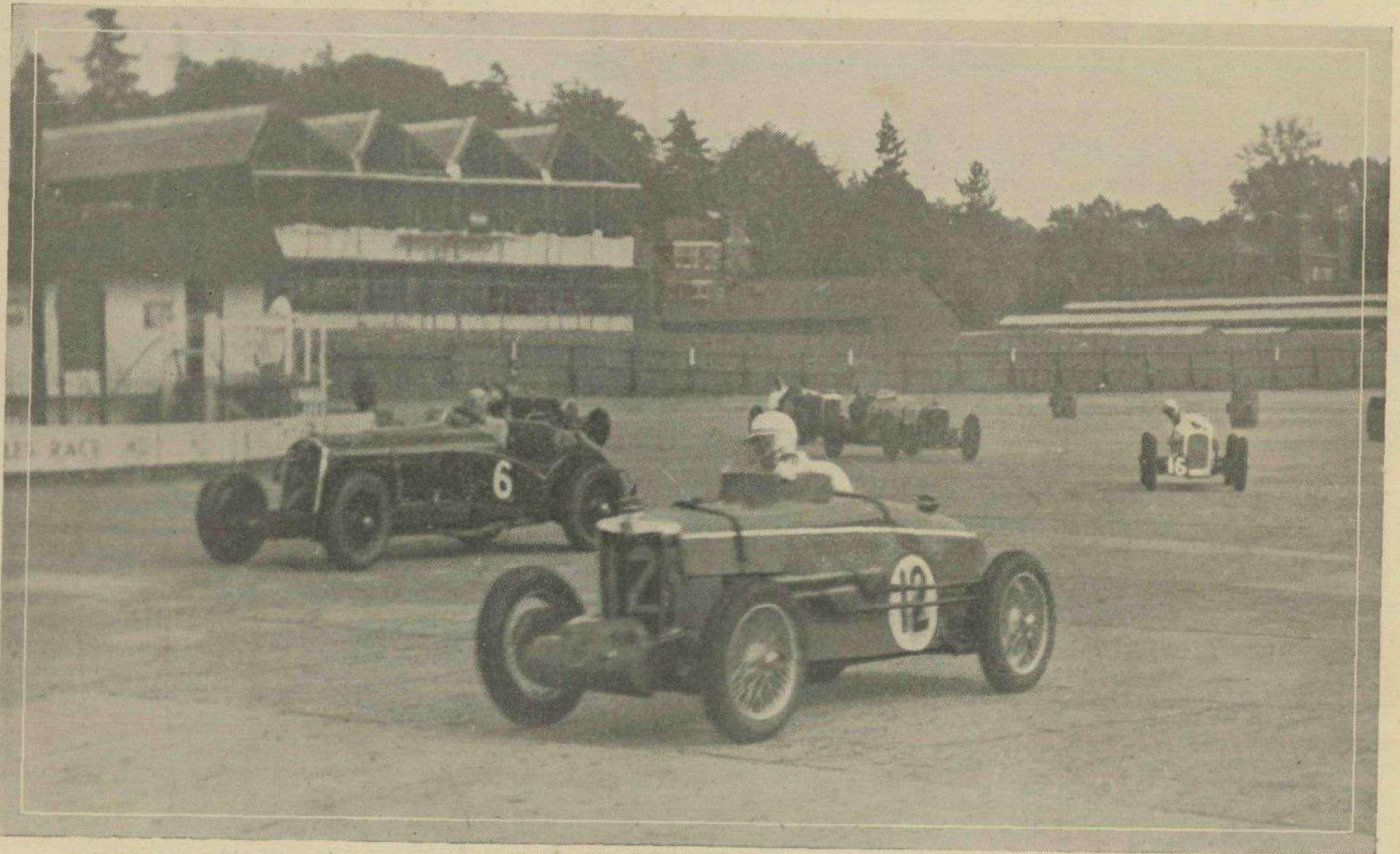


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GREAT BRITISH ACHIEVEMENTS—IV

The Development of the Rolls-Royce R-Type Engine

Recounted by The Editor

THE motor-racing enthusiast, being invariably keen to the extent of fanaticism, craves more than most to justify his interest and devotion in the eyes of ordinary, uninspired mortals. Yet, to do this is an unwelcome and usually fruitless task. The sane interpretation of the now classical and rather sweeping saying, "The racing car of to-day is the touring car of to-morrow" (who, by the way, originated it?) is clear enough to you, but is extremely difficult, if not impossible, to interpret for one's horse-minded, rail-addicted elders. The advertising value of racing is easier to explain, its use as a means of increasing Axis-prestige even moreso—recent happenings being fresh in the nation's memory—but neither seems quite laudable as a complete justification for the game. In considering the development work put into the R-type aeroplane engine by Rolls-Royce, Ltd., a dozen or so years ago, that Great Britain could win and retain the Schneider Trophy, true justification for racing comes to light. The remarkable care, attention, skill and devotion that went into the perfection of this particular Rolls-Royce engine comprises a story of endeavour as fine as that in any other sphere of human achievement. We see a truly artistic aspect of internal-combustion engineering and, as it is not in the least difficult to appreciate that the lessons learned from developing the R-type contributed vitally to the perfection of the "Merlin" engines which powered the Hawker Hurricanes and Supermarine Spitfires which defeated German aircraft in the Battle of Britain, a complete and glorious justification is offered for striving to win a seaplane race and break the Air Speed Record. As the Rolls-Royce "Griffon" engine, which has recently gone into service with the R.A.F., and which will be nicely in time for the Second Front, has exactly the same cylinder capacity as the R-type of

1931, this seems a most opportune time to recount the story of the latter's development—whether or not justification for the Sport is deemed necessary!

In 1927 this country won the Schneider Trophy race at Venice, Ft.-Lt. Webster, in a Supermarine S.5 with a 900-h.p. geared Napier Lion engine, averaging 281.65 m.p.h. for the 217½ miles. For 1929 we had to stage the contest, and found a course at Ryde, I.O.W. It was decided that more powerful engines would be desirable for the Supermarine entrants,

.....
"The Battle of Waterloo may, or may not, have been won on the playing fields of Eton, but certainly the Battle of Britain was won at Brooklands and Calshot."

and Rolls-Royce, Ltd., were asked to get busy. The British Government was, for once, interested in racing—mark the results! The Rolls-Royce R.A.F. engine at this time was the 825-h.p. 2,000 r.p.m. "Buzzard," and on this the racing engines had to be based, as time did not permit of design and development of an entirely new engine. A new-type supercharger, raised compression ratio, higher crankshaft speed and a more compact outline were applied to the "Buzzard," and 1,900 h.p. was realised at 2,900 r.p.m., from an engine weighing 1,530 lb. It is now history that F/O. Waghorn, flying a Supermarine S.6 with the new engine, won the 1929 race at 328.63 m.p.h. for the 218 miles. In the course of the race F/O. Atcherley, in another S.6, set up a new 100 kilo. world's record at 282 m.p.h., and after the race Sqdn.-Ldr. Orlebar broke the World's Speed Record on two occasions with an S.6—first at 355.8 m.p.h., later at 357.7 m.p.h. (both

averages of double two-way flights over three kilos.)

