest and not calling for particularly careful attention in keeping up the revs. when one was turning the car—that is, if long flickers of yellow flame from the fan-tail didn't alarm; otherwise some throttle was desirable to "put out the fire." Those who saw Whitney Straight's car in action will recall this feature, although it was discovered subsequently that we had almost straight-benzole in the tank in place of the intended 50/50 mixture, which probably accentuated the fire-work display, and could explain the lack of enthusiasm for starting.

The Maserati gave no trouble, apart

from a tendency for second gear to jump out at high r.p.m., during our all too brief experience of it, and we put it away with reluctance.

The boost gauge registered up to about 5 lb./sq. in. and fuel pressure needed no attention when the engine was running, while the hand air pump is properly built into the fascia and not hung on as an afterthought. Incidentally, reverse gear is selected by a tiny lever to the left of the gearbox, after the main lever has been put in neutral. A good deal of oil collected about the gearbox, but one doesn't drive a car like this in nylons. The oil-tank for the dry-sump lubrication system lives under the seats. The car was shod with racing Dunlop tyres, 19 by 5.25 on the front, 19 by 6.00 on the back wheels.

A check proved the gear ratios to be approximately: 1st: 8 to 1; 2nd: 5.9 to 1; 3rd: 6 to 1; top: 3.6 to 1; calculation showed that during his drive Dutt had achieved 103-104 m.p.h., while your Editor had contented himself with slightly over 90 m.p.h. In third gear approximately 83 m.p.h. had been attained. Certainly, whoever is the next owner of this Maserati will possess a very real motor car.

ROAD TEST—continued from page 9

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races and rallies, and is an eminently practical car for town work, business travel, or for the wife to use as the daily hack, the modern H.R.G. commands respect over and above its role of exhilarating sports car. Its economy is not the least of its charms, and it is not surprising that this car, made to a good, sound, and in some respects old-fashioned formula, has such an enthusiastic clientele. This H.R.G. is an ideal proposition for those fortunate people who still derive enjoyment from motoring providing the car they drive embodies certain well-defined items of specification and is free from the stigma of noise and temperament. In those countries where a strong cult for British sports cars exists, the H.R.G. merits careful consideration, constituting as it does about the only "real motor car," in rather the vintage sense of that complimentary term, made in this country to-day. The 1½-litre two-seater costs £850, which purchase tax increases to £1,086 17s. 3d. A 1,100-c.c. version of this individualistic car is also available, at a basic price of £785.—W. B.

A REMARKABLE PUBLICATION

THAT a Government department should issue a publication, copiously illustrated and covering 141 large pages, dealing with racing cars, is pretty staggering—certainly it is the first time this has happened and is, let us hope, a good augury for the future. The above-named publication is the technical report of the British Intelligence Objectives Sub-Committee inquiring into the German Grand Prix motor-racing teams, by Cameron C. Earl, who interrogated Herr Uhlenhaut and Director Wagner of Mercedes-Benz, Director Werner and Professor Eberan V. Eberhorst of Auto-Union, and Herr Hubenor of Continental Tyres.

The report is truly absorbing and brings to light many hitherto unrevealed aspects of this great period in motor-racing history. For instance, the cost of racing to the German firms is revealed—Mercedes-Benz and Auto-Union spent approximately £209,000 each per annum and received a State grant, authorised by Hitler, of £41,600 each. Auto-Union apparently hoped to race on this grant, but it is believed that additional armament contracts were given to the builders of successful racing cars, this possibly encouraging Auto-Union to continue in spite of their annual discrepancy of £167,400. Mercedes-Benz decided to race for purposes of prestige, probably egged-on by the knowledge that Auto-Union had purchased the P-Wagen design of Dr. Porsche.

Dr. Hans Nibel and Director Wagner, from Benz, led the design team which evolved the straight-eight Type M25 3.36-litre Mercedes-Benz, which was increased to 3.99 litres (M25B) before the end of 1934. After Nibel's death Dr. Rohr modified the design but controllability proved inadequate in both forms. So the straight-eight Type M125 5.66-litre car was designed. In 1937, at Spa, it was timed at 193 m.p.h., which the B.I.O.S. says is the highest speed ever recorded in a road race. Wagner and Uhlenhaut were responsible for the Type M154 V12 3-litre for the new 1938 Formula, which was developed (as the M163), and in 1938 the 1½-litre V8 Type M165 was designed. Auto-Union bought the 1933 P-Wagen after it had proved able to lap a specified circuit at over 120 m.p.h. Werner directed operations and Porsche joined Auto-Union, the first type being the 4.25-litre V16. Eberan was in charge of racing-engine work, and in 1935 the size went up to 5 litres, and in 1937 to 6, then to 6½ litres. In 1938 6-litre sprint cars were evolved, and for the 1938 Formula a 3-litre V12 was produced. Eberan began work on a 1½-litre V12 engine in 1939 but the car itself was never built. [The actual engine sizes and sequence do not tally exactly with former accounts of Auto-Union development.—Ed.]

The B.I.O.S. report gives a detailed account of the technical features of all these classic racing cars, quotes the views of the rival concerns on front *versus* rear engines and other matters, and details some of the development and design problems in the cars involved.

It is most interesting to learn that Mercedes could not use a compression-ratio higher than 7.5 to 1 because their cylinder construction invited joint failure, and piston crowns also collapsed. Their S.K.F. split-roller bearings suffered disintegration of the duralumin cages, and piston rings needed frequent replacement. Incidentally, high-speed photography assisted analysis of cam forms and valve springs. Apparently Auto-Union did far more bench-testing than Mercedes, the latter's engines breaking up if run at full throttle sufficiently long for figures to be logged. The complicated D.B. carburetter was used by Mercedes only because the British S.U. was not available in Germany. Roots blowers were favoured because vane-type compressors seized their vanes. Had war not put an end to racing, future development would have been concerned with V12 or V16 engines running at 10,000 to 12,000 r.p.m., possibly using Wankel rotary valves. Only the Type M165 ran at a decently low temperature.

(“INVESTIGATION INTO THE DEVELOPMENT OF GERMAN GRAND PRIX RACING CARS BETWEEN 1934 AND 1939, INCLUDING A DESCRIPTION OF THE MERCEDES WORLD'S LAND SPEED RECORD CONTENDER.” *B.I.O.S. Final Report No. 1755, Item No. 19, H.M.S.O., 25s.*)

It is remarkable that both Mercedes and Auto-Union avoided the adoption of any feature, even though technically superior, normally associated by the public with their rival organisation—which is possibly why Mercedes eschewed Porsche suspension. Uhlenhaut disliked friction shock-absorbers and when he took over, after the 1936 season, specified double-acting hydraulics. From 1934 onwards Lockheed hydraulic brakes were used.

Auto-Union employed higher supercharger pressures and compression ratios than Mercedes and got more power out of their 3-litre. They, too, experimented with rotary valves and vane-type superchargers, having considerable success with the latter.

Whereas Mercedes made racing components in their main machine shop, under absolute priority, and had drawings made in the main drawing office, Auto-Union had a self-contained racing organisation, sadly lacking in funds, however. During a season Mercedes had 220 men, including two teams of 25 racing mechanics, in the experimental shop, and 1½-litre development fully occupied eight or ten draughtsmen for three to four months. In 1939 Mercedes-Benz possessed ten M163 cars with ten spare engines, and two M165s with three spare engines. Eight large diesel lorries, one equipped as a mobile workshop, and a supercharged lorry for fetching urgently-needed spares, were employed, and to each race went the team, a reserve car, a practice car and several spare engines. The practice car incorporated any experimental features needing

test. A doctor was shared jointly by Mercedes-Benz and Auto-Union, and specialists from Continental and Shell accompanied the teams; the former did the tyre wear and temperature tests, *not* the car personnel, nor were carburetter settings varied to suit atmospheric conditions.

Auto-Union could only afford 200 men in the racing shops and a foreman, and three mechanics to accompany each car to a race. One reserve car and one or two spare engines went also, but no practice car; the workshop lorry was far less elaborate than Mercedes, but four reserve cars were kept at the works. The workshop was at Chemnitz, under Dr. Seibler and four specialist engineers, and Eberan had two racing engineers under him at Zwickau, Saxonia.

This B.I.O.S. report gives an immense amount of data on the cars, including suspension details, valve timing and fuel mixtures. It is well worth its high price to keen engineers and anyone engaged in designing or building a racing-car or sprint “special”; indeed, it should be purchased by everyone who can afford it—in this way officialdom may be rewarded for issuing this absorbing publication on motor-racing. Specifications are given for each of the Mercedes-Benz types and for the 3-litre Auto-Union; b.h.p. and other figures differ slightly from those quoted elsewhere by such authorities as Pomeroy, Monkhouse and Jenkinson, but as several obvious lapses on the part of Government typists were not corrected before the pages were photostatted, it may be that some of the figures have suffered at their hands.

Space forbids further quotations from this intriguing report, but, as the 1½-litre Mercedes-Benz tallies in size with present-day Formula I cars and points to what our B.R.M. must surpass, some facts relating to it are worthy of study—remember, however, that the Type 158 Alfa-Romeo is a more advanced car. A scaled-down M163, it gave 278 b.h.p. at 8,250 r.p.m. with a two-stage Roots blower running at 1.25 times engine speed and blowing at 2.6 A.T.A., and a 6.99 to 1 compression ratio. 18-mm. plugs, 100 per cent. glycol cooling pressurised at 1.5 A.T.A., and a 6-mm. inlet valve lift were employed. Oil and water temperatures were 85 deg. C. There were four valves per cylinder, inclined at 56 deg., and 12 litres of oil were carried. The brakes were lined with Iurid BA (similar to Ferodo 9) and had 3.5 per cent. nickel drums with alloy fins. Their diameter was 12½ in., width 2½ in. 6.00-17 rear and 5.00-17 front tyres were used; the wheelbase was 8 ft. 0½ in., and with driver and 55 gallons of fuel the total weight was 17½ cwt., distributed 46.7 per cent. front, 53.3 rear. With Tripoli ratios, speeds at 8,000 r.p.m. were equivalent to 56, 97, 115, 146 and 170 m.p.h., respectively, in the five gears provided.—W.B.

Friary Motors, Ltd., state that by mutual agreement it has been decided that they will not be distributors of the new Aston-Martin as had been hitherto announced. They will, however, continue to handle service and all spares for the pre-war models.

RUMBLINGS

The warmest congratulations are due to Ken Wharton, in winning this year's R.A.C. British Trials-Drivers' Championship.

Trials Champion

Naturally, much interest attaches to the Ford Ten-engined car with which he won this honour and here is a brief description of it:—

The engine is standard save for two S.U. carburettors, a compression-ratio of 7 to 1, and stronger valve springs, and is computed to give about 38 b.h.p. To it is mated a Ford Eight gearbox, while the transmission, rear wheels and, indeed, the chassis, are Austin Seven. The back axle ratio is 5.25 to 1 and 5.50 by 16 tyres are fitted on the rear wheels, the Ford front wheels carrying 4.50 by 17 tyres. Front suspension, it is interesting to note, is by a normal Ford front axle and transverse spring—no i.f.s. here—and the steering is coupled to the Ford arrangements *via* a Marles box and Austin Seven column. Austin Seven friction shock-absorbers and a 5 gallon fuel tank are used, feed being by A.C. pump.

The tiny radiator came from the Wharton sprint car but a large header tank supplements it. The body is of 20-gauge aluminium alloy sheet, strengthened half-shafts are a precaution in the rear axle, and 2 cwt. of ballast is carried behind the seats. The brakes are Girling, normally applied by a fly-off external hand-lever. This Wharton Special emphasises, once again, the beauty of the high power/weight ratio formula for, although it has been built for trials motoring, in which sphere it has been overwhelmingly successful, and is consequently low-g geared, it contrives to achieve rather more than 70 m.p.h. on the road and around 45 m.p.g. at its habitual cruising speed of 60–65 m.p.h. Verb. sap.—or something!

* * *

Regular readers of *MOTOR SPORT* know that we believe the really lightweight 1,100-c.c. car, offering brisk performance with notable economy of fuel and tyres, has an assured future, especially if its components

Another Ford Special

are of a popular proprietary make, ensuring reliability and world-wide service facilities.

In this category is C. D. F. Buckler's Buckler, which appeared in competition events about September, 1947, and which has since achieved, if not sensational, certainly quite creditable results. For instance, in racing, the Buckler, with unblown Ford Ten engine, ran non-stop through this year's I.O.M. Manx Cup Race, and, although it finished last, it did contrive to average 50.7 m.p.h., while using less than two gallons of fuel, i.e., 30 m.p.g., and only a quarter of a pint of oil. At Goodwood it ran in one event and came in fifth out of eleven starters.

In sprint events the Buckler ran at ten 1948 meetings, gaining third place in its class at Great Auclum, a second place at Boscombe and first place in the up-to-2-litres Special Sports-Car Class at Lytchett Manor. Incidentally, at Brighton, running in the racing category, Buckler averaged 58.87 m.p.h. over the s.s. kilometre. At Prescott the car was first in the Handicap Class at the June Meeting and third in the 1½-litre non-supercharged Sports-Car Class at the September Meeting.

Coming to trials, a dozen events had been entered for, up to the time when we decided to go down to Reading, where Buckler has an extensive engineering works, to learn something of this interesting car. In these twelve trials a Second-Class Award was won in the 1947 M.C.C. Sporting Trial, a Third-Class Award in this trial last year, while the M.C.C. Award fell to Buckler's modest "Special" in the 1948 High Peak Trial, he secured the Hants and Berks Award in the Hunt Cup event, a Second-Class Award in the Cottingham and won the Bossingham Cup last November. Not a bad record, in a versatile list of events.

Basically, the Buckler is Ford Ten, but it has a combined chassis and body framework built up of welded 1½-in. diameter 16- and 18-gauge steel tubing, of 45 tons tensile. This construction is slightly heavier than the Ford chassis, but is exceptionally rigid. This new frame has four cross-members at body-level, besides retaining cut-down Ford cross-members to carry front and rear spring mountings and the normal Ford cross-member to take the rear engine mountings. The rigidity which results can be imagined. The standard track of 3 ft. 9 in. and wheelbase of 7 ft. 6 in. are retained and the Ford Ten engine and rear axle unit with standard torque tube drop into place without modification. The gearbox is standard Ford Ten,

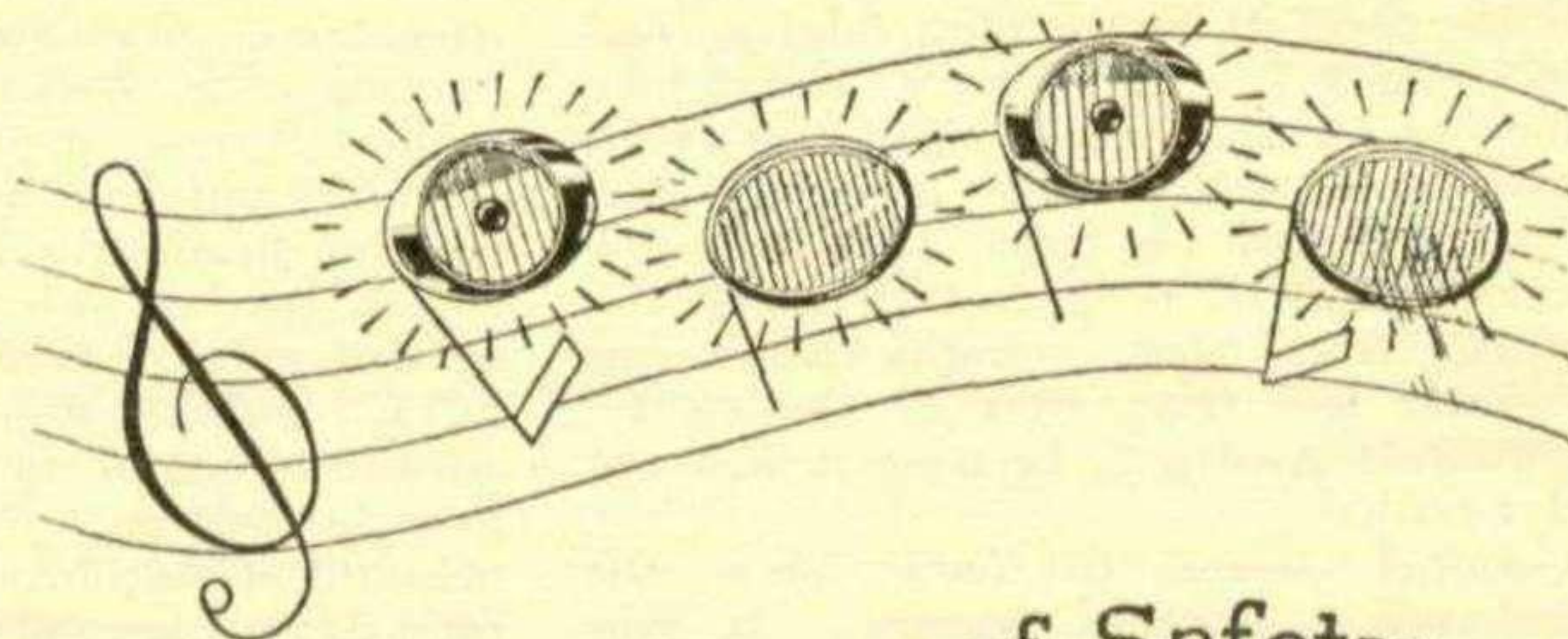
although a special box with a high-top gear in place of the normal second gear was used for the Manx Cup Race. The standard 5.5 to 1 rear-axle ratio is likewise retained, tyre sizes being varied to suit a given competition event. When we tried the car it had 4.00–17 front and 5.75–16 rear tyres.