If we could win the race for the third year in succession the Schneider Trophy would rest for ever in this country. In view of this, it is to the Government's extreme discredit that it decided not to finance the 1931 contest. In the end the late Lady Houston very sportingly put up £100,000, and the race became possible, but as only a little over six months remained, again new engines could not be built and Rolls-Royce, Ltd., was forced merely to further develop the 1929 type, for installation in two of the original S.6 seaplanes, slightly modified—now called S.6A—and two new S.6B machines. It is with the story of the development of the 1,900-h.p. R-type of 1929, in this limited period of time, that we are now concerned.

To obtain the required horse-power increase with no increase in fuel consumption and no decrease in reliability, it was decided to increase engine speed, s.c. gear ratio, and the size of the air intake. While re-designing went on, special preparations were made for testing the new engines. Heenan and Froud built a special water-brake, which did not suffer from uncontrollable variations of load, blade erosion or water-boiling. The test house was freed of exhaust gases by using a "Kestrel" engine to blow air through the building, while electric fans in the roof cooled the crankcase and exhaust plugs of the engine on test; before these precautions the air-intake temperature of the engine on the bed rose by 10° C., and power dropped by 100 b.h.p., also, the testers felt ill. Then, to imitate the air speed that the R-type would experience in flight, another "Kestrel" drove a 3,000 r.p.m. fan which made a draught of 400 m.p.h., pilot heads measuring the air-intake speed. Yet another "Kestrel" drove a supercharger test rig. The design depart-

ment, the experimental department and the experimental fitting and machines shops, all at Derby, were the three departments of Rolls-Royce, Ltd., responsible for the work, and they were directly under the control of the late Sir Henry Royce at West Wittering.

When an "R" was run-up for test eight men had direct charge of it—one at the engine controls, one at the water-brake controls, one checking the tachometer readings, one checking cooling, one checking fuel consumption, one in charge of the "draught" "Kestrel," one in charge of the "double boost" "Kestrel," and, finally, the chief tester, who gave all orders and logged the readings and made out test reports. Even the public co-operated, as the Mayor of Derby appealed to his townfolk to overlook the noise of the engines running with stub exhausts, at odd hours of the day and night, for a week before the race! Certainly the Rolls-Royce experimental staff gave their wholehearted co-operation. For seven months or so they worked all hours, and many did frequent 24-hour spells, without complaint.

Some idea of the conditions in the test-house during a half-hour full-throttle run can be gauged when it is said that, using ordinary cotton-wool to plug the ears, you were deaf for 24 hours afterwards and your head buzzed for a couple of days. Milk was served to the test-bed staff twice a day. The normal running-up procedure called for a period of 5 min. idling at 1,000-2,000 r.p.m. to stabilise

temperatures before opening up; the engines were started by a belt-drive from an electric motor. Lubricating oil was pre-heated by steam. The man in charge of test and development was a "mere lad" of about 26. J. Pettitt-Herriot acted as Air Ministry liaison officer between Rolls-Royce, Ltd., and Supermarine Aviation Works, Ltd., from April to August, sorting out the installation problems, and thereafter was stationed at Calshot, where he was responsible to the Air Ministry for the installation, inspection and testing of the engines. The Derby works naturally sent a staff to Calshot, and in order to make the most of the flying time available, a high-speed lorry, in the form of a "Phantom I" Rolls-Royce car chassis fitted with an engine-carrying cradle, stood by to transport used engines to Derby and return to Calshot with reconditioned or new ones. The journey usually took about six hours, including loading.

The 1931 engines were required to run one hour at full throttle without blowing up. By the end of April a 20 min. run could be achieved. By the middle of July a 30 min. run was possible. On August 3rd an R-type kept going all-out for 58 min. before the carburetter air-pipe split, covering everyone around with aluminium rivets—another crankshaft had broken as it had previously after 34 min. Then, on August 12th, the first non-stop hour run was accomplished, at an output of 2,350 h.p., from an engine weighing 1,630 lb., equal to 11 oz. per b.h.p., an

achievement which, we believe, has never been surpassed. The achievement had been no easy one. New crankshaft and rods were used, and much re-designing was necessary before these would stand up and the white-metal big-ends take the load—nine tons on the centre main! Side lashing of the big-ends, causing bearing failure, had to be combated and then, although engine speed had been increased by only 300 r.p.m., two or more valve springs would break after ten minutes' running. A special rig was made and, after much experimenting, somewhat revolutionary springs were evolved which gave no more trouble. Another pother was loss of oil through the breathers. After one 25 min. run the test-house was smothered, consumption being 112 gallons an hour. Weeks of research on combinations of different scraper rings and breathers reduced this to about 14 gallons an hour, also reducing oil temperature to approximately 80° C. inlet and 140° C. outlet. The magnetos were a cause of concern, because vibration affected them and oil found its way right along the rotors to the points; in the end every magneto nut was split-pinned. Lodge designed special X170 plugs which never gave any trouble, although when examined microscopically the majority were found to contain small metallic inclusions. The race sets were given a duration run and then sent back to Lodge for examination, re-polishing and new outer bodies. On one occasion a rod came out through the crankcase at 5 p.m. The

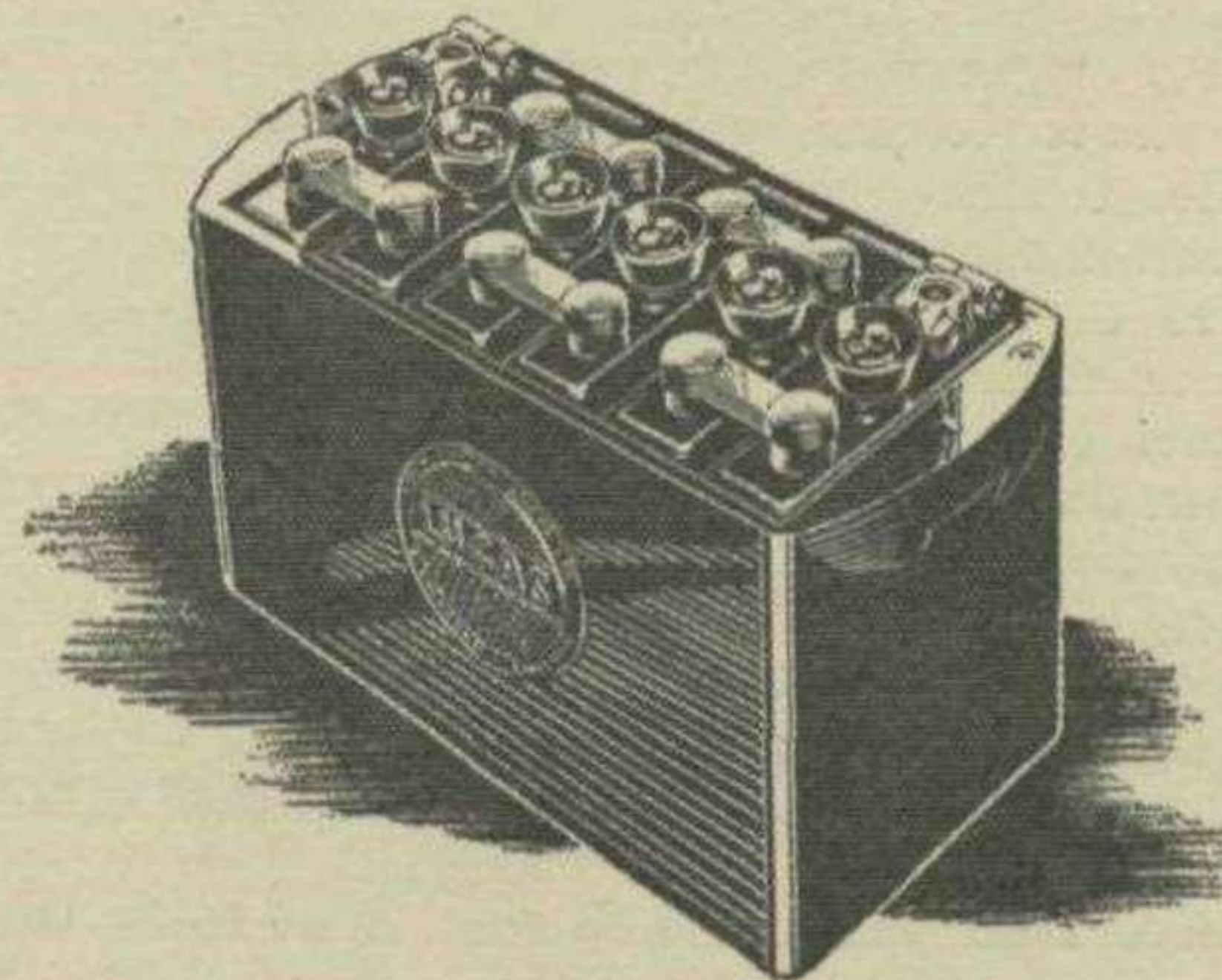
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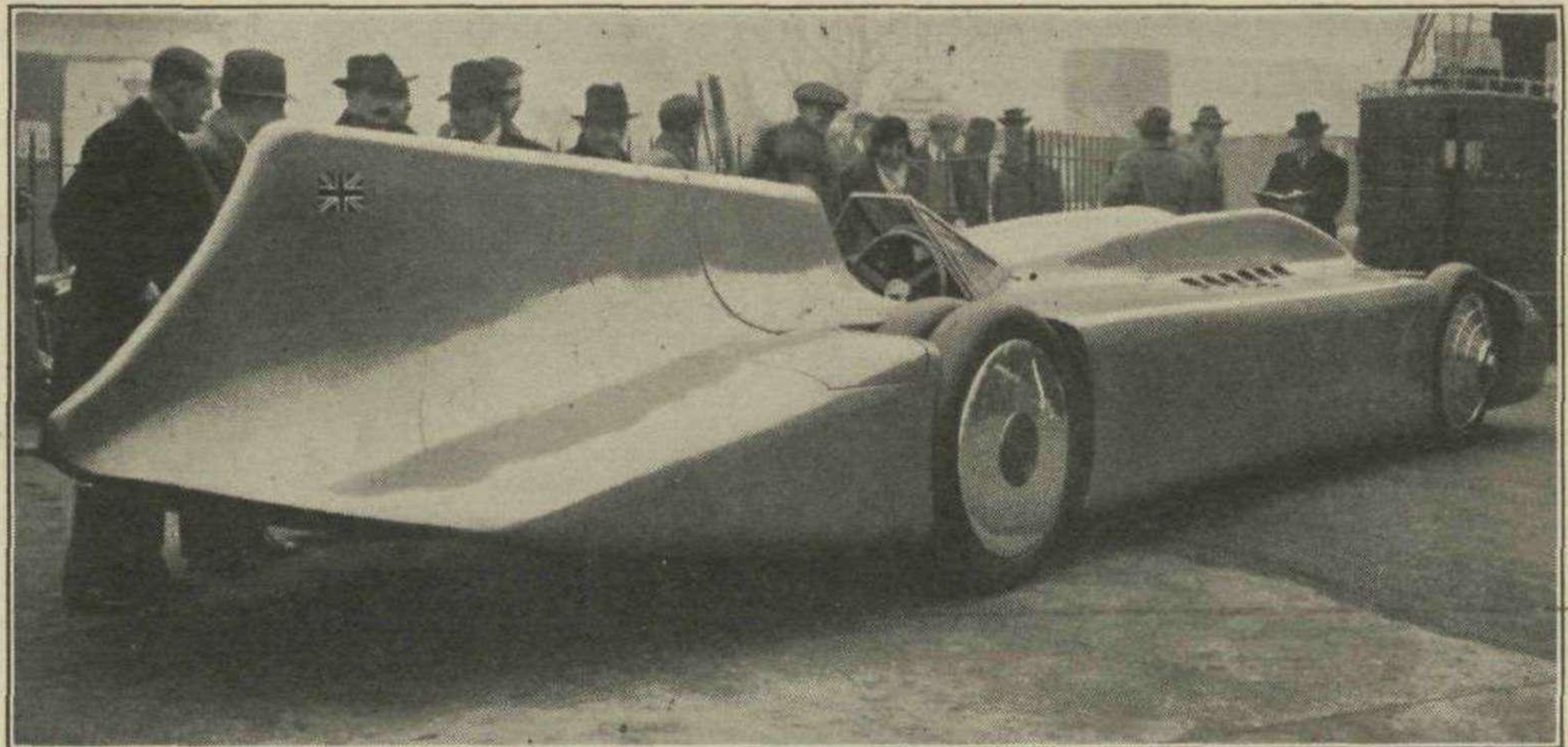
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The R-type on the ground. Sir Malcolm Campbell's Campbell-Special with Schneider Trophy Rolls-Royce aero engine, which set the Land Speed Record to 301.13 m.p.h. at Utah in 1935, doing one run at 304 m.p.h.—the first car to exceed 300 m.p.h. Before this it did 276.82 m.p.h. at Daytona and, in different guise, 272.46 m.p.h. in 1933.



engine was off the bed by 5.30, dismantled by 7 p.m. and new drawings were got out and new rods put in hand between 8 and 9 p.m. Before lunch next day the newly-assembled engine went on test. An elaborate history of all the components in each R-type engine was kept, so that the "running-life" of any part could be estimated, and even when two engines broke up in 24 hours the Rolls-Royce experimental department refused to panic. Incidentally, after the endurance run the engine was fully stripped and examined and was found to be in well-nigh perfect order. Outside the test-house the ground was quite hot, and in one place hollowed out, 15 ft. away from the exhaust stubs! It was necessary to mix accurately about 200 gallons of fuel before each test-run, some 80 gallons being needed to get any circulation through the system. Consumption at full throttle was approximately three gallons a minute.