The engine, too, is virtually standard, with polished but not enlarged ports, although the compression ratio is up to 7.6 to 1. Standard carburettor settings, manifold and coil ignition are employed. Even the valve springs are normal because the breathing limitations of the Ford Ten engine restrict the rev. limit to a few hundred r.p.m. above the speed at which valve float sets in with single springs, so that the benefit of double springs is negated and the increased stress set up in the valve gear is not deemed worth while.

A simple remote gear-change has been contrived, using a track-rod-end ball joint and rigid rods; the normal gear positions are retained. A new radiator, holding 2½ gallons of water, is located *behind* the engine, thus improving weight distribution and assisting in reduction of frontal area. A fan is dispensed with. A 6½-gallon triangulated fuel tank is located over the back axle and this tank is cut away on the near side to provide a niche for the battery. The silencer is Ford, but a Servais is soon to be fitted, because its oval shape improves ground clearance. A simple two-seater door-less light-alloy body is used, the wheels are Ford, the brakes are Ford-Girling, in fact, there is virtually nothing about the car which cannot easily be replaced.

We were told that the weight of the Buckler stripped for the I.O.M. race was under 10 cwt., and that with strip wings, passengers' aero screen and lamps this increases to about 10½ cwt. To keep so light a car on the road is no easy task, and it is interesting that in the I.O.M. the Buckler used a normal Ford front axle and spring, the latter softened by the removal of some of the leaves and damped by a pair of Newton shock-absorber

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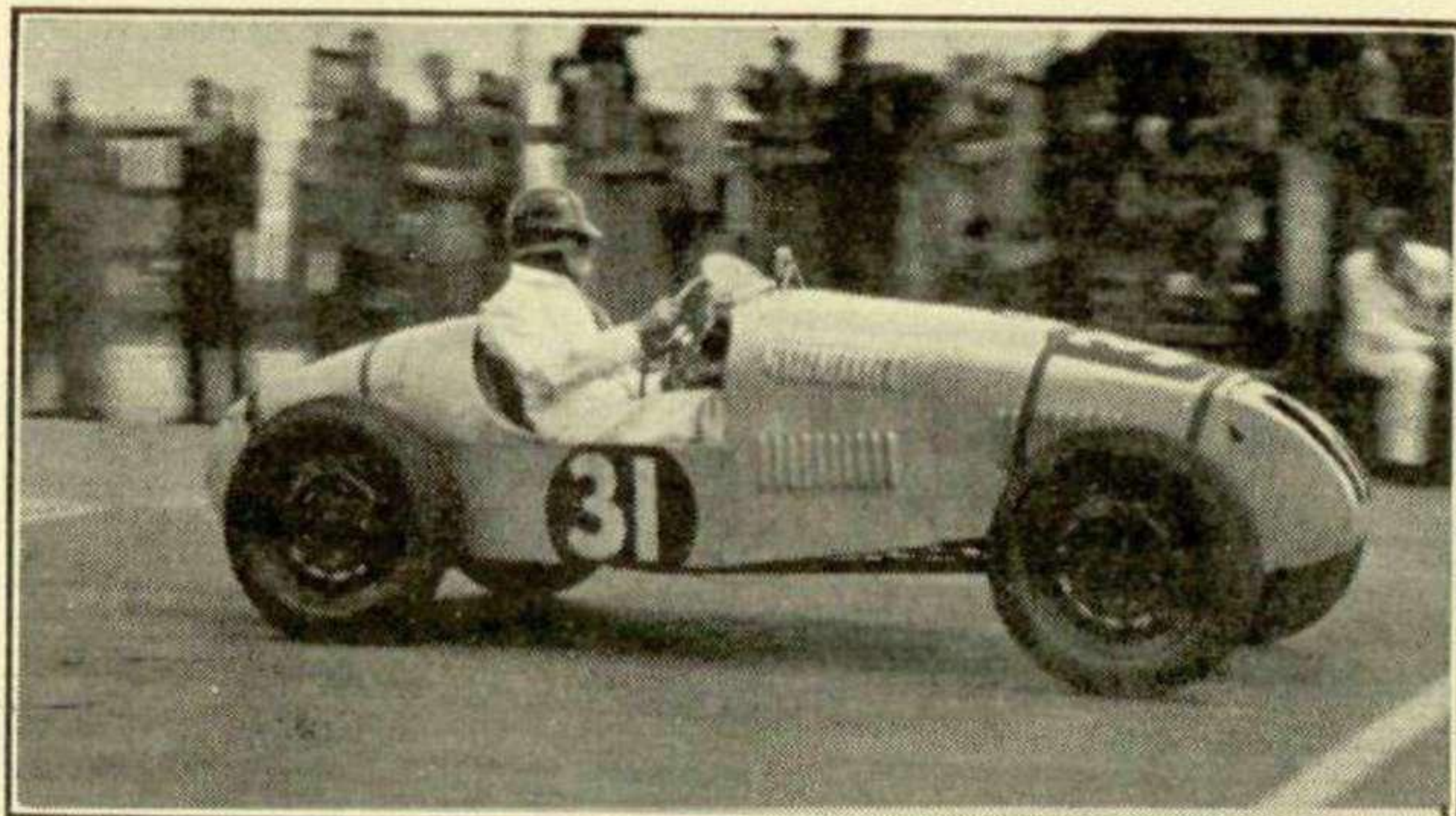
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[Photo by L. Klemantaski

FORD-BASE SPECIAL.—The Ford Ten-engined Buckler is here seen crossing the line in last year's I.O.M. Manx Cup Race, driven by its owner and creator, C. D. F. Buckler.

struts. The rear spring was also softened in like manner. Some time later independent suspension was introduced by the popular expedient of adopting a split-axle, the same spring being used and the shock absorbers deleted.

VINTAGE MOTOR-CYCLES

—continued from page 18
finish, and provision of grease-gun lubrication. The Connaught seems to have been one of the better inexpensive motor-cycles.

The last two mounts to come up for trial in 1925 were Americans. The first was a 4-cylinder Henderson, actually a 1926 model, for the year was drawing to a close. Radclyffe remarked that he had never contemplated buying a second-hand Henderson himself, he supposed because of unsporting appearance and, perhaps, complication as an unalaid ghost in the background. Brought face-to-face with a Henderson combination, he readily admitted that the lines, if not sporting, were excellent and compact and the comfort factor high (and he had seen semi-T.T. 'bars on a Henderson before now), that the weight, although considerable, was actually less than that of one English big-twin, that the low saddle permitted both feet to reach the ground, and that complication was obviously less than that of the easily-maintained Austin 7, because it was not water-cooled.

Comfort seems to have been the Henderson's greatest feature. It was possible, both solo and sidecar, to negotiate a really fearful piece of road, in daylight and at night, all-out, without the rider or sidecar occupant noticing the bumps. On its balloon tyres the Henderson remained absolutely controllable, and our tester failed to recall having been astride a more luxurious motor-cycle. So far as urge went in those days Alms Hill had not been closed and the Henderson went up it, *mit* large touring sidecar, heavily-loaded, accelerating in bottom on the steepest position and taking second gear above the Cannons. This with the exhaust baffle shut, making conversation possible between rider and passenger—with the baffle open a nice Bentley note was emitted. The descent of Alms was not so good and the help of three stalwart Oxonians was needed to lower the big machine over the worst part, because the rear braking wasn't adequate with the sidecar attached; there was no front

brake. Actually the brakes, of sensible diameter and easily operated, were quite sufficient solo and the internal-expanding one incorporated a ratchet in the pedal gear, described as useful in places like Guildford High Street.

The machine tested had sidecar ratios, yet would pull away in top from a standstill. Accessibility was found to be very good and overheating not present, the lubrication system working well, and the dark blue finish with yellow wheels was praised. The test was supplemented by some notes by F. J. R. Heath, who had had extensive experience of the solo version. This owner had fitted fork dampers, high-pressure tyres and a steering damper, the h.p. tyres being considered more suitable for trials, but making the forks, lively even with balloon tyres, apt to permit bouncing. In 5,000 miles no adjustments to wheels, steering head, spiral-bevel primary drive, clutch, gearbox or helical timing gears were needed, only the final chain drive and brake adjustments needing occasional attention, while the engine ran 4,000 miles between decarbonisation. A 1924 fully-equipped solo did 86 m.p.h. and climbed Alms Hill on a 5½ to 1 second gear. It would cruise all day at 50-55 m.p.h. at 55 m.p.g., higher speed reducing consumption to 40 m.p.g. Oil consumption could be regulated indefinitely, and the 5½ pints drained at anything from 1,000 to 3,000 miles. Front tyres lasted 12,000 miles, back ones 5,000 miles, trials included. The engine was so flexible, the lack of a hand-clutch control was never noticed and on a 4¼ to 1 top gear 30-60 m.p.h. occupied 7½ sec. Normal top was 3½ to 1 and an 8¼ to 1 bottom gear was ample for scrambles and 7½ to 1 for trials. So much for the Henderson.

The last machine we have space to deal with in this instalment was an Indian "Scout." After paying due tribute to the Indian models, the old single-gear, the Red Indian, Blue Indian, Powerplus, Scout and Chief and remarking that to own one of the old Red Indians was in its day equivalent to 1925 ownership of an aeroplane, largely due to the bite given by the Schebler

A brief drive in the Buckler confirmed the excellent road-holding, front wheels moving appreciably over rough surfaces and riding easily over obstacles, but permitting no trace of pitching, while the rear suspension likewise permitted no rolling however fast the car was cornered. The ride was remarkably comfortable for a 10-cwt. car, the brakes were extremely powerful, and something like 45 m.p.h. in second gear and over 70 m.p.h. in top gear, were available. The simple fascia carried a Ford speedometer, two thermometers and the usual switches, and forward visibility was excellent. Two bucket seats are used with a useful grab-handle or "bumping-bar" (for trials going) before the passenger's. The engine, controlled by a well-drilled treadle accelerator, had a pleasant sound, almost as if supercharged, when really working and refused to "pink" on the ignition setting used. Acceleration from a standstill was slightly inferior to that of the o.h.c. 1½-litre sports car which we pitted against the Buckler, but over wet, winding roads the latter proved the faster car. In top gear, on the "pink-free" ignition setting employed, a Tapley reading of 250 lb. per ton was recorded, and 440 lb. per ton in second gear. The light weight of the car naturally results in the much-sought-after fuel economy, 40 or even 45 m.p.g. being realised in road motoring, and these figures never dropping to less than 30 under hard-driving competition conditions.

All in all, the Buckler is the sort of sports car which many present-day enthusiasts crave.

carburetter, Radclyffe turned to the 1926 Scout. The only criticisms he found were the badly-located gear-lever, cured by bending it forward, the indefinite second-gear position, the aesthetically unhappy electric-horn mounting, exhaust-lifter and aluminium silencer and the aurally-disturbing crackle of the starter segment returning to normal position.

The double-tube frame was famous for its strength; Radclyffe's own Indian combination crashed into a six-foot ditch one night, bending its forks 40 degrees out of true, but not damaging its frame, which was still in use. Mudguards and chainguarding were equally stout, and the off-side chain location made removal easy, with a sidecar attached. The adjustable front springing made it possible to eliminate fore and aft motion when balloon tyres were fitted. The tank held 2½ gallons of fuel and 2½ quarts of oil, lubrication being by mechanical means, supplemented by the usual hand pump. The 596-c.c. engine had enclosed side valves, detachable heads, a Splitdorf magneto giving a good spark at 35 r.p.m. for easy starting, helical primary drive, now far quieter than on earlier models, and a belt-drive dynamo. The English version of the Scout had soft sports bars, easily bent to the desired position, and with enclosed control wires. Comfort was of a really high order, and cruising speed 50-55 m.p.h. all day, while with a loaded sidecar a kilometre was covered on Brooklands at 65 m.p.h. The sweet top-gear pulling was not quite so evident as in the older models, but the acceleration possible with the foot clutch, Schebler carburetter and a right-hand free to operate the gear-lever, was delightful and overcame the snags of this type of clutch. Steering and stability were outstanding, the steering damper being needed only with an empty sidecar. The rear channel-section stand allowed an easy pull-up, but might have been cranked a little to give a downward slope. The electrics worked well, and without them this Indian cost £72 10s; in the States the model was never sold without lighting.

(To be continued as space permits.)

THE SPORT IN NEW ZEALAND . . .

Sprint Experiences With Two "12/50" Alvis Cars

by

G. Easterbrook-Smith

AMONG the classic vintage quartet of Bentley, Vauxhall, Frazer-Nash and Alvis, the "12/50" Alvis is predominant as the poor man's sports car, both initial and running costs being far lower than for Bentleys and Vauxhalls, while its conventionality makes it a more practical proposition than the Frazer-Nash.

It was with these ideas in mind that I purchased my first "12/50" in January, 1944—a 1926 TE that had been dealt with to the extent of a chassis shortened to 8 ft. 6 in., plus a pointed-tail two-seater body of rather "12/60" aspect.

When purchased the car was in a deplorable condition and it occupied a year of spare-time labour to restore it to decent order. Apparently some major internal catastrophe had occurred at some stage of a very chequered career, as the crankshaft and one con.-rod were twisted, all bearings badly worn, and two main bearing caps cracked, cylinder bores deeply scored, etc. I was fortunate in securing a crankshaft, bearings and a set of rods in good condition and had the block bored out 0.070 in. to remove the scores. Pistons were the next worry, but after a lot of searching I located a very nice set of Essex pistons, which gave a compression ratio of 6.3 to 1 with a 3/32 in. compression plate at the base of the block.

Pistons were carefully balanced, as were small-ends and big-ends, and bearing in mind stories I had heard of the tendency of gudgeon-pin pinch bolts to break, I used 100-ton-steel replacements. The combined inlet/exhaust manifold did not appeal to me, so I sawed the inlet portion off and made up a down-draught manifold from steel tubing, with right-angle corners and buffer ends, a 35-mm. type 20B American Zenith carburetter being used. This instrument gave an overall fuel consumption of 30 m.p.g., with a complete absence of flat spots, and was very easily tuned.

Chassis work was confined to a general clean-up, the replacement of a twisted half-shaft, new thrust washers to replace completely non-existent ones in the differential assembly and a brake and

clutch reline. A new instrument panel was made up out of half-inch plywood, incorporating rev.-counter, oil temperature gauge and fuel pressure gauge as extra instruments. An Autopulse fuel pump was fitted and proved completely reliable. Cycle-type guards and a coat of black enamel completed the good work and I had a "12/50" Alvis in very reasonable condition. All this work had been interrupted by an overseas tour in the R.N.Z.A.F., although before my departure I had one run in an N.Z.S.C.C. hill-climb, with pleasing results.

On my return to New Zealand I settled down to preparation for the first Paekakariki Hill-Climb, but in final tests on a local straight, I took half a tooth off the third-gear pinion as the result of a particularly ham-handed gear change. No excuse, as the Alvis gear change is delightfully simple! This prevented my competing in the event, but I managed to obtain another pinion and was able to run in the 1946 Standing Quarter Mile contest. Here again, cockpit trouble intervened, possibly as the result of rising from the sick bed to compete, and I completely bungled my gear changes, resulting in times best left unquoted.

While not losing faith in the car, I was beginning to lose faith in my own ability, so made a special effort for the 1947 Paekakariki Hill-Climb. The car was very carefully prepared, and lightened as much as possible, and in order to do without the battery I ran with a quart tank mounted on the scuttle, necessitating discarding the bonnet. Eighty-seven octane fuel and K.L.G. M60 plugs proved very satisfactory.