The engineers at Calshot had no picnic either. Much research was necessary to get the fuel system functioning correctly, and Supermarines built a complete petrol installation rig for experimental purposes, carried out under actual flight conditions of speed and temperature. Installation of an engine in the fuselage caused many headaches. The bottom of the carburetter had a clearance of about 0.15 in. longitudinally, and Supermarines constructed a special wooden "mock-up" of the front part of the aircraft and sent it to Rolls-Royce, Ltd., so that each engine could be tried before delivery. Much transference of piping, etc., from one engine to another, with appropriate testing, was necessary when changing engines, and when all was ready it took six operatives about half an hour just to lower the R-type down and back the last six inches on to its bearers. Slow running at approximately 500 r.p.m. was ensured by running each engine at Derby with a similar propeller to that used at Calshot. In damp weather the engines in the seaplanes would not start, due to moisture in the compressed air wetting the plugs, but, once started, the same plugs could be used throughout. Special methods of filling the wing radiators had to be resorted to, in order to obviate air pockets. When an engine was started it

was run for 5 min. in weak mixture at approximately 1,000 r.p.m., and the oil coolers were vented. The mixture was then richened and the throttle opened to about 2,450 r.p.m. and 22 lb./sq. in. boost. Flight tests showed an air-intake velocity of 407 m.p.h. and enabled the "double boost" at Derby to be increased accordingly. The oil used was pure castor. The fuel, supplied by the Ethyl Export Corporation, in conjunction with Rolls-Royce, Ltd., presented special problems. It consisted of petrol, benzol and methanol, and it straightaway dissolved the jointing compound in the tanks and choked the filters. Then the presence of only 0.4 per cent. of water completely ruined it, and some very complicated procedures had to be drawn up for testing it and applied, in two ways, to samples taken from the barrels of fuel, from the samples taken from the float tank before and after every flight and also whenever fuel had been in the tanks for over 12 hours. If the water content exceeded 0.3 per cent. the fuel was discarded. Similar elaborate processes were evolved for checking fuel, oil and coolant consumptions, etc. In all, the race engines spent 10 hr. 17 min. in practice flights without a single failure.

It is now a matter of history that Ft.-Lt. J. N. Boothman flew his S.6B carefully over the 217.5-mile course at an average speed of 340.8 m.p.h. to win the coveted Schneider Trophy for this country for all time. Before the race the practice engines were replaced by the final engines, and these were given a short ground run to check installation. A short test-flight was then made on each machine to check for full performance. The plugs were then removed and each cylinder bore inspected through the plug holes. New plugs were then fitted, the oil, boost and fuel-pressure gauge pipe-lines blanked off to obviate trouble should they fracture during the race, the mixture lever set and locked and a final ground run given to test the new plugs. The fuel system was cleaned and filled with 140 gallons, the coolant header tank filled to leave 1½ gallons air-space, and 16½ gallons of oil, heated to 60° C. in special tanks on the pontoon, put in last of all. Boothman's S.6B took 8 min. to warm up on

the pontoon, taxi into position, and take off. It was air-borne in 36 sec., and landed 4½ min. later. To comply with the race regulations it stayed on the water with the engine idling for 1½ min., and then took off in 37 sec. It entered the course at 3,200 r.p.m., and a water outlet temperature of 88° C. After 1½ laps this rose and the engine was throttled back to 3,100 r.p.m. to maintain a steady water temperature of 95° C. The 7 laps took 38 min. 22½ sec. 110 gallons of fuel, 11½ gallons of oil and no water was consumed. The long trail of black smoke behind the machine increased as time wore on, probably because of wear in the scraper-rings. When stripped, neglecting the fatigue factor, the winning engine appeared quite ready to repeat its magnificent and historic performance.

More was to follow! Using a petrol-less benzole, methanol and lead fuel to enable a greater throttle opening to be employed, the horse-power was increased to approximately 2,600. The carburetter passages were opened up slightly, petrol header-tank pressure raised and the fuel pumps run faster; the fuel consumption rose from 0.6 to approximately 0.85 pts. per b.h.p. hour. This engine was installed in the S.6B No. S1595 on Sunday, September 27th, and on Tuesday, September 29th, Flt. Lt. Stainforth set up a new Air Speed Record at 408.5 m.p.h., his four timed flights being at 415.2, 405.1, 409.5 and 405.4 m.p.h., respectively. Tests had first to be carried out with the revised fuel system, and it was found, also, that the induction pipe temperatures were so low that slight building-up trouble was experienced in the supercharger casing. This resulted in the engine running on six cylinders until it was thoroughly warm, and the vibration was so bad that it was feared that the rigging of the aircraft would be affected. Consequently, a special starting procedure was adopted, the engine being warmed-up at slow speed until the water temperature reached approximately 85° C. It was then shut down, the fin oil-tank covered up, and fuel drained completely from the supercharger casing. The engine was then restarted and given full throttle straight away, this method being adopted actually on the pontoon, on which Sqn.

Ldr. Orlebar, Mr. Mitchell (designer of the S.6B), Mr. Lappin (of Rolls-Royce, Ltd.) and many others were in attendance. For the record 100 gallons of fuel and 15 gallons of oil were carried. Take-off took 43 secs., and the first run over the measured section was made in level flight to check the new propeller. Afterwards Stainforth dived in at full throttle (3,400 r.p.m.), reached a maximum indicated speed of 420 m.p.h., which fell to 405 m.p.h. at the end of the course. The engine was throttled down after each run and the average water temperature was 90° C., never exceeding 93° C. The flight lasted 27 min. and fuel consumption was 91½ gallons, or approximately 3½ gallons per min. Thus the air-history of the Rolls-Royce R-type engine included bringing the Schneider Trophy permanently to Britain and enabling man to exceed 400 m.p.h. for the first time.

The engine was a V12 6 in. by 6.6 in., a stroke/bore ratio of 1.10 to 1. The swept volume per cylinder was 186.6 cub. in., a total of 36.7 litres, and the clearance volume per cylinder 37.32 cub. in., giving a compression ratio of 6 to 1. The normal speed was 3,200 r.p.m., at which the piston speed was 3,520 ft. per min, the b.m.e.p. 254 lb./sq. in., and the supercharger speed 23,904 r.p.m. Boost pressure with 400 m.p.h. intake blast was 33 lb./sq. in., and the output was 2,300 b.h.p. The weight, dry, was 1,640 lb., a weight/power ratio of 0.51 lb. per b.h.p., which, we believe, has never been bettered. Normal fuel consumption was 14 gallons per hour, and oil pressure 120 lb./sq. in.

The overall length was 8 ft. 4 in., and the reduction gear ratio to the r.h. tractor propeller 0.607 to 1. The ignition timing was 37° before t.d.c. and the valve timing was: inlet opened, 23° before t.d.c.; closed, 57° after t.d.c.; ex. opened 60° before b.d.c.; closed, 23° after t.d.c. The supercharger absorbed some 360 h.p. at full throttle.

In 1930 Sir Henry Segrave had had two R-type engines installed in Lord Wakefield's "Miss England II." The boat struck a piece of driftwood while in full flight on Lake Windermere, and F. Halliwell, chief tester at the Rolls-Royce experimental department, was killed instantly, Segrave dying in a few hours. Nevertheless, the record had fallen, at 98.76 m.p.h. In 1931 Kaye Don took the salvaged boat to South America and achieved 103.49 m.p.h. and, later, at Lake Garda, in Italy, 110.22 m.p.h. Lord Wakefield then built "Miss England III," with two of the latest R-type engines, and on Loch Lomond, in July, 1932, Kaye Don put the record to 119.81 m.p.h. Then came Sir Malcolm Campbell's attempts with "Bluebird," powered with a single R-type engine. In 1937 he did 129.5 m.p.h. on Lake Maggiore, and later set the record to 130.86 m.p.h., on Lake Hallwil.

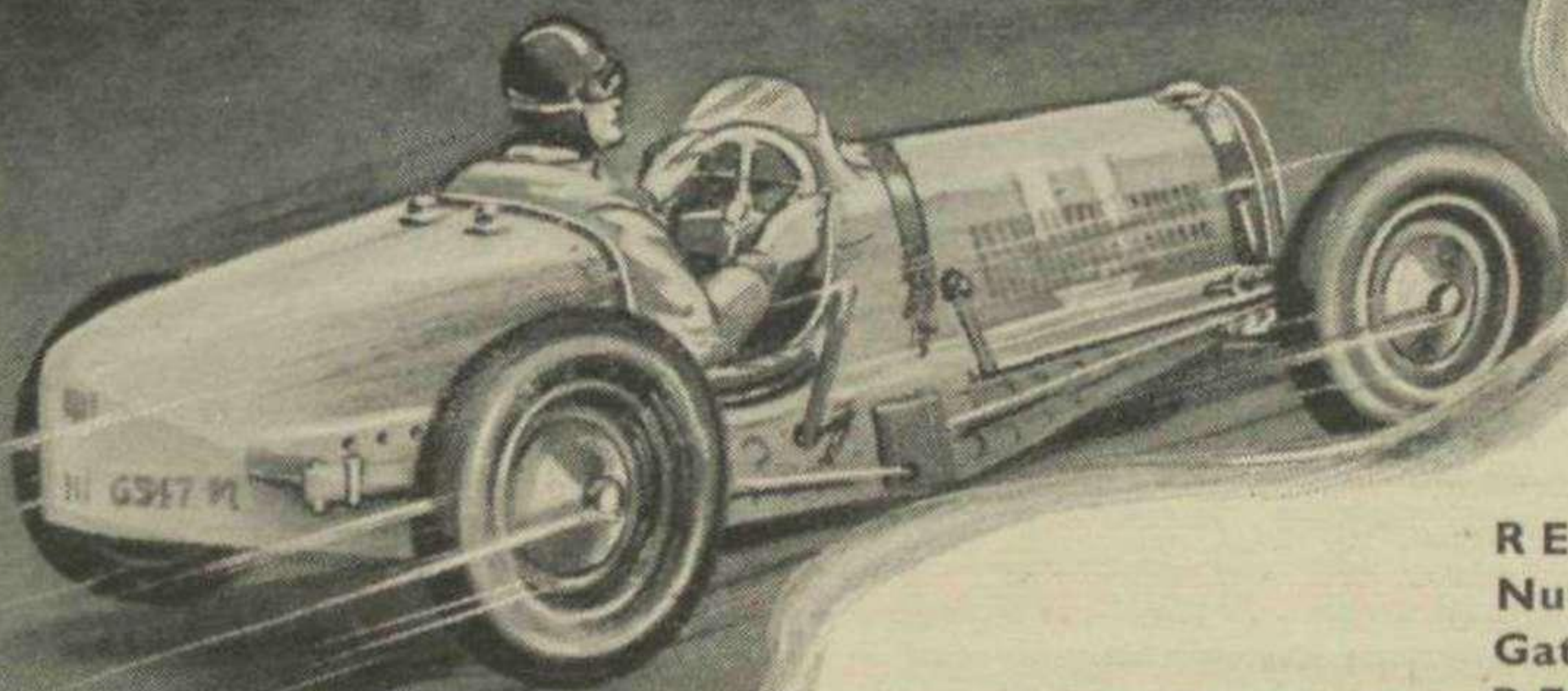
Campbell was the first person to install the R-type engine in a car. At Daytona, in 1933, his Campbell-Special "Bluebird" established a new Land Speed Record of 272.46 m.p.h. and, with improved streamlining, 276.82 m.p.h. in 1935. Then, in September, 1936, Campbell went to Utah

and recorded 301.13 m.p.h.—the first time a car had exceeded 300 m.p.h.

As might be expected, Capt. George Eyston now took a hand. His 6-wheeled, 6-ton "Thunderbolt" was given two R-type engines, one from the 1931 Schneider Trophy race-winner, and the other from the Air Speed Record S.6B. In 1937, at Utah, Eyston set the record to 312 m.p.h. and, re-designing a bit, to 345.5 m.p.h. in 1938, and finally, before he was vanquished by Cobb, to 357.5 m.p.h. Incidentally, it seems the engines used may have been somewhat detuned, as the car's total h.p. was quoted as approximately 4,000, whereas one would have expected at least 4,700.

Thus was the R-type developed from its 1929 form, so that in 1931 race guise it gave 21 per cent. increased power for a weight increase of only 6½ per cent. Quite obviously the lessons learned in developing the R-type proved invaluable when the "Merlin" engine, in all its many mks., came to be built. Now, in readiness for the Second Front tasks, comes the "Griffon," of equal capacity to the "Buzzard" and R-type, and, as announced before the Second Front opened, able to give 1,750 h.p. for take-off and 875 h.p. at economic cruising speed for a dry weight of 1,900 lb. or 1.09 lb./b.h.p., which compares with the 1,600 take-off h.p. and 800 cruising h.p. of the more highly-developed of the 27-litre "Merlins," which weigh 1,800 lb. dry, or 1.12 lb./b.h.p. Britishers can say in all sincerity: "Thank God we have Rolls-Royce, Ltd."

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THE OUTER CIRCUIT "200s"

THE Junior Car Club received rather less diverse entries for the 1923 race than it had done for the 1921 and 1922 events, but again two very successful races were run, and it is now history that Alvis won the 1½-litre contest for Britain. The date was October 13th, the "1,100s" starting their race at 10 a.m. and the bigger cars racing at 2.15 p.m., times more convenient to everyone. By the close of entries at ordinary fees the list comprised Eyston, Zborowski, Morgan, Lionel Martin and Halford (Aston-Martins), Marshall, Cushman, O'Day and Lancaster (Bugattis), Newsome and Peacock (Warwicks), George Newman (Wolseley), Meeson and Joyce (A.C.), Bertelli, Douglas and Barnato (Bertellis), Peacock (Hillman), Parry Thomas and Duller (Marlborough-Thomas), Temple (Horstman), Harvey and Brayshaw (Alvis), Marendaz (Marseal), Smith (Eric Campbell), Vandervell (Crouch), and unspecified cars by Moss and Malcolm Campbell and, in the 1,100-c.c. category, Pickett (Frazer-Nash), Eric Longden (Eric Longden), Newton and Pellegatti (Newtons), Gordon England (Austin Seven and A.B.C.), Heaton and Wenmoth (Derbys), Hawkes, Norris, Morgan and Horrocks (Morgans), K. Don (Imperia), Bovier, Benoist and Devaux (Salmsons), Cater (Windsor), and Tollady (Crouch).

Rumour was rife concerning the possibility of the Talbots, which had won so convincingly in 1921 and 1922, running, and of the very hush-hush and so far unbeatable 1½-litre Fiats appearing. Some thought that the Talbots *would* run, others that even if they were entered at the last minute they would not start, either because of the proximity of the Barcelona G.P. or because they feared the Fiats. So preparations went on day and night at Brooklands amongst the British entries, excitement increasing daily.