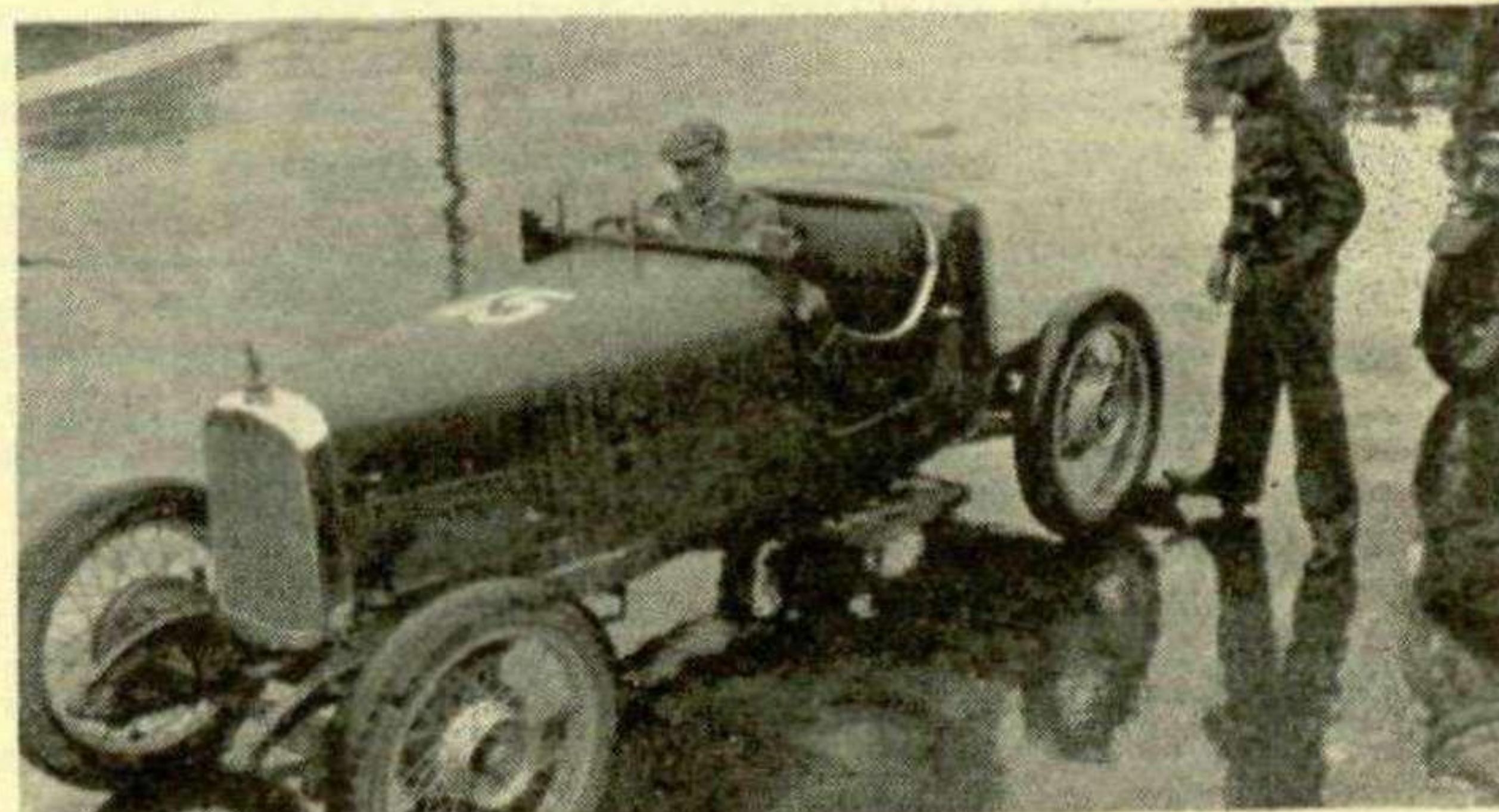
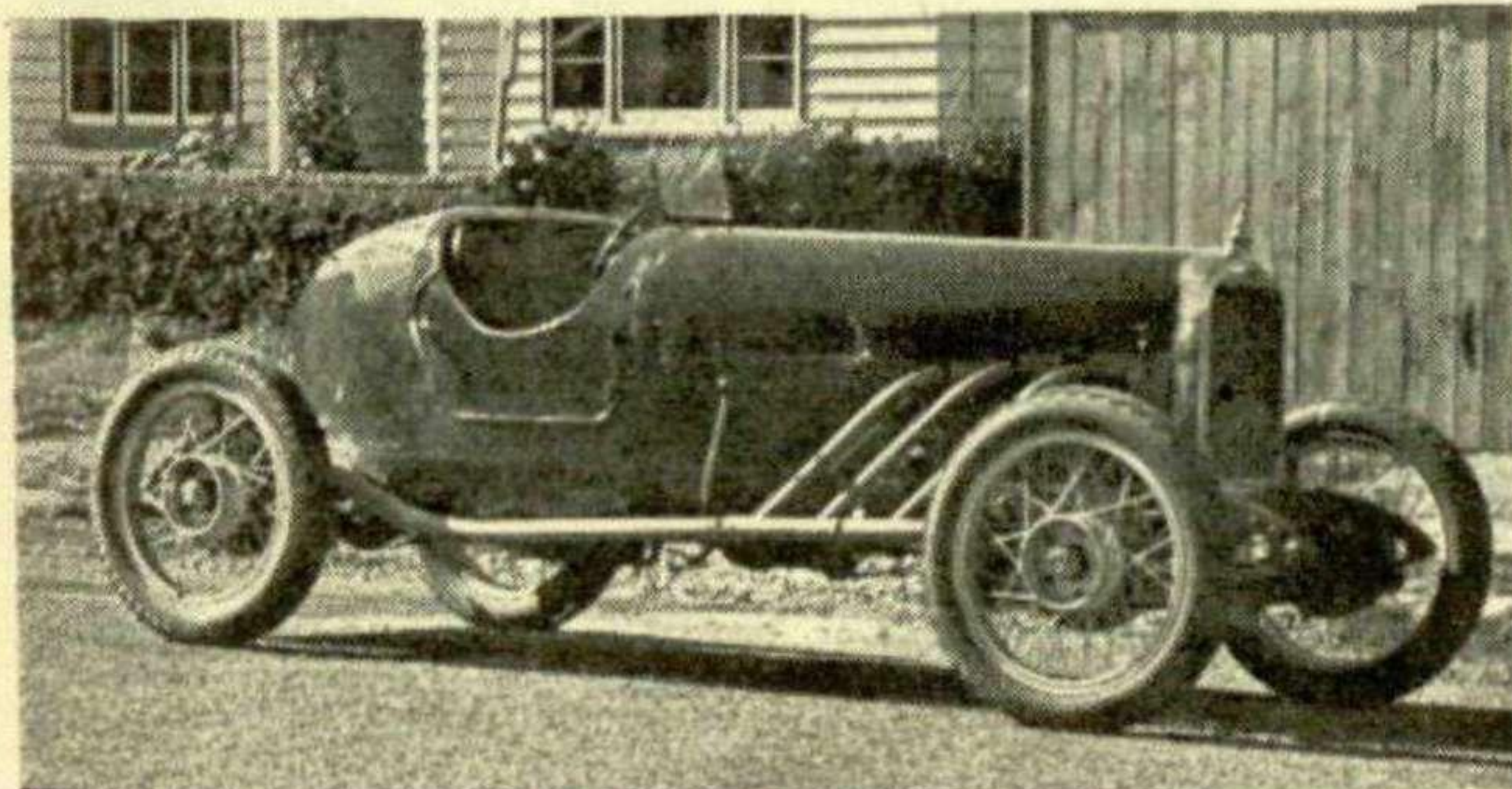
Due to the usual difficulty in finding a suitable road for carburetter tuning, the mixture was too weak on my first run, resulting in a time of 3 min. 22 sec. for the 2.1 mile climb, but, after adjustment, I

succeeded in doing 3 min. 2.4 sec. on my second run, fast enough to win the 1,500-3,000-c.c. Class and make fifth fastest time of the day, and as I beat the V8s I was particularly happy about it.

In between competition-work the car was used as a normal family hack, and while providing rather cramped quarters for a wife and two children, was in other respects quite satisfactory, although I always felt that the springing was harder than necessary. Finally, I sold the car with the idea of purchasing something a little more roomy, but after inspecting and trying a succession of depressingly low-g geared semi-moderns, in desperation I bought another "12/50."

This car, which started life as a 1925 SC with aluminium two-seater "duck's-back" body, had a racing history extending as far back as 1927, when I believe it won the New Zealand Light Car Cup at Murawai Beach. It was purchased by A. E. Ansell in 1943 and completely restored mechanically and rebodied to the extent of a narrow two-seater pointed-tail body in aluminium. It seems in many respects to be a standard SC, with sub-frame engine mounting, belt-driven generator, fixed starting handle, light-alloy clutch housing and cone clutch. There are, however, one or two variations from standard that are rather interesting. Inlet port size is 35 mm., instead of the usual 40 mm. big port or 32 mm. small port size, while the con.-rods are considerably slimmer than standard "12/50" rods, but still fitted with the diabolical pinch-bolts. Rear-axle ratio is 4.55 to 1, giving 20.9 m.p.h. per 1,000 r.p.m., while bottom gear is 14.77 to 1 as compared with 18.54 to 1 on the TE.

Ansell restored the car regardless of time and expense, all worn parts being built-up or renewed, including a crankshaft grind and remetalling of main and big-end bearings with Hoytt's No. 11. The result is a constant oil pressure of 30 lb./sq. in. hot or cold, which experience of "12/50" men will recognise as unusual. My TE, in spite of good bearings, new oil pump, Castrol "R" and pressure relief valve screwed hard down, never showed more than 15 lb./sq. in.



The 1925 SC "12/50" Alvis two-seater.

when hot. Another departure from standard on the SC was the fitting of 23 in. wheels, which, with 4.50 tyres, gave an extremely rough ride.

Gear and brake levers were external, which gave more cockpit room, but could not be otherwise recommended, as in wet weather one's right arm rapidly became soaked to the shoulder, while the brake lever is set so far forward as to necessitate ape-like arms to reach it. I subsequently moved the gear lever inside and found the alteration resulted in a far more pleasant change.

The instrument panel is comprehensively equipped, all instruments being of definite use and including vacuum-gauge, fuel and oil-pressure gauges, oil and water temperature gauges, ammeter, speedometer and rev.-counter, plus separate switches for all lights.

The fuel tank is carried, together with the battery, under the seat and fuel is transferred to the tank by air pressure built up by a hand-operated air pump, a mod. of which I do not altogether approve, as one is constantly running out of air pressure if a forgetful type like myself!

After Ansell had completed the car, he sold it to A. C. Atkinson, and it had its first competition success in "new" form in Atkinson's hands in the 1946 Paekakariki Hill-Climb, where it gained f.t.d. in 2 min. 57 sec.—no less than 25 sec. faster than the next car. His next success was winning the Vintage Trophy at the 1946 Standing Quarter Mile contest with the excellent time of 21.4 sec.—a time beaten only by a "T.T. Replica" Frazer-Nash, the ex-Fontes' Invicta and a "Brooklands" Riley.

At the second Paekakariki Hill-Climb the Alvis failed to equal its time of the previous year, but a climb in 3 min. 01 sec. was sufficient to gain second place in the 1,500-c.c. Class and fourth fastest time of the day.

When the car came into my hands I was very interested to compare it with the TE, and on first impression I was disappointed. The engine seemed to have no power at low r.p.m. and the cone clutch was very difficult when reversing. In its favour, steering and roadholding were much superior. As a point of interest, both cars were identical in weight at 19 cwt. with full touring equipment, reducible to slightly under 17 cwt. stripped. [Low weight helps a "12/50" appreciably—one aluminium bodied, sub-frame car we knew, which scaled 17 cwt., felt rather like a 'Nash and was far less lorry-like than a later steel-bodied tourer, which weighed 22 cwt.—ED.] I ran the car in a night trial under blizzard conditions, over quite a tough course, but Alvis controllability kept me out of trouble and I began to develop some respect for the car. A top overhaul was decided on, as there were no obvious defects to explain the lack of performance, and on removing the head several valves were found to be sticking badly and one rocker was very tight on the shaft. These defects were remedied and in an effort to get more power at low engine speeds I turned 2 mm. off the head, raising the compression ratio from 5.35 to 1 to 6.2 to 1.

After reassembly, these small attentions were found to have produced a marked improvement, resulting in an extra 1.5 in. of vacuum at idling and a far better top-gear performance. The purist may raise the eyebrow at my insistence on low-speed power, but I find nothing more depressing than the necessity for changing down for every bump on the road!

My first speed event in the car was at the Manawatu C.C. Hill-Climb, an 0.6 mile run over a twisty gravel-surfaced hill, where I made fourth fastest time of day, 5.1 sec. behind Procter, who won the event with his "Brooklands" Riley. One of the Alvis' less likeable characteristics showed up badly in this event. With the cone clutch it appears impossible to leave the line at reasonable speed, as dropping in the clutch at high r.p.m. merely results in the back wheels jumping up and down, while less enterprise with the throttle means a desperately slow start. Shock-absorber adjustment has no noticeable effect. Apart from this I was very pleased with the car. I had run it for 500 miles without laying a spanner on it, drove 100 miles to the event and ran fully equipped, but the engine ran up to 5,000 r.p.m. without missing a beat and gave no trouble whatsoever. Driving on loose gravel was a matter of four-wheel slides all the way, but the car showed no tendency to get out of hand, and study of photographs of the "Brooklands" Riley, a T-type M.G. and the Alvis at identical spots on the hairpin bend showed the Alvis to be taking a far better line than the other cars.

The 1947 Standing Quarter Mile contest resulted in the Alvis winning the Vintage Trophy for the second year in succession with a time of 22.6 sec. I hoped to break 21 sec., as the car was definitely faster than the previous year, but a strong head wind and heavy rain slowed times considerably, f.t.d. being made by a Railton in 20 sec.

The next event was a hill-climb held on a very rough-surfaced half mile hill at Plimmerton, where the Alvis again showed to advantage, gaining f.t.d., 1/5th sec. ahead of Hollis' TA M.G. As conditions worsened we steadily improved our respective times and were never further than 0.4 sec. apart. As I had come to expect, the Alvis never missed a beat and showed a keen desire to exceed 5,000 r.p.m. on the straight, which, bearing in mind the makers' dire warnings not to exceed 4,700 [4,500?—ED.], caused me to keep a thoughtful toe on the throttle pedal.

Plimmerton was followed by what has by now come to be regarded as the No. 1 event in the New Zealand sprint calendar—Paekakariki Hill-Climb. A large entry was received, including Roycroft's single-seater Austin Seven—one of the 1933 "works" cars—and his B4 Ford-engined midget car. Hemus' OE "30/98" Vauxhall and Clinkard's "Speed Twenty" Alvis also came down from Auckland, while Farland brought a Ford V8 chassis down from Palmerston North, in addition to his well-tried N-type M.G. Mulette. Procter had fitted a new engine to his Riley, and, as the hill record holder, was out for blood, while Hollis had prepared his M.G.

with his usual meticulous care and Cowan's T.T. Sunbeam had overcome its previous carburation troubles.

Under these circumstances I felt that a minor class-placing was all that I could hope for, but I went over the Alvis very carefully, although "tuning" in the sense of mysterious wizardry is completely unnecessary and it only demands careful routine maintenance.

The morning climbs were held in heavy mist, while the surface had deteriorated considerably from the previous year. Hollis, on his first climb, broke the class-record of 2 min. 56 sec. with a time of 2 min. 54.2 sec., so I took my place at the start feeling that the Alvis had a more than usually difficult task ahead of it. I had been practising starting assiduously and managed to get away with the rear axle more or less under full control and, throwing discretion temporarily to the winds, put the engine up to 5,000 r.p.m. in first and second gears and reached 63 m.p.h. in third in the flat-out section before the hairpin. Heavy braking and second gear got the Alvis round the hairpin with the front wheels just on sliding point, and I noted that the higher second gear took me a lot farther up the hill than in the TE the previous year. Third gear, materially aided by a tail wind, pulled the car very nicely up to and through the watertrough corner, while a change down to second and a touch on the brakes coped with the difficult right-hand corner before Cutting Bend. Into the cutting, a bend that keeps on going round, the Alvis displayed its understeering characteristics to advantage and no time was lost in the rear-wheel-sliding so many cars seem to indulge in. I had noticed a certain amount of excitement among odd spectators I could see through the mist, but was astounded when I was told that my time was 2 min. 48.6 sec., breaking Procter's absolute record by 1.4 sec. However, I was not destined to hold the record long, as Roycroft, in a meteoric climb in his midget car, recorded 2 min. 32.2 sec., but as this machine had a power/weight ratio comparable with a B-type E.R.A. I felt that the Alvis had done itself justice. Subsequent climbs were just as exciting, Hollis getting down to 2 min. 50.4 sec. in a really desperate climb and Procter doing 2 min. 49.4 sec. after a very poor start, while on my second climb I was 3.4 sec. slower, due to a rather foolhardy effort at the hairpin, where I left my braking far too late and wasted a lot of time going sideways instead of forward. However, a first in the 1,500-c.c. Class and second f.t.d. was very pleasing, and my respect and admiration for the old car reached a new level.

The final event of the season was the 50 Mile Beach Handicap, run over 50 laps of a one-mile circuit. While I had done a certain amount of highly unsuccessful motor-cycle beach racing before the war, this was my first effort with a car, and I looked forward to it with more than usual interest, particularly as it was my first race, as opposed to sprint events.

My brother and his wife took charge of my pit and we worked out an effective control system, while practice showed that the Alvis ran up to 70 m.p.h. quite

easily on the half-mile straights, although I had been doubtful as to whether it would pull its high top gear on the beach.