Sprint events happened in great profusion every week-end and the Boulogne week came. At that meeting Segrave won the G.P. on one of the new Talbots at 67½ m.p.h., followed home by the Aston-Martins of Morgan and Eyston, with Bugattis 4th and 5th, Benoist's Salmson getting away with the 1,100-c.c. section at 63 m.p.h. from Bueno's Salmson and three V-twin Frazer-Nashes. So there was plenty to stimulate interest, which reached its peak when it was announced that three Talbots would run, to be handled by Lee Guinness, Segrave and Divo, and that two Fiats were definitely expected. It was pointed out that the Talbots gave 82 b.h.p. and would be able to lap at over 95 m.p.h. But a week later it was announced that the Talbots would not come over, as they had too-close Continental appointments, but the Fiats, to be handled by Malcolm Campbell and Charles Salamano, were a certainty. Other late entries were Ware's Morgan and Hawkins's D.F.P. in the 1,100-c.c. class and another Horstman and Miller's single-carburettor s.v. A.C. in the 1½-litre category, giving a grand total of 52 cars. Moss's car was his Anzani-engined Crouch, "The Rolling Stone." Actually, right up to the day of

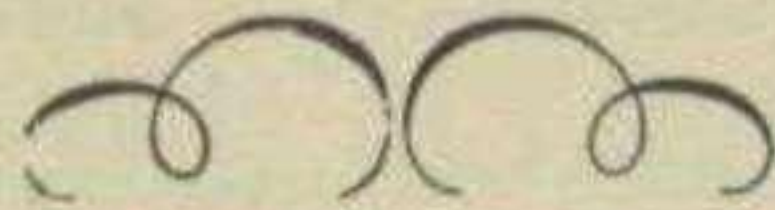
PREPARATIONS FOR THE 1923 RACE

(Continued from the May issue.)

the race there was doubt as to whether or not the Talbots would appear, but the Fiats definitely came over and we were reminded that, as Salamano, who had the faster car it seemed, used to be with Fiats at Wembley, he really knew Brooklands quite well.

These cars were very much dark horses, but they were known to have Roots superchargers for the 65×112-mm. double-o.h.c. ball-bearing 4-cylinder engines and weighed just over 10 cwt. Salamano got round very easily at 100 m.p.h. in comparative silence, doing one lap at 103.

The new Bertellis aroused much interest, being sleeve-valve cars to Bertelli's own design, built at Lingfield in Surrey.



During the early nineteen-twenties small cars were doing outstanding things in B.A.R.C. short handicaps and in the field of record-breaking, but perhaps they achieved their greatest allure in the J.C.C. 200-Mile Races, run over the Outer Circuit in 1921-1924, Previous articles in this interesting series appeared in the February, March, April and May issues, when the races of 1921 and 1922 were dealt with.

—Ed.



Probably the first sleeve-valve racing units built since the 1914-18 war, the engines had single sleeves to each cylinder. The chassis had ½-elliptic front springs, ¼-elliptic rear springs anchored below the axle, and 3-speed gearboxes, the frame side members having a number of lightening holes along their deepest sections. On car No. 1 the radiator was cowled and isolated from the bonnet, which was faired down behind it, while the exhaust pipe ran along the near side of the body and entered the tail just above the rear axle, to protrude an inch or so beyond the tail apex.

The Warwicks turned out to be the old Coopers, with a new 60×130 mm. engine, one of the few long-stroke units in the race. Overhead valves were operated by opposed camshafts in the crankcase, *via* push-rods with tappet adjustment at their lower ends, and rockers. The standard engine gave 12 b.h.p. at 1,000 r.p.m. and 45 b.h.p. at 3,500 r.p.m., but the racing units, which had tubular con-rods, steel pistons, special cam contours and stronger valve springs, a light steel flywheel, welded steel exhaust pipes and

double magnetos and carburetters, gave some 60 b.h.p. at 4,000 r.p.m.

The differential was not used on the 200-mile cars and they carried light bodies, rather Aston-Martin-like about the scuttles, with tapering tails and long 3-piece bonnets, the radiators having wire screens. They were closely developed from the newly-announced 85 m.p.h. £600 super-sports production models.

The Marlborough-Thomas cars had 4-cylinder engines which were virtually scaled-down versions of the Leyland Eight, even to leaf-valve springs, and made by Peter Hooker, Ltd. There was comparatively little Marlborough about the chassis, except for the side members, axles and gearbox. Between the clutch and gearbox Thomas had installed an extra planetary gear, giving a reduction in ratio of 15 per cent., in order to enable speed to be maintained up the hill on to the Members' Banking and to ease engine speed on the subsequent run down on to the Railway Straight, a typical Parry-Thomas approach to a special problem. Beautifully streamlined bodies were used, of barrel section, tapering uniformly from round radiator cowl to tail, having staggered seats, faired driver's headrest and full-length underpan. The axles were attached to the chassis by parallel bars, the uppermost of which was anchored to the side member *via* a rod running transversely half-way across the chassis. This transverse rod ran within a tube attached to the inside of the chassis side-member and, being splined to the extreme end of the tube, torsional suspension was obtained. The engine was the 1.8-litre unit used in sprint events earlier in the season, with a new crankshaft to bring it within 1,500 c.c., and a new camshaft.

Joyce's A.C. had the twin-o.h.c., twin-carburettor, double coil-ignition engine from the car holding the light-car hour record at 101 m.p.h., and was expected to lap at about 95 m.p.h. quite easily. Marshall's and Cushman's sixteen-valve Bugattis both had cowled radiators and properly streamlined bodies this time, and Cushman's used quite a high-sided cockpit and a streamline headrest for the driver. Lancaster had a curiously-bodied car, the chassis being that which Marshall drove in the 1922 race.

Cushman's car had over 100 awards to its credit, having finished the 1922 T.T. and run 5th in the previous year's "200," starting its racing career in 1921. Cushman used Discol fuel, with Specialloid pistons to raise the compression ratio to 8.5 to 1, and used Celerity valves, a small diameter flywheel, twin Claudel-Hobson carburetters, and extra oil supply to the engine, and an ingenious device which put the gearbox constant-mesh pinions out of action when top gear was engaged, this necessitating losing the use of 3rd gear. Otherwise the car was standard, and Leon aimed to hold 3,800-4,000 r.p.m. throughout the race, using an axle ratio of 3.2 to 1.