The race itself was at the same time a great disappointment and the most enjoyable run I have ever had. I got a good start and by the 6th lap had caught Clapperton, the ultimate winner, when the floorboards, which I had carelessly neglected to secure, blew up, and instead of continuing to my pit I stopped at the north turn and lost six minutes restarting my engine. That put me right out of the

running and I finished fifth, but once again the car ran perfectly and gave not an atom of trouble in spite of some really merciless driving to make up for the fatal stop. Oil temperature did not rise above 75° C., oil pressure remained constant at 30 lb./sq. in. and 4,700 r.p.m. were still available at the end of the race, while fuel consumption averaged well over 20 m.p.g. My fastest lap, with a little in hand, was 78 sec., Procter making the record lap in the Riley in 76.2 sec.

From the foregoing it will be seen that a good "12/50" Alvis is eminently practicable as a poor man's sports car. It has its faults—it is too heavy, the gear-ratios are rather wide, and the hard springing is over-done, but these are minor items compared with its lion-hearted dependability, its complete lack of temperament, in the derogatory sense of that ill-used word, and its ability to repay the owner for all the time and work he cares to put into it.

A New Zealand "Veteran Type"

by

J. R. Cowan

THE New Zealand specimen of 1921 T.T. Sunbeam, believed to be No. 7 of the original team, came out and was raced on the beach as early as 1924, in the company of one of the four-cylinder Thomas-Specials and a 2-litre G.P. Sunbeam, both of which are still preserved out here. [Wasn't—isn't—the Thomas a Marlborough-Thomas?—ED.] At a later date the T.T. Sunbeam was rebuilt as a two-seater sports-car, with full coachwork and an electrical system which included a starter operating on an added flywheel. The valve timing was altered and two American Constant-Vacuum type carburetters were fitted to give a greater tractability. In this form the car gave many years' service. I acquired it in 1947, and set to work restoring it to original form. The sports-car modifications were thrown away, with the exception of the flywheel, which will be duly discarded when the final reconditioning work is done on the engine. All authentic parts were cleaned up, after which reconstruction to the original specification began. The cleaning process brought to light much beautiful machine-finish and several interesting serial numbers, including the letters "G.P." engraved on the frame. This chassis, tempered blue in colour, can be twisted by two pairs of hands until opposite ends are skewed by several degrees.

A massive work of turning and fitting

No. XXXIII in MOTOR SPORT'S popular series of "Veteran Types" articles dealt with Anthony Heal's 1921 T.T. Straight-Eight Sunbeam. Consequently, this account, by J. R. Cowan, of his sister car's exploits in New Zealand, will be of considerable interest.

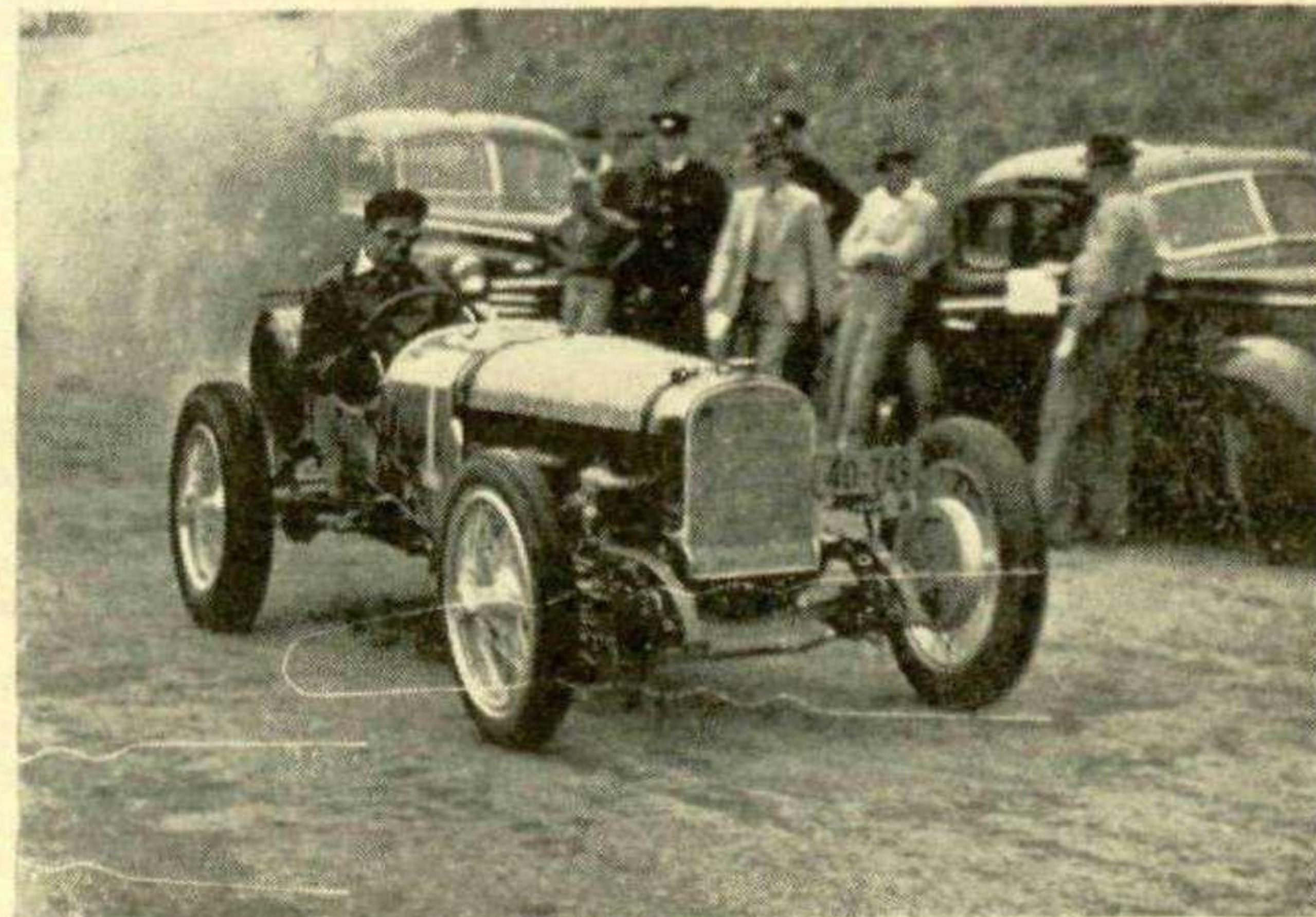
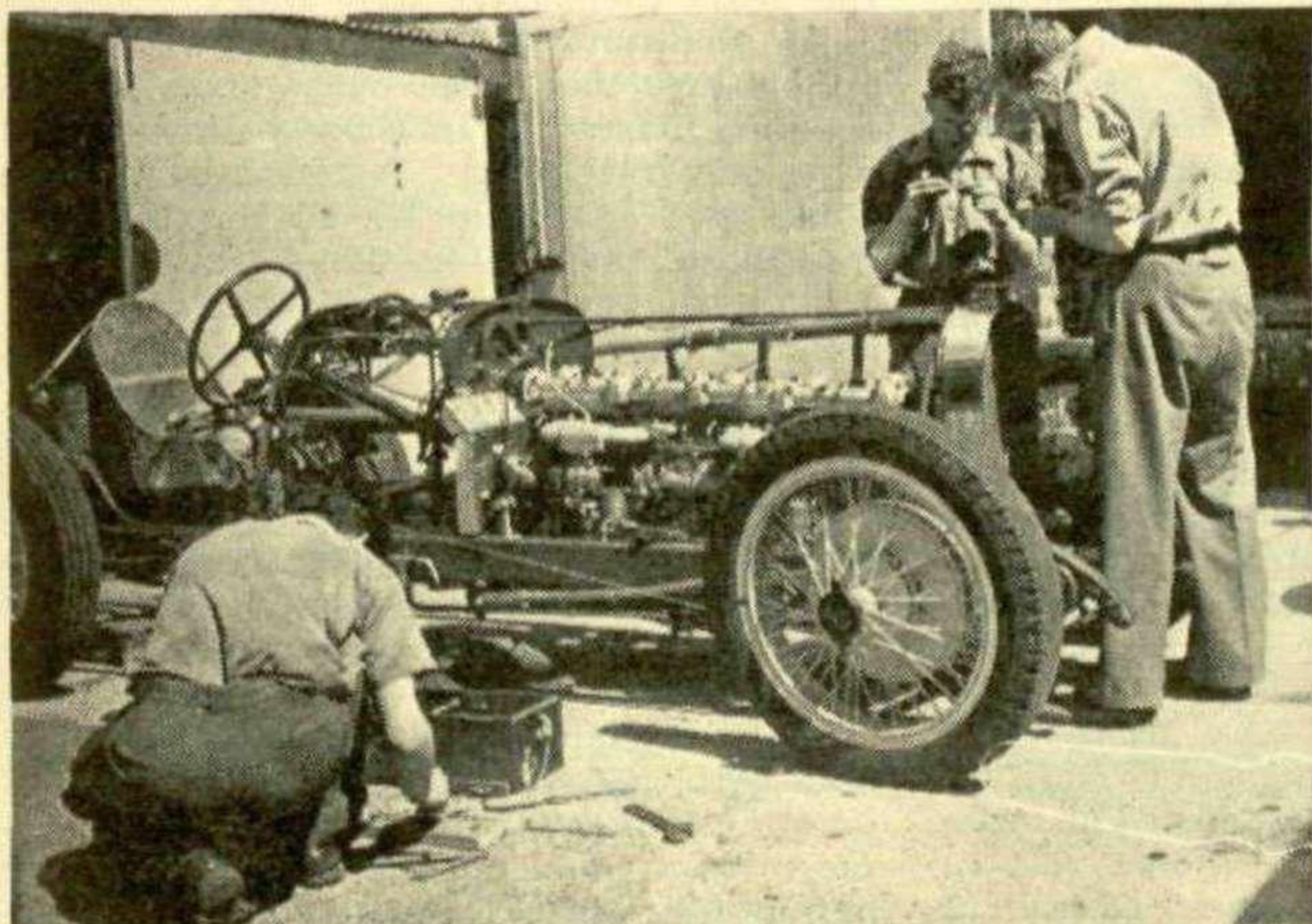
—Ed.

waisted studs to replace the original rather inadequately-bedded $\frac{5}{16}$ -in. camshaft studs, involving a good deal of "heart-in-the-mouth" drilling of the sparse metal of the blocks, was carried out and the entire pipe-work of the dry-sump lubrication system was renewed. Further renovation revealed 18 cooling connections, requiring nine different rubber jointing sizes.

After we had produced a coherent chassis, a Japanese aircraft seat was strapped in about the right position, several members of the N.Z.S.C.C. complete with a Triumph gathered, and after a token twist of the handle we tied on to the tow car and began to tow. Sub-

sequently the struggle raged over most of the local streets, no meals being taken and no quarter given. At first the car would make only strange noises, an occasional smoke ring or take fire at the carburetters. I had timed the engine to run backwards, it appeared. This was rectified, but further towing would produce only an exhaust rumble, and no power. We then realised that the large-choke Claudel carburetters gave idling cruising mixtures, but nothing in between, so that an epic effort by the Triumph was required. I wondered what had become of all my careful assembly, but have since become used to the incoherence of this engine in its lower registers, which suggests that it will never survive 2,000 r.p.m., at which speed chaos ends. As the Sunbeam reaches its very moderate running temperature the carburetter intolerance declines and a reasonably smooth output is obtained as low as 800 r.p.m.

After a period of trials, a fair copy of the original body was fitted and the car was entered for the 1948 Paekakariki Hill-Climb, a course of two miles and 898 feet ascent, with every possible type of bend. The old car went through all her runs without faltering, on occasion giving 3,500 r.p.m. with throttle in hand, and she managed a Class 1st place; 4,000 r.p.m. is the allowable limit, but one must have some respect for age!



Work and play with the 1921 T.T. straight-eight Sunbeam.

SPORTS MOTOR-CYCLES OF THE VINTAGE ERA

Continuing a Consideration of the Characteristics, Good Features and Failings of Some Classic Machines

PART I—1925

Continued from the October issue.

The same rider conducted the next trial, this time of an o.h.v. "S.S. 100" Brough Superior solo. Described as "an engineering production unsurpassed," the Brough could certainly get along. Brooklands was not within the orbit of this test, but on the road just over 90 m.p.h. was reached with a pillion passenger, and along a mere quarter-mile of clear road at that; 70 m.p.h. was attained in 2nd gear, without the passenger realising it wasn't top gear. The model was still accelerating when the taps had to be closed and the real maximum was estimated at "well over the hundred mark." *Sitting upright*, the rider then demonstrated "hands-off" at 75 m.p.h. on a fairly rough surface. One-hand steering, too, induced no wobbles as it was prone to do on some motor-cycles, while the front springing absorbed all bumps save one fearful pot-hole that would have broken most front forks and many frames; the Brough merely jolted, but it *did* dent its front mudguard, which was too close to the front exhaust pipe. The riding position was splendid, the comfort first-class with merely a Terry saddle-top and no saddle springs, the handlebar screen gave protection without being in the least unsightly, and a lady weighing a mere 8-stone and not normally a motor-cyclist manoeuvred this big-twin on wet grass as if it were a push-bike. Road holding was excellent, likewise the foot-change, braking effective, and the single-top-tube frame had lug attachments throughout and Harley-Davidson type forks, while the magnificent tank held enough for at least 200 miles. At cornering the "S.S. 100" beat a certain 2-stroke regarded as a paragon in this respect. Cruising at 60 m.p.h. with no more than a burble from the exhausts, it was possible to enter a town at 40 in the mistaken impression that one was doing a mere ten m.p.h. Verily, like the Bentley and "30/98," the Brough-Superior refuses to "date." Reading of the performance of this "S.S. 100" one is apt to forget that it was tested in 1925, until noticing the gas headlamp, bulb-horn and leather tool-bag in the photographs that accompanied the write-up.

Criticisms of this magnificent motor-cycle were confined to a weak front brake, possibly imperfectly adjusted, a sight-feed unworthy of that fine tank, the difficulty of lifting the machine on to its stand, a rather ugly front mudguard and a badly-placed magneto, this last recalling a sweltering day in Epping Forest, when the contact breaker of an "S.S. 80" had to be removed for adjustment, because the sidecar arm came right down in front of it, and made inspection impossible.

Next, please! Well, a brand-new "Sports Model" Ner-a-Car was used to cover part of the A.C.U. International Six Days' Trial, involving a very strenuous 800 miles' riding without the manufacturers' knowledge. Radclyffe admitted

to thinking of the Ner-a-Car as a "scooter," but vastly modified this view after the test. The model tried had the 348-c.c. o.h.v. Blackburne engine and 3-speed Sturmey-Archer gearbox. It steered impeccably, wobble and other disconcerting vices entirely absent. Indeed, Radclyffe frequently filled his pipe, commencing these operations at 40 m.p.h. and slowing to a crawl to light-up, without touching the bars. He found that an imperceptible movement of the body sufficed for negotiation of most main road bends and quickly became used to the fixed mudguard ahead of him. As his Ner-a-Car had a speedometer which first of all lied unashamedly and then got its driving-gear well and truly chewed up on the front wheel, fortunately at low speed at the top of Porlock Hill, maximum speed was a matter of conjecture. But Radclyffe put it in the region of 60 m.p.h.

This oddly-laid-out machine certainly endeared itself to him. It caught up most of the early numbers in the A.C.U. "Six Days" in spite of starting in the wake of No. 47 and ascended Broughton with a touch of 2nd gear, finished a climb of Middle Down in 2nd, took Kings Settle in the same ratio and needed bottom gear only momentarily for the short rise out of Bruton's main street. So it went on. Draycott was successfully climbed with only a suspicion of wheel-spin, without a chance to pick a good course due to spectator-encroachment. Beggars Roost was taken on the inside of all the hairpins without anxiety, and Fingle Bridge, then a new discovery, was a perfect bottom gear ascent. If the machine bounced off the ground it landed firmly on both wheels; stability was at all times outstanding. Weather-protection was admirable, skidding almost entirely absent and comfort, with 3-inch tyres and excellent springing, of a high order. Incidentally, the 5½ to 1 top gear was a thought too low for main road work and there was a big gap between that and the 8.96 to 1 second gear. Moreover, first was 14.6 to 1 and it was felt that any of the "Six Days" hills could have been climbed on a 12 to 1 ratio.

One criticism of this Ner-a-Car was that, while the hand brake was adequate for touring and the other internal-expanding pedal-operated rear brake quite powerful enough for emergencies, down gradients of the Alms Hill order (1 in 3) called for a front brake—although it was admitted that the front-wheel layout would make such an addition both costly and complicated. Then the model was unquestionably noisy, due to the unenclosed engine and lack of a normal tank, especially under 40 m.p.h., and

the new second-speed gears tended to whine. However, Radclyffe was philosopher enough to say that to enclose the valve gear would be a shame, as the rider would be deprived of the pleasure of watching the valves working on uninteresting roads! A wet plug gave the rider occasional shocks and starting from cold was difficult at first, until the settings of the B. & B carburetter had been mastered, perhaps because the tank was under the saddle and the inlet pipe and hot-air pipe rather long in consequence. The foot-boards were strong, scraped on sharp turns and ground clearance wasn't abnormal. These grouses apart, the Ner-a-Car came through with flying colours, especially as it averaged 110 m.p.g. of petrol and 850 m.p.g. of oil throughout the trial, over bad surfaces and driven hard, and its H.S.3 plug never misfired once in spite of a little oil being used with the fuel. Clearly, the Sheffield-Simplex Company had made a good motor-cycle.