Newman's Wolseley had the engine from the car driven in the 1923 race by Capt. Miller, and Peacock, a well-known

motor-cycle rider, was relying on a virtually standard sports Hillman with over 15,000 miles already to its credit. The sports body was slightly modified and extra tanks fitted, and the owner did most of his own tuning, although it was expected that the Hillman Motor Car Co., Ltd., might breathe on the engine. The Aston-Martin entries included the 16-valve Boulogne cars (Eyston handling one), and the Ballot-design engines were expected to be free from original bothers. R. C. Morgan's s.v. car had a typical 2-seater A.M.-tailed body, McCulloch's Aston a long-tailed early track-body and cowled radiator, and Eyston's a tapering radiator cowl. The Eric-Campbell was very fully wind-defeating, with long round-section radiator cowl, two faired headrests, barrel-section body with long tail, undershield and discs on the rear wheels. The Anzani-engined Horstman entries had the long-tailed aluminium bodies on wood-stiffened chassis and typical ribbed, uncowed radiators, Temple's car being supercharged. The Alvis Co. had just announced the new o.h.v. "12/50" super-sports engine to supplement the famous s.v. "12/40," and the two 200-Mile cars were built up of virtually standard parts, but with the engines well back in narrow frames, the radiator sitting over a drilled cross-member of typical "12/50" formation, directly above the front axle.

One car had a front track of 4 ft. 1 in. and a rear track of 3 ft. 6 in., and the other was of 4 ft. 1 in. and 3 ft. 10 in., respectively. Solid, exposed rear axles were used, consisting merely of a large-diameter steel tube carrying the crown wheel, a single 12-in. brake drum with two independent sets of shoes, and the wheels. This tube ran on four ball bearings, an aluminium housing between each pair taking the long underslung $\frac{1}{2}$ -elliptic springs set inside the frame. A torque member was used to relieve them of some of their work. On one car the base chamber was exposed, but otherwise the deep-tailed body shed enclosed everything aft of the engine save the wheels, and also carried the drum-shaped fuel tank abaft the driver's seat and almost dead over the rear axle. The other car had a remarkably narrow single shell body, and the final drive ratio was 3.5 to 1. Both cars had faired oil tanks on the near side, and on Harvey's car a long pipe ran from the radiator vent to the cockpit. The brake camshaft and shoe pivot passed right through the bevel casing and torque member, being attached between casing and drum. Although no front brakes were fitted, the cars were said to pull up in about 180 ft. from 60 m.p.h. In mid-September the racing engine was given a $3\frac{1}{2}$ -hour all-out run on the bench, during which it continuously developed just under 70 b.h.p. at 4,400 r.p.m. Harvey's race engine had a compression ratio of 6.2 to 1 and averaged 4,100 r.p.m. for the race, the rev.-counter showing no loss by wheelslip. Cylinder block, pistons and gearbox were standard, and the magneto was a new-type B.T.H. polar-inductor type designed for motor-bus engines. The Solex carburetter fed through the now well-known 40-mm. "big port" manifold and 50/50 No. 1 B.P. and benzole was used. The Rudge wheels carried 710 x 90 Englebert tyres.

Smith-Clarke designed the chassis and body while in bed with influenza with a temperature of 103°, and George Tattersall was responsible for the erecting and testing.

Turning to the "1,100s," Pickett's car, to be driven by Nash himself, was a Frazer-Nash V-twin G.N. conversion, and the Eric Longden was the normal Brooklands car. The A.B.C. looked outwardly as last year, but now had a Bristol "Cherub" light aeroplane engine of 1,100 c.c. installed. It was standard except for two carburetters and higher compression ratio and ran at 3,800 r.p.m., 200 r.p.m. below peak, due to an unsuitable axle ratio. Beart and Norris had standard o.h.v. water-cooled Blackburn engines in their Morgans, while Douglas Hawkes had a water-cooled o.h.c. Anzani V-twin, the radiator being moved 8 in. rearwards to enable two Zenith triple diffuser carburetters to be fitted. The normal fuel tank carried oil, and a 14-gallon petrol tank beneath the chassis-members fed by air to the carburetters. Ware's Morgan had a water-cooled J.A.P. engine. The Derbys had high chassis, carrying a long-tailed 2-seater body of quite sober design but light and very strong, and an uncowed radiator. The engine was a 59 x 100 mm. special Chapuis-Dornier with two Zenith carburetters hung low down on the off side, feeding *via* updraught pipes integral with T-manifolds. The valves were overhead, two inlet and a larger, exhaust valve in each head, operated by push-rods. The chassis were believed to be absolutely standard. Speculation ran high as to the identity of the Newtons. They turned out to be low-built cars with faired dumb-irons, having 60.35 x 95.7-mm. (1,095 c.c.) 4-cylinder engines. The crankshaft ran in three Hoffman ball-bearings and o.h.v., inclined at 45°, were operated by twin o.h. camshafts, the combustion chambers being perfect half spheres. The gearbox was in unit with the engine, 3-point mounting being used, and the brake mechanism, steering gear, pedals, etc., were all carried on the engine unit. Lubrication was by gear-driven pump, the oil feed being centrifugally governed, and the cooling system used a pump but no fan. The cars were made for Newton, a young enthusiast, by an Italian concern, Olivo Pellegatti being one of their staff. Tollady's Crouch was, of course, his famous old rear-engined V-twin "Grandpa."

Although the silencer rule did not affect Brooklands generally until 1924, silencers were insisted on for the "200" and the cars had to come before a silencing committee headed by the late Col. Lindsay Lloyd, on the Monday or Tuesday before the race. The Aston-Martins were sent away to achieve more silence, likewise Marshall's Bugatti, but Ware's Morgan was very quiet at speed. Naturally, people complained of overheating, and Marshall said he had had to cut down the Bugatti's normal exhaust outlet by half, losing considerable speed but, on the whole, not much trouble was caused, although Cushman said he lost 7 m.p.h. Joyce had a small silencer let into the A.C.'s pipe just in front of the diminutive handbrake, and attached to the body by two clips and two stays. Meeson's twin-carburetter s.v. A.C. had a pipe protruding

from its tail, *a la* Bertelli, with a small fan-tail on the end, and Hawkes's Horstman had a peppered end-piece on the pipe. The pipe of Marshall's Bugatti came out of the tail, just behind the fairings for the anchorages of the reversed $\frac{1}{4}$ -elliptic rear springs.

The little Austin which had been prepared for Gordon England was of exceptional interest. Austins had run a team at Boulogne before attempting much in this country, the cars having twin Cox-Atmos carburetters feeding through long riser-pipes to enable three-branch outside exhaust pipes to be used, the engines being virtually standard except for a high-lift camshaft and omission of the dynamo. Eleven-gallon fuel tanks were used in the scuttle, and stub tails carried spare wheels beneath. These cars were handled at Boulogne by Waite, Kings, and Cuttle. They used Scintilla magnetos, Palmer tyres and K.L.G. F12 plugs, and ran up to 5,000 r.p.m. In the race Kings crashed and the other cars suffered mysterious big-end maladies, allowing a Senechal to win the 750-c.c. category. [Waite ran a car at Shelsley said to be made from parts of all three Boulogne cars.] Later, however, a single-seater appeared at Brooklands, very fully streamlined, and with it England took the Class L Hour record at 73.50 m.p.h., and the 5-miles record at 79.62 m.p.h. For the "200" a "Brooklands" model, afterwards a production type, was used, with uncowed radiator and faired front springs.

It was actually the record-breaking single-seater which had also won a light-car handicap at the Whitsun B.A.R.C. meeting at 63 $\frac{3}{4}$ m.p.h., re-bodied. Stronger valve springs, a high-lift camshaft, Celerity valves, a special head giving a higher compression ratio, forced-feed to the big-ends, and twin carburetters were the only non-standard engine items, and the $1\frac{1}{8}$ -in. crankshaft and standard rods were used. The axle ratio was 4.5 to 1, and the little car lapped at 77 two up, doing 86 flat-out. England purposely stopped tuning when 80 m.p.h. was possible, preferring to maintain 4,500-4,700 r.p.m. throughout the race.