A s.v. 350-c.c. Connaught-Blackburne was the next machine taken out on test. Selling at £42 10s., this 2½ Sports had the same frame and gearbox as the more expensive o.h.v. Blackburne-engined job. This machine looked rather frail, but stood up faultlessly to a strenuous ride over some bad country. It was docile in traffic, the clutch lever on the end of the left handlebar being found very convenient. After adjustment of the steering head the Druid forks functioned very well, and the duplex tank tubes of the frame and cast-alloy tank attachment clips were appreciated during examination of the plot, likewise the stays from the stout carrier to lugs on the main back forks. The saddle was too small, the wheels could have been stouter, thus improving appearance, while the long gear lever fouled the rider's knee. The gear change itself was very easy, and second was a very pleasant gear, offering exceptionally good acceleration. The ratios were a bit too low for fast work; the gears themselves were quiet.

At the outset performance was disappointing, the Amac carburetter being set for economy. [In those palmy days, why, oh why?—ED.] A "modern" 2-jet Binks put speed up by 10 m.p.h., the maximum then being 50+, while Alms Hill, a trifle greasy in parts, was climbed clean. The Amac carburetter gave a consumption of well over 100 m.p.g., while oil consumption, with a mechanical pump feeding to a drip-feed on the tank, was also very modest. Both brakes were internal-expanding, of good dimensions, and permitted a faultless descent of Alms Hill without locking the wheels. The D-section guards were efficient for a British machine, the handlebars stout and with good curves and other good points were excellent weight distribution, resulting in good steering and cornering and an absence of "bucketing," a decent

Continued on page 14

Through the "Gloucester" Trial in an Allard

THE thirtieth version of the N.W. London M.C.'s classic "Gloucester" Trial was contested on December 4th and attracted 73 entries and 61 starters. We were able to avail ourselves of the navigator's seat in one of the twelve Allards entered—E. N. Frost's mildly-modified, slightly shortened Mercury-engined car, which recently had won the Hunt Trophy and which weighs about 22 cwt., with a conventional two-seater light-alloy body. Incidentally, we carried no ballast. The rain of the preceding night made the hills, each of which was to be tackled twice, decidedly difficult and resulted in Hodgecombe being deleted from the second circuit. The organisation was assisted by Imhof's broadcasting vans, and many experienced marshals.

We climbed Ham Mill clean but stopped beyond the "Observed Section Ends" notice. Juniper was in a nasty mood and, first car up, we came to rest not far short of the commencement of Section 2. The mud persisted at the Special Tests, making the restart in reverse an anxious business in the first, where we clocked 41.2 secs., but, on a leaf-strewn downhill gradient the brakes worked well, and the time for Test 2 was 4.8 secs. Again the first car up Hodgecombe, we dug a lovely track, but the narrow banks, and possibly momentary loss of throttle, defeated us when we were well up in Section 2. Even the restart proved impossible at the dreaded Nailsworth Ladder and we were moved lower down the hill, only to gain little speed, failing on the first rocky ledge.

On the second circuit we got up Bownham in a concentrated drive, failed earlier on Juniper after mounting the bank, and, not electing to use the run now permitted at the start of Nailsworth, failed here also. Frost, in his fourth car trial, was in no way down-hearted and went home in grand spirits, vowing he would do differently next time. The Allard gave no bothers of any sort, its water thermometer never exceeding 180 degrees F., and on the run home it not only displayed the ever-fascinating immense bottom-end acceleration with which all Allards are endowed, but cruised quietly, smoothly and unconcernedly at 3,000 r.p.m. (approximately 60 m.p.h.) on its 4.11 to 1 top gear. On one stretch of road, notwithstanding the wind disturbances caused by the large erect screen, front-wing valances, large headlamps and a number board in front and the twin spare wheels behind, it attained 4,000 r.p.m. in top. A short drive revealed very light steering indeed, excellent, typically Allard cornering, and very powerful brakes, notwithstanding the fact that they are normal Lockheed, not 2LS.

As to how the others fared, you do not see much of other competitors from a participating car, but at Juniper, after Imhof's blown Allard-Special with remarkable body extension out-rigged beyond the back axle, and Merrick's

blown Ford Ten-engined Dellow Special (one of five Dellos entered) had successfully climbed Juniper, we observed as follows. The Clayton Special failed, the Daniel Special went well into Section 2, and then the Best M.G. with coil-spring i.r.s. went well and Bold all the way to the top. Murkett's M.G. spun to rest almost into Section 2, Wharton, Champion Trials Driver of the year, also got up, in a fine, determined attack, in spite of visible water-vapour and audible pre-ignition, but Barton's Morris, girl navigator bouncing hard in the stern, only just made Section 2. Fitzwater's M.G. and the Buckler Special stopped in Section 1, but Wood's Austin-Ford, in a very good effort, just got beyond Section 2.

It transpired that Wharton and his wonderful Ford-Austin Special made best performance and won the Gloucester Cup, proving that he was indeed the 1948 Trials Champion. Ham Mill defeated twelve drivers, including three in Allards, and Juniper was vanquished only by Imhof's special blown Allard, which now resembles a lorry, Merrick's blown Dellow, the Wharton and the Ford Ten-engined Bold although Parker's Allard, Onslow-Bartlett's Mercury with four cwt. of ballast bolted to its back axle, and the H.R.G.s of Buncombe and Newton got into the last section. Onslow-Bartlett and Newton tied for best time in the first special test, in 27.6 sec., Wharton clocking 27.8, and Buncombe 29.6 sec. Wharton then won test two in 3.4 sec., Newton being next in 4.0 sec. Hodgecombe stopped 19, Nailsworth 17. That was on the first circuit.

On the second circuit only Frey's Allard stopped on Bownham, but this time only Merrick, Bold, Wharton and Newton got up the entire length of Juniper, Uglow's H.R.G. being the "best failure." Nailsworth this time failed 35.

Results

GLoucester CHALLENGE CUP (best performance of the day): K. Wharton (Wharton Ford Ten Special).

THOMAS CHALLENGE CUP (best performance over 1,500 c.c.): L. S. O. Bartlett (3,917-c.c. Mercury).

COMMITTEE CHALLENGE CUP (best supercharged car): R. W. Merrick (Dellow Ford Ten Special).

GLoucester GOBLET (three consecutive first-class awards): W. P. Uglow (1,496-c.c. H.R.G.).

FIRST-CLASS AWARDS: W. P. Uglow (1,496-c.c. H.R.G.), E. J. Newton (1,496-c.c. H.R.G.), A. G. Imhof (3,917-c.c. Allard S.), J. Readings (Lancia "Lambda"), G. N. Mansell (3,917-c.c. Allard), K. C. Delingpole (1,496-c.c. H.R.G.), L. Parker (4,000-c.c. Allard), J. Buncombe (1,496-c.c. H.R.G.), C. L. Bold (Riley Nine), R. W. Faulkner (3,917-c.c. Mercury).

SECOND-CLASS AWARDS: W. A. Cleave (1,089-c.c. Morris), M. H. Lawson (1,496-c.c. H.R.G.), L. Potter (3,917-c.c. Allard), A. W. Morrish (M.G. Midget S.), W. E. Penn (Dellow Ford Ten), L. J. Oliver (Austin Seven), H. Roberts (3,917-c.c. Allard), D. W. Price (Price Special V8).

THIRD-CLASS AWARDS: V. S. A. Biggs (1,496-c.c. H.R.G.), M. Wick (4,000-c.c. Allard), C. E. Crump (Austin-Ford Special), R. Barton (Morris Ten), L. J. Tracey (Dellow Ford Ten), R. B. Lowe (Dellow Ford Ten), D. A. Hunt (Frazer-Nash-B.M.W.).

TEAM AWARD: Cheltenham M.C. No. 2—R. W. Merrick, L. J. Tracey, R. B. Lowe (Dellow Fords).

THAT A.C. QUESTION

Although quite a few vintage A.C. cars are still in service, not one of their presumably-enthusiastic owners rose to the bait cast by the Editor in the November issue of MOTOR SPORT, when he criticised certain features of S. F. Edge's dogmas, nor did Mr. Henderson, of A.C. Cars, Ltd., accept the challenge. However, it may be stated that, although we queried whether placing the gearbox in unit with the back axle did not destroy the very quality of low unsprung weight which Edge championed, "S.F." did claim that, as the propeller shaft casing and axle casing were made of aluminium alloy, this assembly was no heavier than a conventional rear axle, so that unsprung weight was unaffected by the presence of the gearbox. We quite expected someone to shoot us down on this point!

Stop Press!

THE BRISTOL M.C. & L.C.C. FEDDEN TROPHY TRIAL

This classic event was run over two circuits of a short course rendered difficult by the weather. Wood Lane and Mudlark had to be cut out and Breakheart, in dour mood as usual, was deleted from the second circuit. That left Tin Pan Alley, Alf's Delight, Old Hollow, Breakheart and Fort for the first circuit and all bar Old Hollow on the second circuit. There was also a timed special test. The full results are not to hand as we go to Press, but best performance was made by Newton's H.R.G., with Wharton as runner-up.

CHILTERN C.C. ANNUAL TOURIST TRIAL

The results of this event were:

TOURIST TROPHY: W. E. Edgar (M.G.) 123 marks lost.

FIRST-CLASS AWARDS: J. N. Lewis (Riley) 146 marks lost, M. J. Barker (Jaguar) 212 marks lost, W. G. Render (M.G.) 160 marks lost, D. D. Render (Morgan) 126 marks lost, J. C. Mayers (M.G.) 136 marks lost, G. E. Mathews (Jaguar) 130 marks lost, G. L. Hancock (Allard) 136 marks lost, D. Munro (Invicta) 150 marks lost.

SECOND-CLASS AWARDS: L. E. Gibbs (Riley) 162 marks lost, R. Dunmur (Wolseley) 194 marks lost, F. Crossley (Austin) 173 marks lost, A. Rumfitt (M.G.) 179 marks lost, G. M. Anthony (Morgan) 175 marks lost, D. E. C. Hull (Alfa-Romeo) 160 marks lost.

TEAM AWARD: W. G. Render, D. D. Render, J. C. Mayers.

SPECIAL AWARD (Highest Chiltern Member, No Previous Award): R. N. Richard (R.B.W.) 164 marks lost.

HIGHEST VINTAGE DRIVER (No Previous Award): L. I. Austin (Lancia) 281 marks lost.

* * *

Further Allard entries for the Monte Carlo Rally are Sydney Allard's coupé and another coupé which Alan Godsel will drive, making, with Imhof's and Cohen's Allards, four in all.

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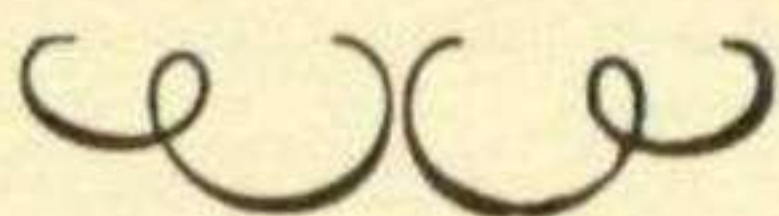
Referring to Wharton's trials special, described on p. 11, Wharton is warm in his praise of the Ford Ten engine, which is standard except for minor details and alterations to bore size and which has been in constant hard use since December 1946 without any attention to its main or big-end bearings. It was not a new engine, merely a reconditioned unit taken from stock. The standard Lucas coil and distributor have also served impeccably.

WE HEAR

In Somerset an N.P. chassis, with Meadows engine, has come to light. On a derelict Beardmore taxi-chassis we discerned some 815 by 120 tyres, if anyone's veteran is on its rims. F/O Peter Coleby, D.F.C., weighs in with some remarks in defence of the S. F. Edge A.C.s, having owned a 1924 two-seater Anzani-engined model, which his wife drove nearly every day of the week. He refers to it as "so beautifully light and supple," and as accessible as a stripped G.N. The arrival of a 1939 Austin Eight saloon has persuaded Coleby to dispose of his A.C. to a local policeman and he hopes one day to restore one of the Sixes to good order. Meanwhile, he backs the Austin with a 1927 two-speed Scott "Flyer." Incidentally, Coleby has a 1923 coupé A.C. which needs rebuilding, for spares, if anyone needs one. Reggie Tongue is now a Director of Arden & Bull, Ltd., of Altrincham and will in due course be resigning his Directorship of Thomson & Taylor, Ltd. J. Burton has saved the 1924 Lanchester Forty that was mentioned in these columns last year as an I.O.M. taxi and hopes to fully restore the chassis and fit a new body. News from the North—Wendell Beaumont has changed his Lancia "Aprilia" for a 1937 1½-litre Riley "Lynx," F. Hollingworth has changed his 1935 Riley "Monaco" for a 1937 Riley "Merlin," and Jack Standring uses a 1931 "Silver Eagle" Alvis, while his 1934 Alvis "Firefly" is being renovated. Many sporting motorists have been associated, at some time or other, with the Royal Aircraft Establishment at South Farnborough, so it is worth mentioning that a book about the R.A.E., "Laboratory of the Air," by John Pudney, containing a certain amount of history, is available from H.M.S.O., at 3s. 6d. The various one-make Registers are flourishing and at the end of November that for "14/40" Delage cars, which, incidentally, is organised within the V.S.C.C., had fifteen entries. A. B. Price considers that the Lea-Francis is one of the more difficult vintage cars for which to locate spares and is anxious to start a register of these cars and particularly spares for them. His address is 9, Granshaw Close, Kings Norton, Birmingham, 30. D. J. Scannell's present car is an Austin A 40. The remains of one "Silver Ghost" Rolls-Royce, another with lorry body and a fairly good Rolls-Royce Twenty can be found in a yard near Manchester, if anyone requires a car or spares. G. R. Booth has rebuilt a 1922 Rover Twelve two-seater which last year successfully covered 900 miles on a holiday run, at 25½ m.p.g.

There is a 1919 Rolls-Royce "Silver Ghost" tourer for disposal in Plymouth. J. Palmer is rebuilding a 1934 Lagonda "Rapier" four-seater and wonders what performance figures he should be able to attain when the work is completed, while Philip Pye has acquired a 1928 Vernon-Derby with the Chapuis-Dornier engine. Frank Woolley and his family left England for S. Africa on December 23rd as Woolley, who was Bob Gerard's team-manager, is taking up a position out there associated with heavy vehicle maintenance. The good wishes of all

Club News



those who followed Gerard's racing since the war will go out to Woolley in his new venture; we understand that he will return to this country once a year and, not surprisingly, he says, "If there is any racing on at the time you can bet I shall be there." Onslow-Bartlett is contemplating a rear-engined Ford Ten trials special with independent suspension by coil springs. On January 3rd Stuart Wilton is moving to new business premises at 353, Finchley Road, London, where a comprehensive range of new cars may be inspected. Imhof expects to compete in the Monte Carlo Rally in his everyday Allard coupé, taking Ken Hutchison as his co-driver. P. E. Cohen will also drive an Allard in this event.

FIXTURES FOR JANUARY

- 1st.—M.C.C. EXETER TRIAL, Rougemont Hotel, Exeter, 9 a.m.
- 18th.—N.L.E.C.C. Annual Dinner and Dance, Hendon Hall Hotel, 7 p.m.
- 22nd.—The Seventeenth "Rembrandt" Gathering, 12 noon.
- 23rd.—N. Midland M.C. Closed Semi-Sporting Trial.
- 24th-30th.—19th MONTE CARLO RALLY.
- 29th.—Vintage M.C.C. Brains Trust, "Wagon and Horses." Sheldon, B'ham, 8 p.m.

The Morgan Three-Wheeler Club is organising a speed event at Madresfield this summer. Sir Isaac Pitman and Sons have re-issued "The Book of the Austin Eight," at 5s., this including data on the Austin Seven and details of how the Seven changed with the passing years, information much sought after by enthusiasts for the most famous of all the baby-cars. Another book which will interest motoring historians and which should be in the possession of every member of the V.C.C. is "Early Days," dealing with the early days of automobile engineering in S. Lancashire and Cheshire. It is the work of Sam Lomax and John Norris and is issued in a limited edition by Joseph Cockshoot and Co., Ltd., of Manchester, at 2s. 6d. Such Mancunian makes as Rolls-Royce, Ford, Marshall, Belsize, Rothwell, Crossley, Horbick, Turrell and others are dealt with, besides other items of local motor history—the idea of covering the early days of the automobile by locality is one that might well be developed and we commend the idea to other ambitious organisations.

Aged Rolls-Royce, Humber and Sunbeam cars were espied recently at Continental Cars Ltd. From New Zealand Charles G. Black sends a picture of his

1923 Park Ward short-chassis "T.T. Replica" 3-litre Bentley, which is car No. 348, now fitted with front brakes and 20-in. wheels, but otherwise in 1923 form.

A saloon "30/98" Vauxhall, with the kidney-box brakes, has been seen in the Midlands. A. G. Ryan of Co. Tipperary points out to Hugh Linton that no Maserati ran in the 1936 T.T. and that Campari, who drove only Alfa-Romeos in the T.T., was killed prior to 1936. (See October "We Hear.") In Sussex an 8-litre Bentley with Park Ward coupé de ville body has been fitted with a 28-h.p. Bedford 'bus engine and gearbox and now gives 16 forward and eight reverse ratios, besides doing 20 m.p.g. and 70 m.p.h.

Birkett is planning another trials-special, which is to have an S.U. carburetted Ford Ten engine in a chassis constructed from Austin Seven components. Tickets for the seventeenth "Rembrandt" luncheon and meeting should be ordered now, from A. F. Rivers Fletcher, 4, Eversleigh Road, New Barnet, Herts; the price is one guinea.



★ THAT ALVIS REGISTER

Quiggin's register of vintage Alvis cars is beginning to expand, a total of 69 owners having been entered therein up to November last, the number of cars actually being somewhat higher. However, many more "12/50," "12/60" and "Silver Eagle" cars must exist and their fanciers should contact Quiggin, at 6, Grantchester Road, Cambridge, for details of his interesting and useful news-sheet, at the same time quoting the Reg. No., chassis and engine numbers, type, body style, carburetter and any relevant data on their cars. The Register lists cars for sale and wanted and spares, and deals with members' news, hints and tips and technical articles, the feature for November being by Norman Lloyd on how to lower a "12/50." The thing *deserves* to expand.



★ THE RACES AT DEL MAR

In this country Edwardian racing cars have become an accepted part of many of our sprint contests and now the cult has broken out in America. Last year, at the San Diego County Fair, Ralph de Palma, the veteran racing driver, staged four races for the General Petroleum Company, who had seen the advertising possibilities in a battle between pre-1914 cars. The runners were Lindley Bothwell's 1907 90-h.p. Stearns (Barney Oldfield's famous "No. 26"), Robert Anhalt's 1907 "Prince Henry" Benz, Joe Brecklein's 1912 Stutz, which had a streamlined body and is the car that made fastest qualifying time at Indianapolis in 1913, at 98.8 m.p.h., and Mike Rosenthal's 1907 90-h.p. chain-driven Simplex, which won the 1908 Brighton 24-hour race at over 50 m.p.h. All these cars are owned by Bothwell and appear to be in beautiful condition. They apparently carried the racing numbers appropriate to their past achievements (the Benz Four, the Simplex Six, the Stutz Twelve and the Stearns, naturally, No. 26) and had piles of spare tyres tied on. The Stearns used to be driven from town to town by

Oldfield for the purpose of demonstrations at county fairs and is said to have been capable of over 115 m.p.h. in its heyday, while the present-day maximum of the Simplex is given as over 90 m.p.h.

The first race—they were all contested over a one-mile dirt oval—was over 10 laps. The Stearns took the lead after half a lap and led throughout, averaging exactly 60 m.p.h. from a standing start. The cars were serviced by Mobilubrication engineers and next day essayed a handicap race, after the Stutz had beaten the Benz, Simplex and Stearns, in that order, in some preliminary trials. The Benz won by two lengths from the Stutz, taking 5 sec. longer than before. The Stearns stopped to refuel and the Simplex, suffering carburettor trouble, was last.

Over 30,000 spectators came to the third race, for which a rolling start was used, Simplex and Stutz paired in front, Stearns and Benz likewise, behind. The Benz lost a rear tyre after seven laps and the Stutz won after a fine battle with the Stearns, the latter stopping for the battery to be secured. The last race was over 15 laps and a compulsory pit-stop for water was included, to please the spectators. Again a rolling-start was used, Stutz and Simplex ahead of Benz and Stearns. The Stearns took the lead in the fifth lap, then lost time when the radiator cap cross-threaded at the pit-stop. Bothwell was thereafter troubled by water streaming into his face on the turns, but he lapped in less than 55 sec. and won by 40 feet from the Benz, in 14 min. 30 sec. Bothwell received a silver tea service and Anhalt a silver water pitcher from the General Petroleum Corporation. It was all the greatest fun, watched by 200,000 people. How nice if our F.I.A.T., Itala, Mercedes, Lorraine and Austin veteran racing cars could have been present!

★ AN A.C. CLUB ?

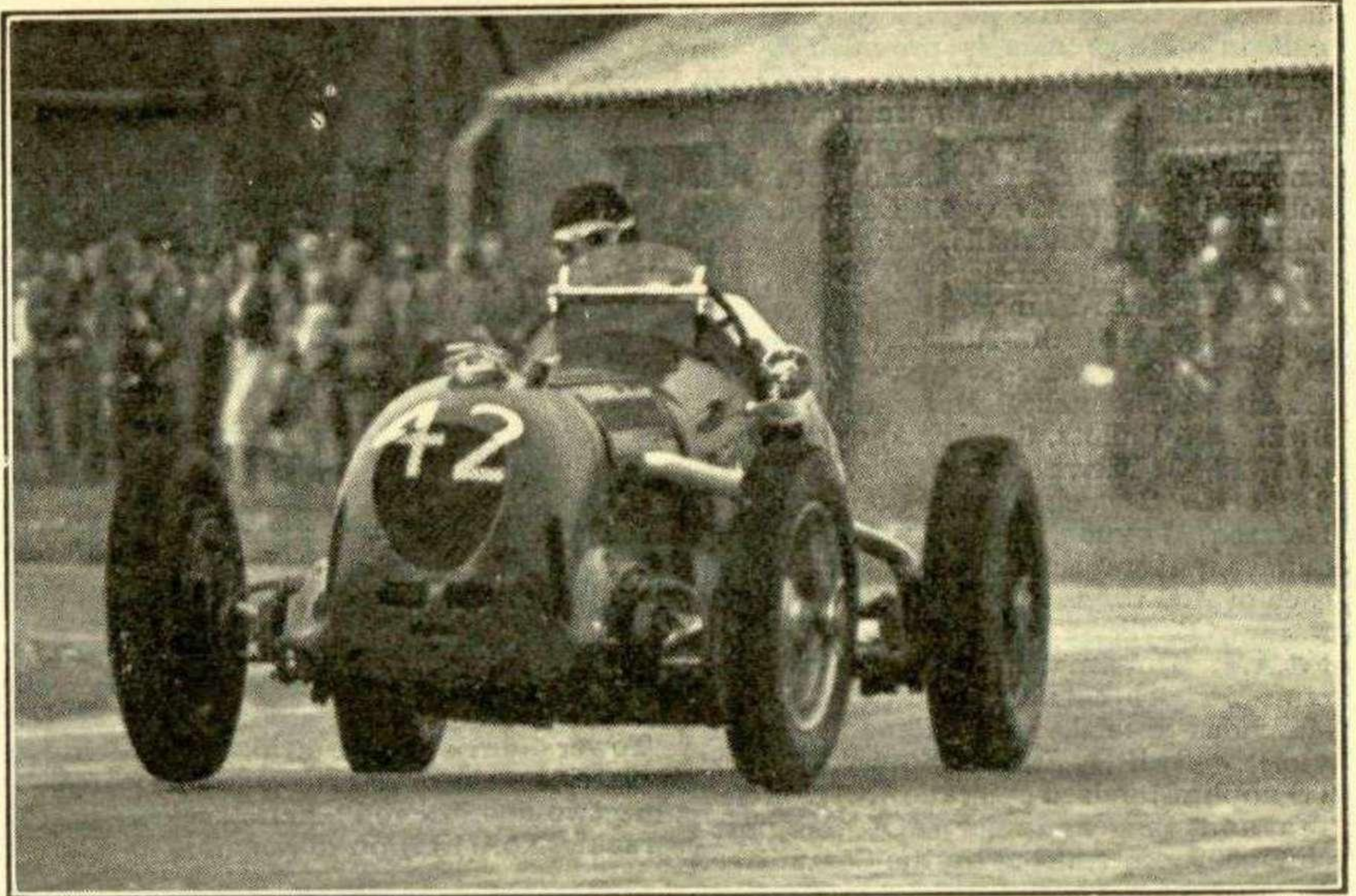
A one-make club is imminent. It is thought that A.C. owners and owners of hybrids using A.C. engines might profit from getting together. Those interested are asked to write to B. A. Henry, B.Sc., at 20, Norfolk Crescent, Hyde Park, London, W.2, as soon as possible.

★ V.M.C.C.

On January 29th the ever-expanding Vintage Motor Cycle Club will stage a Brains' Trust on vintage and veteran motor-cycling topics. The Question Master will be "Torrens" of *The Motor Cycle*, and the "Brains" H. Rem Fowler, winner of the T.T. in 1907, H. R. Davies, winner of the 1921 Senior T.T., G. S. Davison, winner of the 1922 Lightweight T.T., A. J. Ivison, who managed the British team in the 1925 Six Days' Trial, and Brig. C. V. Bennett. The meeting is being arranged by the Midland Region, at the "Wagon and Horses," Sheldon, Birmingham, at 8 p.m. Admission is free to all.

★ THIRD CIRCUIT ?

New racing tracks to be built in this country were reported even before Brooklands was constructed, and at intervals ever since. So such news is apt to be sprinkled with the proverbial pinch of salt. However, we must record that the



[Photo by Guy Griffiths]

GOODWOOD FLASHBACK.—Folland's supercharged 1,100-c.c. ex>Weir M.G. winning its race at last year's J.C.C. race meeting. Folland is a director of Monaco Ltd., and on this occasion his car averaged 74.29 m.p.h., and lapped at 77 m.p.h. The J.C.C. has already booked Goodwood dates in the International Calendar for April 18th and August 1st this year and we believe that at least two other J.C.C. fixtures will be arranged at this venue.

Rotherham M.C. is planning a circuit at the Listerdale Estate, just outside Rotherham town. The present owner of the estate, Mr. C. J. Lister, is a well-known motoring enthusiast.

★ CAN IT BE ?

An illustration in *Australasian Post* last year depicted a Hollywood garage housing cars presumably used for filming. Modern Americans predominate, but in the foreground, beside a veteran, is what looks to be one of the 1914 Grand Prix Peugeot racing cars. Now in 1915 the entire team of G.P. Peugeots was shipped to America and ran for many years at Indianapolis—Resta won the 1916 race at 83.26 m.p.h. and Wilcox the 1919 event at 88.06 m.p.h. with these cars.

It is significant that the car at Hollywood bears the racing number 29, for in the 1919 race No. 29 was, indeed, carried by a Peugeot driven by Klein. In the race this car nearly lost its exhaust pipe and finally retired when an oil-pipe broke, causing a valve to stick. There is every reason to suppose that it remained serviceable after the race, so that this may well be the car preserved at Hollywood. If this is the case, surprise may be occasioned by the fact that the No. 17 of Resta's winning car, or the No. 3 of Wilcox's, wasn't painted on when this Peugeot found its way to Film City. On the other hand, if No. 29 was on the car when it was found, that number would most likely have been repainted during restoration. The photograph certainly shows an external steering drop-arm (whereas in 1914 the drop arm passed inside the chassis side-member) and also a rather shorter drag-link, but the Peugeots are known to have been modified in various ways by their American owners. It seems probable that another "Veteran Type" has come to light. Can any of our American subscribers verify this?

750 CLUB

The Great Fog of last month caused the postponement of a talk on Austin racing matters by Charles Goodacre, who used to drive the Austin team cars. This talk will now take place at the "Red Cow," Hammersmith, at 8 p.m. on January 5th. Recalling a previous talk on the same subject by Charlie Dodson, this should be one of the Club's red-letter occasions.

★ CHILTERN C.C.

The Annual General Meeting was held on November 19th, 1948. The meeting was preceded by an informal supper, after which the prizes were presented by Mrs. Green, one of the Vice-presidents of the Club. Owing to the absence of Mr. Raymond Mays, the Club President, the chair was taken by Mr. S. H. Statham.

For the coming season the Club intends to concentrate on a few first-class events, the two main ones to be the Concours d'Elegance to be held again in Old Amersham and a 12-hour Rally culminating in a Speed Event. This Speed Event will probably be held in co-operation with another club in the South of England.

★ V.S.C.C.

The Vintage Sports Car Club has issued a truly imposing list of its members as they were last October. The total of car-owning members is 794, with 153 associates, giving a grand total of 947, or if the 11 Junior Members and three Hon. Life Members without cars are included, 961. Of this total, 18 are car-owning overseas members, and out of the total cars specified 592 come in the genuine pre-1931 vintage category, 52 are either veterans or Edwardians and 150 have been accepted as suitable types although manufactured later than 1930. Some

idea of which is the popular present-day cult in vintage cars is provided by an analysis of the list, which we give herewith, after making a few minor adjustments where changes of ownership are known to us. Bentleys lead with 122, followed by 47 Alvis, 45 Lagondas, 44 Bugattis, 35 Vauxhalls, 27 Sunbeams, 25 Austins, 22 Lancias, 20 Delage, 19 Rileys, 17 Lea-Francis, 17 vintage-base "specials," 14 Alfa-Romeos, 14 Rolls-Royces, 13 Frazer-Nashes, 10 Aston-Martins, 9 Invictas, 9 Mercédès, 9 M.G.s, 6 G.N.s, 5 Ballots, 5 Talbots, 4 Amilcars, 3 A.C.s, 3 Darracqs, 3 H.E.s, 3 O.M.s, 3 Morris, 2 each of Crossley, Talbot-Darracq, Gwynne, Isotta-Fraschini, Star, Salmson, Humber and Daimler, and one each of A.B.C., Austro-Daimler, Beverley-Barnes, Bayliss-Thomas, Clyno, Citroen, F.I.A.T., Horstman, Hispano-Suiza, Lorraine-Dietrich, Lanchester, Leyland, Marendaz-Special, Mors, Renault, Sima-Violet, Swift, Straker-Squire, Stutz, Triumph, Standard "Swallow," Wolseley Ten and Singer Junior. Of the post-vintage cars permitted by the Committee, 22 are Frazer-Nashes, 18 Aston-Martins, 13 Lagondas, 12 Rileys, 11 Alfa-Romeos, and 9 M.G.s. There seems, however, to be a rather unfortunate departure from the club's former "real motor car" creed, for we find that the list includes such types as "Gamecock," "Lynx," "Sprite" and "Imp" Rileys, F.I.A.T. "Balilla," Wolseley Special, M-type M.G., "Speed Twenty" Rover, 1½-litre Singer and Strang 500, as well as some modern G.P. racing cars.

★

DE HAVILLAND AUTO CLUB

We have received the following news of the newly-formed de Havilland Auto Club:—

"A section of the de Havilland Sports Club has recently been formed by a number of motoring enthusiasts in the de Havilland Engine Company's factories.

We shall be known as the de Havilland Auto Club, embracing motor-cyclists as well as car owners, and we hope to provide interesting events for all classes of motorist, both family and sporting. For the winter months we have a programme of film shows and lectures by well-known motoring personalities, and as we have the use of a large club house, we hope to be able to exhibit racing motor-cycles and cars which may be the subject of talks and discussions.

Next spring we hope that a number of entrants in trials and speed events will be able to appear as representatives of the D.H.A.C., and we shall be putting on our own events of the driving-skill test, map-reading trial, and similar types, with, possibly, motor-cycle scrambles.

It is not surprising that a company such as ours includes on its staff a number of vintage enthusiasts and motor-cycle clubmen, foreign tourists and special builders, together with keen 'temporary pedestrians.' We hope to provide some sort of interest for them all."

Hon. sec.: T. P. Bayliss, D. H. Ltd., Stag Lane, Edgware.

★

"CHAIN GANG"

On December 4th some 60 people met at the Swan at Tewkesbury and it was officially announced that a Frazer-Nash section of the V.S.C.C. had been formed. The section, limited to owners of Frazer-Nashes of the chain variety, was to organise its own social functions and the V.S.C.C. was to be the parent body and for competitions special classes or races for Frazer-Nashes would be included in that club's meetings.

The following morning 18 assorted Frazer-Nashes took part in the inaugural run, the destination being Gretton, near Prescott. Among the cars present were Blackburns, Meadows, twin-blown

Goughs, and Specials with such engines as B.M.W. and A.C.

★

ENTERPRISE

We have received, through the kind offices of a friend, a very beautiful catalogue dealing with the new Tipo 8C Isotta-Fraschini V8 "Monterosa" rear-engined car. With the aid of diagrams the story is told of how the "Monterosa" was evolved, with particular reference to the reasons for adoption of rear-engine and rear-drive. The specification mentions a maximum speed of 100 m.p.h. and a fuel consumption of 18 m.p.g. at 65 m.p.h. with full load. Weight distribution is given as 45%/55%, "just as required by most racing drivers." (Total weight of six-seater Sedan, under 28½ cwt.) Coloured plates by F. L. Rapi show all manner of body styles, and such cosmopolitan backgrounds as the Eiffel Tower and Tower Bridge, and these plates conclude with the "Super Racer," a two-door aerodynamic saloon with racing No. (13!) on a vast tail fin above

.....

A TRIAL OF THE LLOYD 650

UP in Grimsby, Lloyd Cars Ltd. are building a car refreshing on account of its individuality in an age of growing standardisation. Briefly, the specification comprises a water-cooled two-cylinder two-stroke engine of 654-c.c., driving the front wheels through a three-speed gearbox and 5.24 to 1 final drive. The chassis has a 7 ft. 9 in. wheelbase and all round independent suspension by coil springs and wishbones. The body is an open two/four-seater and the price is £375, or £479 18s. 4d. with p.t. The engine is reminiscent at first glance of that in a D.K.W., and is set transversely across the car; it idles merrily, flywheel in full view.

Recently, by the courtesy of Guy Salmon Automobiles of Thames Ditton, we were able to take an afternoon drive in a Lloyd, turning our wheels, incidentally, towards what is left of Brooklands Track. We were advised that the car had done under 900 miles, and at 700 miles had had the latest engine, with alloy block, installed, and thus was far from run-in. Nevertheless, the little car buzzed along very smoothly and willingly with the speedometer at 40 m.p.h. and later reached and held an indicated 51 m.p.h. In second gear it wound up to 30 m.p.h., and the acceleration was quite imposing. The smoothness is as pronounced on the over-run as under drive and erroneously suggests use of a free-wheel.

The steering, through a 14½-in. diameter solid wheel, has very slow castor action, but, given attention, is accurate, and the little car holds in nicely round corners. Just over one turn takes the wheels from lock-to-lock, and there seems no perceptible change in the steering as between drive and over-run. The suspension tends to be lively over bad roads, and to produce slight pitching, but it offers an extremely comfortable ride and enables the Lloyd to be put round corners surprisingly well. The bucket front seats provide excellent support and real comfort, although pinching a little at the shoulders. Moreover, leg room is ample and the doors usefully large, while two

each rear wheel fairing. The English in this catalogue is somewhat lighthearted, as, for instance, "sparkling plugs"; but it was produced by Ardiv in Milan and that a catalogue in English of such a recent Italian car is available at all surely shows commendable enterprise.

★

THE CARBON CUP

The annual motor-cycle trial, organised by Temple Press and the O.W.L.S. club, for motor or motor-cycling minded Pressmen from any paper, was held on December 12th, and resulted in a win for F. P. Heath of *T.P.* with Bernal Osborne of *Motor Cycling* as runner-up. Nearly 30 journalists braved the rude remarks of the regular competitors by "having a go" on whatever machines they could beg or borrow and after undergoing the rigours of seven observed sections and two special tests, everyone adjourned to the Chequers, near Sevenoaks, for a well-earned lunch and a vow not to ride a devilish two-wheeled device again until the next Carbon Cup in 1949.

big cubby-holes, door pockets and a luggage locker are provided. The rear seat is reasonably generous.

Vision is excellent, both front wings being visible to the driver through the large single-pane screen, although the rear-view mirror rather blanked a view of the near-side wing. The left foot can be rested comfortably below the clutch pedal.

Possibly due to the newness of the car the Lloyd mechanical self-energising brakes, although undeniably powerful, were rather too energetic, while the clutch came in only at the end of the pedal-travel, making get-away from rest rather a delayed action. It also proved difficult to engage the gears, which are controlled by a steering-column lever working in a real gate, with the car stationary and the engine running. Once under way this difficulty vanished and the change from top into the second-gear of 9.61 to 1 was exceptionally easy; bottom gear (17.4 to 1) was seldom required except for starting. Top gear is 5.2 to 1.

The engine makes a noise and leaves behind a haze of blue smoke that will delight the heart of any two-stroke enthusiast. It seemed most willing and dependable and exhibited no desire to emulate the firing impulses of the popular Otto cycle. Sometimes it had to be spun for a while on the starter before it fired, but an ample dynamo-charge looked after that. Lubrication is effected by pump, not by the petroil system, but the pressure is quite low, merely a few lb./sq. in., the reading looking somewhat droll on a gauge calibrated up to 100 lb./sq. in.

The Lloyd impressed us as a jolly little car, which we would like to try over a greater distance. Items noted included twin Lucas screen-wipers; good all-weather protection; rear-hinged doors; horn button, lamp dimmer and direction-indicator control carried on a steering column extension in front of the gear-lever (the horn button a trifle tucked away); small, high-set, brightly plated headlamps; 75 m.p.h. speedometer; Goodyear 4.00 by 17 tyres.

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JOHN BLAND offers a reliable and reasonably-priced service to Vintage and Edwardian enthusiasts. King-pins, shackle bolts, valves and guides, piston rings, bushes and bearings of every description, to pattern or drawing. 27, Southfields Road, S.W.18. Tel.: Putney 1612.

PIPPBROOK GARAGES LTD., London Road, Dorking.—Distributors of Delahaye cars for Surrey, Kent, Sussex. A good selection of spares available.

SCINTILLA VERTEX N.V.4, £7 10s.; M.N.4-A, £7; G.N.4, £8. Marshall supercharger, complete with carburetter and manifold for M.G. Magna, perfect condition, £25; Zoller Type 4, £15. Marshall Type 110, with carburetter, £17. Amilcar spares, inquiries invited. "Boulogne" Frazer-Nash, fitted with push-rod Anzani engine, £120. Competition Cars Ltd., "The Old Maltings," Nayland, near Colchester, Essex. Tel.: Nayland 334.

FOR SALE—continued

1947 "TC" M.G., black and beige, fully equipped with all our extras; genuine 10,000 miles; £625. Every model F.I.A.T. in stock, 500's from £175, 1,100's from £325, 1,500's from £350, reconditioned and recellulosed. Send stamp for descriptive list of sports and racing cars, always a choice of over 25 reconditioned cars. V. W. Derrington, Ltd., 159 and 200, London Road, Kingston-on-Thames. Tel.: 5621-2.

"MOTOR SPORT" INDEX AND BOUND VOLUMES

The Index for Volume XXIV (1948) is now available, price 1s. 6d. post free. We are also in a position to bind loose issues in yearly volumes, but readers must submit their own copies for this purpose. The charge is 15s. per volume. Apply in both instances to the MOTOR SPORT offices.

V. W. DERRINGTON, LTD., 159 and 200, London Road, Kingston-on-Thames. 500-c.c. special modified Austin chassis fitted dirt track racing Douglas engine and four-speed and reverse gearbox giving terrific performance. Fully equipped for road use with five new tyres, most attractive lightweight 2-seater body, built and registered 1947. Only £6 tax. £135. Austin Seven "Swallow" 2-seater, long-tailed body. Running order but needs rebuilding; £35. Bugatti, magnificent aero-dynamic body, Type 43, fitted 44 engine giving over 100 m.p.h. and 28 m.p.g. (genuine). Mechanically perfect and the most wonderful car to drive, being fitted with fluid flywheel, preselector gearbox, 3.5 to 1 back axle ratio, Scintilla Vertex magneto, S.U. carburetters, brand new oversize battery, 13-in. built-in Marechal headlamps and every conceivable extra. Concealed drophead, seating three abreast, with huge luggage capacity. The most luxurious and outstanding car at a fraction of cost to build. £600.

FOR SALE—continued

COMPETITION CARS LTD.—Light-alloy hood frames for sports cars, detachable and folding, from £3 10s. Improved type aero racing screens, highly polished aluminium frames with mounting fittings, £2 2s. each. Crate deposit of £1 (returnable) with order. "Brooklands" spring steering wheels, plastic rims, from 85s., post 1s. 6d. Large capacity expansion chambers, "Brooklands" type, 35s. Light-alloy racing cycle-type wings, 22s. 6d. each, post 4s. per set. Steel, ribbed, 6-in., 15s. each, post 4s. per set. Helmet-section, with side valance, for attachment to brake drums, 25s. each. Racing bucket seats in light alloy, fitted with Latex Dunlopillo seats and detachable Sorbo backs, £10 per pair; carriage 5s. "Camlock" quick-release racing filler caps; prices on application. Competition Cars Ltd., "The Old Maltings," Nayland, near Colchester, Essex. Tel.: Nayland 334.

ENTHUSIAST desires to reduce stable including Type 35C road equipped, £750. Type 43, road equipped, £490. Type 35, racing trim, £425. All beautifully kept full roller-bearing Bugattis. Box No. 668, MOTOR SPORT, 15, City Road, E.C.1.

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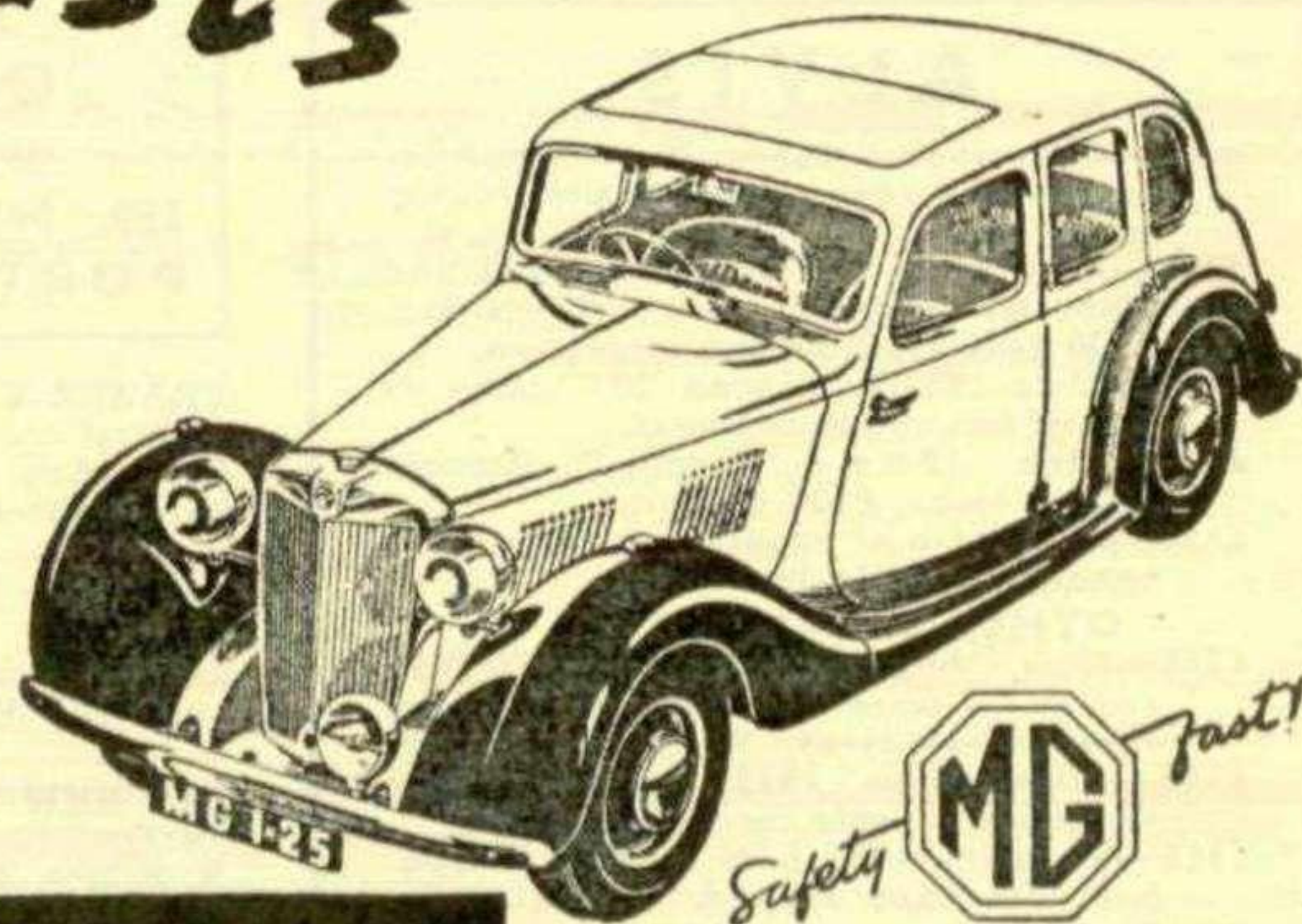
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BUGATTI TYPE 49 OR 44 CRANKCASE, complete with crankshaft, firing 2-4-2; full pressure oil pump in sump. Other spares. Hambling, Crown Point Garage, Leeds, 9. Tel.: 26050.

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ALVIS "12/50." £100 recently spent converting into 4-seater and engine overhauls. Offers. Full details and photos from Gibson, 9, Hill Street, Lydney, Glos.

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M.G. and FORD ENGINES. Genuine "C" type "Monthery" racing M.G. engine, complete all fittings and E.N.V. crash type four-speed box. Ford Eight engine complete with manifold carburetter starter, etc., having only done 1,500 miles. Further details: J. W. Cox, 15a, Stratford Road, Shirley, Birmingham.

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M.G. "PB." Red. Splendid condition. New battery, springs, radiator, etc., two new and three good tyres. £325. Howe, 19, South Lane Gardens, Elland, Yorkshire.

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2-LITRE LAGONDA CHASSIS, complete less engine, gearbox and steering column, five wheels, tyres and tubes. £20 or offers. Lea-Francis 12/40 C/wheel and pinion, £7 10s. Half shafts and hubs £3 each. Con-rods for Alvis "12/50," "16.9," and "19.8" 10s. each; "12/50" cylinder head £3. "Speed 20" dynamo £3 10s. Steering box and column £3 10s.; 19-in. balanced k.o. wheel £3. Also pistons, wheel hubs, brake drums and shoes, hub nuts for Alvis and 52 R.W.; 1934 "16/9" front axle, less kingpins and bushes £5. Bentley 100 m.p.h. speedo head £2 10s. Ammeter with bezel switch £1. Carriage extra. D. Bagshaw, 55, Edward Avenue, Braunstone, Leicester.

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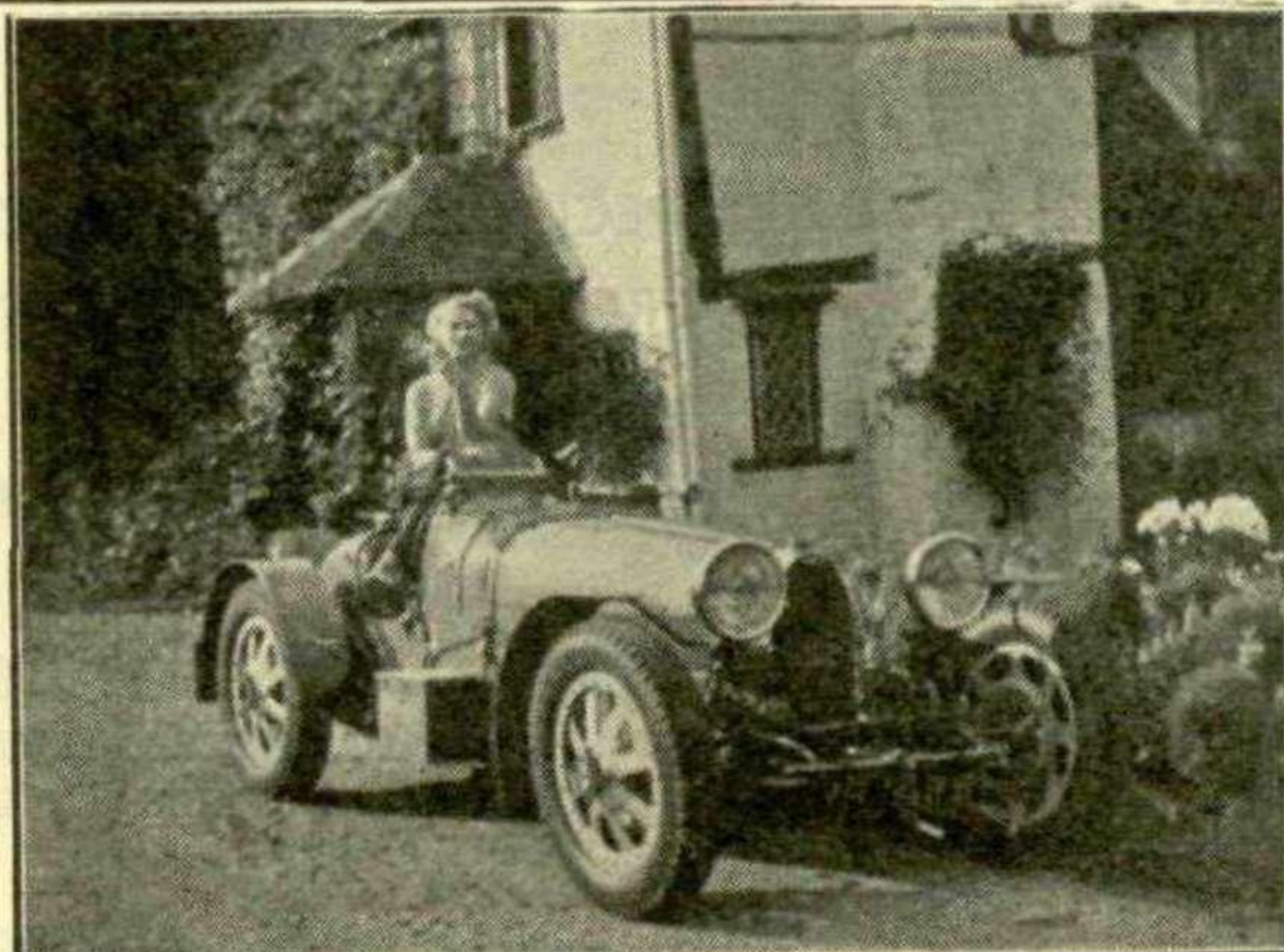
FOR SALE—continued

TRIALS CAR. Having purchased Cooper "500" I must sell my well-known V8. Full information from and offers to: C. A. N. May, 8, Pebble Mill Road, Birmingham, 5.

L-TYPE M.G. CHASSIS complete with four road springs, all new, £35. N-type rear axle complete with half shafts and races, as new, £35. Serck rebuilt four-row gilled tube radiator complete with cowl, fit "P" or "L," £20. T-type front axle with stub-axes, £7 10s. Four "TC" brake drums, £2. "TC" distributor and coil, £4. Two 60-spoke 19-in. M.G. racing wheels, £12. K-type M.G. Magnette engine, absolutely as new, £150 complete. Supercharged "PB" M.G., fitted with a Lester lightweight body, built and first registered 1948, from new and reconditioned parts, many extras, including Scintilla, water pump, racing valves and brake linings, taxed only three months, under 3,000 miles, built at cost of over £600, accept £475. Lightweight body by Lester suitable for T-type M.G., this body has been fitted to my successful "TC" this year and is for sale complete with radiator, petrol tank and upholstery. Sacrifice £150. G. E. Phillips, 16, Grey-stoke Gardens, Enfield.

TRIUMPH DOLOMITE COUPE "14/60," late 1939. Genuine mileage only 25,000. Engine overhauled, Rotoflo shockers, resprayed silver-grey, new tyres, instruction book and all accessories complete. Hood slightly worn, car otherwise like new. £765. Box No. 21, MOTOR SPORT, 15, City Road, E.C.1.

MISS HAIG'S "328" B.M.W. is for sale. This car is in perfect order and ready to run at Goodwood April meeting (total mileage small, collected new from works by present owner). Offers to Miss Haig, Twitten Orchard, Nuthourne, near Pulborough, Sussex.



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RILEY SPECIAL sports 2-seater. Built regardless cost 1947. Ex-Maclure 1,100-c.c. three-bearing engine. Prescott 55.5 sec. Fourth place at Poole (47). Prescott 1½-litre class. Luton Racing class. Goodwood from back of grid. Whole car checked. Resprayed black since seasons racing. Very potent car with great possibilities, docile in traffic, etc. Must sell. Nearest £365. S.U. carbs: two 1½-in., perfect, with Riley manifolds polished and shaped—offers; wanted, two, 28 or 30 mils.; also c.r. gearbox or gears. Croysdill, 6, Beaumont Avenue, St. Albans. Tel.: 5356.

"PB" FRONT AXLE. Complete, perfect, £8. Front linings, 15s. "L" front wings, £4 10s. Boards, £1 10s. Hub caps, 15s. each. Engine complete or parts. S.A.E. Box No. 22, MOTOR SPORT, 15, City Road, E.C.1.

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BENTLEY 3-LITRE OPEN 4-SEATER 1925. Engine good mechanically, very clean, good tyres. Bentley green. £246. 18, Culford Gardens, King's Road, Chelsea, S.W.3. Tel.: KEN 4290.

M.G. "J2" ENGINE. Completely reconditioned. £35. "J2" gearbox. £15. Completely reconditioned power, plus supercharger, etc. £25. One "PB" cylinder head, copperised. £8. "D" type engine. £10. Numerous M.G. spares. Offers considered. S.A.E. Wanted.—Riley 1½-litre pre-selector gearbox and bellho sing. Box No. 23, MOTOR SPORT, 15, City Road, E.C.1.

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ALVIS "SPEED 20" 1933 drophead foursome by Young. Most attractive car in fine condition. £120 spent recently on engine, etc. Owner going abroad. Regretfully obliged to sell, will refuse no reasonable offer. Seen 51, Park Town, Oxford. Tel. 4461.

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BENTLEY 3-litre, short chassis, open four, new battery, twin S.U. pumps and carburetters, "A" Box. £240 or offers. "Devonia," Hampton Road, Hanworth, Middlesex. Tel.: Molesey 4255.

1939 MORGAN 4/4 2-SEATER. Perfect condition throughout. £375. Vauxhall "21/60" 2-seater sports. Body and mechanically perfect at bargain price of £125. Terms and exchanges. We have large stocks of Wolseley Daytona and "J2" spares, including engines, gearboxes, back axles, etc. Also Centric supercharger complete, perfect working order. £20. S.A.E. for lists and prices. Sidney Cottrell, 140, Cheltenham Road, Bristol, 6. Tel.: Bristol 24972.

1935 SINGER "LE MANS" 1½-litre tourer. Reconditioned engine, diff. unit. Excellent performance. Offers? 4, Selbourne Road, Weston-super-Mare.

£485 LANCIA "APRILIA" saloon, 1938 reg. The mechanical and coachwork condition excellent. Black with brown hide upholstery. A genuine car which has been well cared for. £225—Lagonda 3-litre, 1933 reg. Sportsman's saloon. Vokes filtered throughout; extremely good mechanically. Four new Dunlops; manual box. Paint and chrome good; interior could do with cleaning. £85—Schneider "12/8" vintage sports 4-seater; engine reconditioned, crank ground, new tyres and all-weather equipment. Body similar to V.D.P. Bentley. The above cars are open for inspection any time and represent sound value for money. Fawcett, 22, St. Johns Road, Balby, Doncaster.

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1948 DOUGLAS 350-c.c. sports spring frame twin; 2,850 careful miles, cost £200 with clothing. All for £125!! 37, Parkside Drive, Edgware, Middlesex. Tel.: Edgware 3925.

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1931 ALVIS "12/60" "BEETLE-BACK. Black and red, good condition. £245. B. G. Collins, "Winchmore," Ashurst Road, Cockfosters.

1947 MODEL M.G. 2-seater, absolutely as new. Bargain. Jack Leeson & Partners, 96, Brook Street, Stourbridge, Worcs.

1934 L-MODEL M.G. 2-seater sports, cellulosed cream, numerous extras, magnificent motor car. To clear £150. Jack Leeson & Partners, 96, Brook Street, Stourbridge, Worcs.

O.M. 2-LITRE 4-seater sports, excellent condition, spare engine, all weather equipment. £140 or exchange. Jack Leeson & Partners, 96, Brook Street, Stourbridge, Worcs. Tel.: Hagley 3234.

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BUGATTI Type 49 ("3.3") chassis and engine for sale. Complete, but block damaged by frost. Seen Bristol area. Best reasonable offer. Also Type 50 coupé body going cheaply, seen Lincolnshire. Details: Lukins, Monmouth House, Almondsbury, Bristol.

RILEY NINE 1928 saloon. Nearly £100 recently spent on works. Good condition for age. Petrol. London area. £50. Box No. 25, MOTOR SPORT, 15, City Road, E.C.1.

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FIAT "500" COUPE, 1937 model; registered May, 1939. Over £40 spent on engine overhaul 1947. Only 3,000 miles since, new tyres. Offers please. Would exchange for Lagonda 2-litre or other similar vintage car. P. J. E. Binns, Thatched Cottage, Godden Green, Sevenoaks, Kent.

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LAGONDA 1934 4½-litre sports saloon, one owner, superb appearance, condition and performance, a really magnificent specimen, first offer over £400 secures; Rolls-Royce "40/50" "Ghost" 3-seater, rebuilt 1931, modern appearance, f.w.b. and 20-in. wheels, see last month for further details, £200; Triumph 1935 2-litre 16-h.p. sports saloon, rebored and overhauled and in excellent order throughout, taxed and petrol. £185; Alvis "Speed 20" 1934. Thrupp and Maberley close-coupled 4-door sports saloon, excellent order and very nice body. £200. Lagonda 2-litre open sports 4-seater, high chassis, rebuilt and re-registered 1938, in excellent condition except for engine, which is structurally sound, but requires overhaul, full equipment, six wheels and tyres, body quite exceptionally good, a bargain at £100. Spares, etc.—1935 Alvis "Silver Eagle" 17-h.p. engine, with dynamo and distributor, £20; (believed) 1933 Chrysler engine, gearbox and all auxiliaries, good condition, what offers? A number of very good 4-cylinder magnetos, various types and makes, from £1 15s. each; four 5.25 by 21 new remoulds, £18. Air compressor, with reconditioned 1-h.p. A.C. single-phase motor, automatic switch, 5 cubic feet receiver, excellent spray gun. £25. C. J. Bendall, The Rookery, Walsworth Road, Hitchin, Herts. Tel.: Hitchin 1108.

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ALVIS 1934 "Firefly" saloon, engine completely stripped and reassembled last Dec., also body resprayed. Car is in really tip-top order. Nearest £200. Box No. 27, MOTOR SPORT, 15, City Road, E.C.1.

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1934 SINGER NINE sports 4-seater. Genuine "Le Mans" engine. Very good condition; 16-in. wheels. E.L.P. tyres. New hood, cellulose. £140. Tel.: Kensington 7131.

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£250 Riley 1,100-c.c. "Ulster" type 2-seater. Special crank, etc. Really fast and in splendid condition.

£195 Singer Nine "Le Mans" sports 2-seater. Green. Mechanically excellent and very smart.

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£135 B.S.A. Scout 9-h.p. 1935 sports 2-seater. Good hood and screens. Mechanically excellent. Very smart little car.

£110 Riley Nine open sports 4-seater. Special series engine. New side-screens. Good battery. Runs really well.

£100 M.G. 12-h.p. Foursome sports Salonette. Body a bit rough but goes very well.

£52 Alfa-Romeo 1½-litre chassis fitted awful drophead coupe body. Ideal for enthusiast to rebuild. Bargain.

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ALVIS "SPEED 20." Black, very smart. Small mileage since complete overhaul at Alvis. Exceptional condition. £350. Box No. 28, MOTOR SPORT, 15, City Road, E.C.1.

ALVIS "12/60" "BEETLEBACK" sports 2-seater, registered 30/4/31. In first class condition throughout. Specification includes fold-flat windscreen, disappearing hood and sports engine. £185. Campbell, 86, Hillside Road, Beeston, Notts. Tel.: Beeston 56411, after 7 p.m.

1927 MINERVA 18-h.p. engine, less 3 sleeves and pistons, with new 6-cylinder Delco distributor and coil, or will break up and sell components, including vacuum brake servo. Rudd, 31, Heyworth Street, Derby.

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LANCIA "APRILIA" 12.8-h.p. 1938, black, brown leather, 35 m.p.g., exceptional condition. £550 or exchange smaller car. Yorks. Box No. 29, MOTOR SPORT, 15, City Road, E.C.1.

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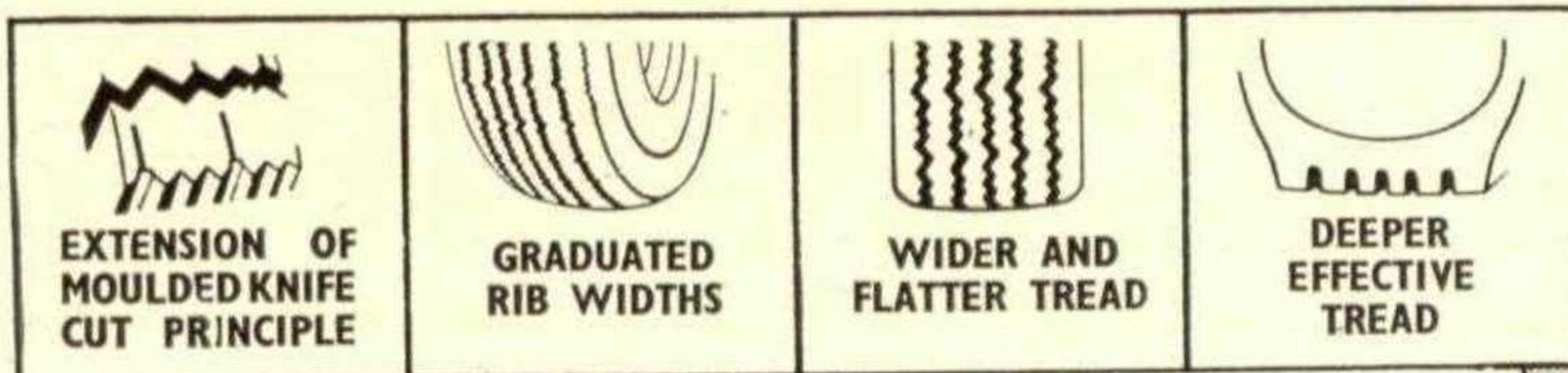
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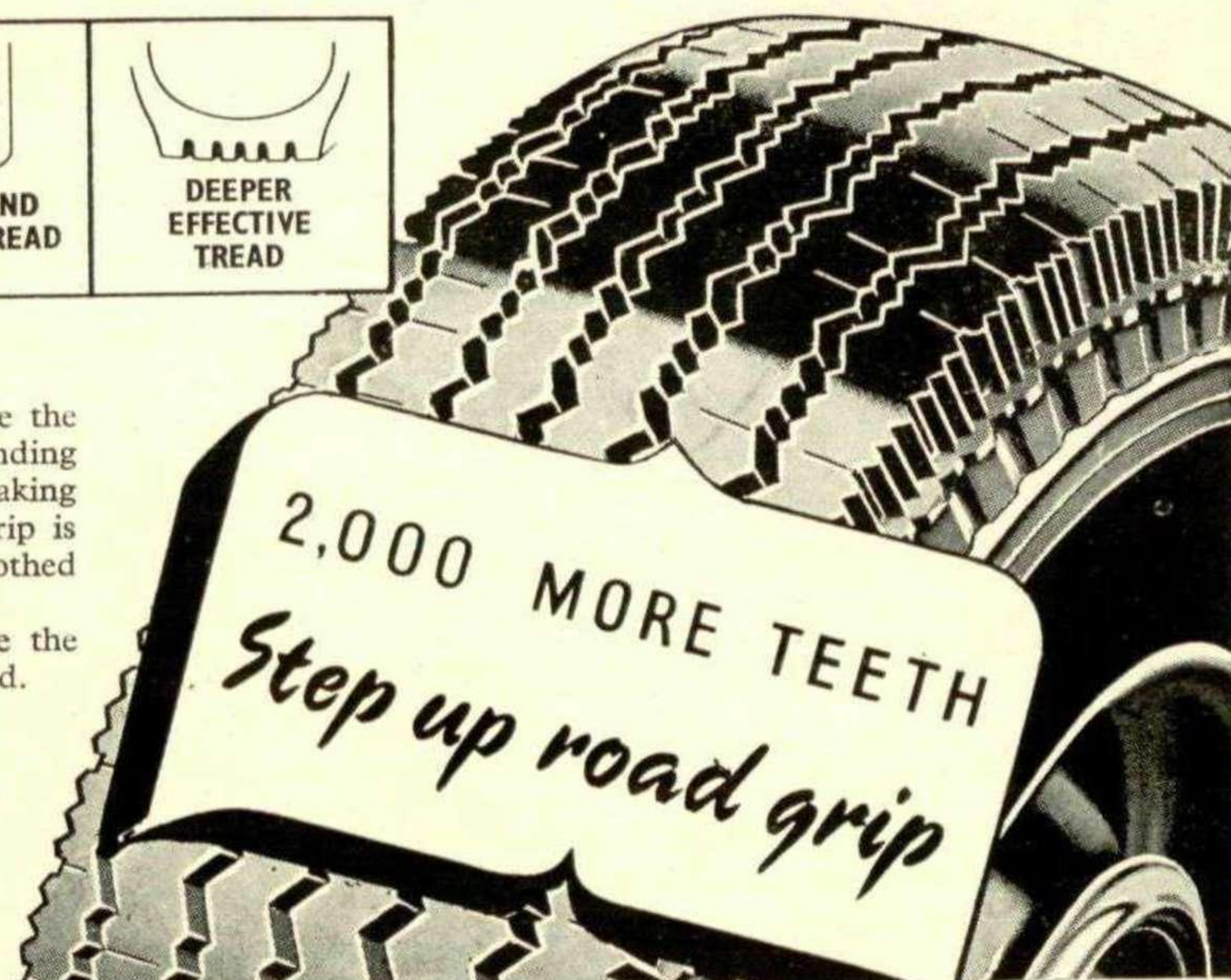
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