Indeed, much interest was added to the 1923 "200" by pre-race activities. At Mont Ventoux hill-climb the Talbot made its debut and easily won its class. At Brooklands Hawkes's Morgan took various rapid records, setting the British flying kilo. to 92.17 m.p.h. At Le Mans Divo and Moriceau finished 1st and 2nd on the Talbots, and Benoist on a Salmson won the cycle-car G.P., the 750-c.c. class seeing Lombard's Salmson, Senechal's Senechal, and Waite and Roddis on Austin Sevens, home in that order. The Fiats were unbeaten in Italy, and were believed to be as fast as the Talbots at Monza. True, the 2-litre G.P. cars had had trouble with their Wittig vane blowers, but when it was learned that the $1\frac{1}{2}$ -litre cars for the "200" had Roots superchargers, most people thought they would put the race in their pockets. It was further rumoured that Salamano intended to attempt to lower the World's Hour record during the first hour's running, which meant he would need to cover 108 miles, and he was reputed to be very confident. Three weeks before the race "Long Tom" offered 3 to 1 on this Fiat, 4 to 1 on Campbell's, 5 to 1 on the first Talbot, and

7 to 1 on a Bugatti win, and 4 to 1 on a Salmson win, or 10 to 1 on Norris's Morgan—poor Smith took the longest odds, the Eric Campbell being priced 100 to 1. Fiat and Talbot, as cars, were evens. Higher speeds were expected, general opinion indicating a 1½-litre winning average of about 95 m.p.h., against the Talbot's 88 in 1922. As the practice period wore on, changes became apparent in the entry list. Lionel Martin decided he could not use his two entries, although at one time he had hoped to run s.v. cars as fully equipped as the regulations would allow, using talc for glass in the wind-screens. He sportingly gave his single-fee entries to Henly's, as they had overlooked the closing date. Harvey's Alvis caught fire at 5.10 p.m. on the Monday before the day, but it was rebuilt, by hectic efforts, in 24 hours. It then straight-away lapped at 93, and went even faster after adjustments to the radiator cowl and carburetter setting.

Eyston's poisoned finger got worse, and McCulloch suffered from an internal strain, but Eyston's mechanic got the

Aston round at 98 m.p.h. Zborowski's, incidentally, was a short-chassis 16-valve Aston. Marshall's was expected to be the fastest Bugatti, and early in October Cushman was still busy on his car.

Thomas found his planetary gear very effective, and the Bertellis were at the Track all the pre-race week tuning-up, lapping at well over 90 m.p.h. even before final carburetter adjustments were made. The Fiats lapped very quietly, even the superchargers being almost inaudible, and it seemed that Salamano could easily achieve a lap speed of 100 m.p.h., and Campbell about the same. It was anticipated that these two cars would finish 1st and 2nd at between 95 and 96 m.p.h.

The Eric-Longden cracked a cylinder and had to start in that condition. Hawkes's Horstman was owned by G. Boston, who had used it daily as a road car for three months, and Nash's entry developed timing gear troubles a few days before the race, and the car driven by Hawkins in 1922 was substituted. Wenthmoth's Derby failed to pass the silencer test and was disqualified; a pity, as it

was the "hot-stuff" entry and Heaton's only a second line of defence. Cushman did 80 laps on his Englebert tyres before he even started in the race. The Salmsons were, of course, twin-o.h.c. cars very like those of the previous year, with Bueno, Benoist and O. Wilson Jones as the pilots. England had trouble with the A.B.C.'s roller bearings, fearing at first the crankshaft had gone, and right on the eve of the race the Bertellis were given new big-ends. Ashcroft's Bugatti and Marendaz's Marseal failed the silencer test, and the Imperia came down on the Friday, but missed the inspection due to a downpour of rain. The Windsor, the Warwicks, the Newtons and the Eric-Campbell were all unfinished and had to be withdrawn, and McCulloch's Aston-Martin and the fifth A.M. entry were not even assembled. Vandervell fitted cylinder liners to his Crouch, only to find they fouled the con. rods. [Funny, ha-ha!] So the field thinned out, but not so drastically, fortunately, as to mar the prospects of an excellent race.

(To be continued.)

The Sports Car Club of America

WE are able to announce a most interesting happening, namely, the formation, last February, of the Sports Car Club of America. The inaugural meeting took place on February 26th last, in Boston, and E. M. Dickinson, J. F. Duby, A. H. Engborg, T. F. Robertson, G. F. Schulz, R. E. Townsend and C. Wallour comprise the founder members. The club badge is a Rudge-Whitworth wire wheel with black tyre, red brake drum and bright metal knock-off hub, spokes and rim, and club title; overall diameter about 3 in. A monthly bulletin, *The Sportswagen*, is already being published, and it contains a disposal and wants section. The club appears to be very sensibly constituted and sincere in its aims. It is realised that so few real sports cars exist in America that a fairly lenient definition must be taken, but this was finally constituted as follows:—

(1) Cars catalogued as "speed models"—i.e., Mercer Raceabout, Stutz "Bearcat," "Blackhawk Speedster" and "Torpedo," Cunningham, Auburn, Biddle, Marmon 34, Cord Speedster, Packard Speedster, etc.

(2) Quality cars of race-bred type—i.e., Duesenberg, Revere, Roamer, Stutz, Mercer, Kenworthy, etc.

(3) Converted racing cars; and

(4) Certain high-performance cars with custom-built sports bodies and, preferably, modified engine and chassis.

Closed cars are only accepted at the discretion of the committee, but recognised European sports cars are very welcome. Most sagely, cars such as Packard, Lincoln, Pierce-Arrow and Cadillac, etc., which bear open bodies but are not otherwise modified from standard, are not accepted, because, fine as they are, they go fast only on straight roads. It is emphasised in the April bulletin that if Rolls-Royce, Ltd., considered the Royce a sports car they would not have produced the Bentley, and if one argues that a Packard Phaeton is faster than a Kissel

Speedster, it is as well to reflect that a 1942 Buick "Century" is faster still—and that speed alone does not make a sports car. We find all this most commendable, although it is sad to reflect that while the S.C.C. of A. considers itself lenient in its interpretation of a sports car in comparison with "similar clubs in England," in actual fact our own sports car organisations let in the most ordinary cars. [I, myself, have been guilty of carrying V.S.C.C. and Bugatti O.C. badges on a utility Rhode and trials Austin Seven Chummy in the past.—Ed.] What sort of a response has there been to this most interesting effort?

Well, by April, there were 18 members, including the founders, and between them they owned 1913, 1914, 1920 and 1921 Mercers, Model J Duesenberg, 1922, 1923 and 1926 Model A Duesenberg, 1929 Model L Blackhawk double-cowl phaeton, 1923 Model 45 and 1924 Model 55 Kissel Speedsters, 1931 and 1932 Stutz DV32 sports tourer and roadster, 1929 Stutz Le Baron double-cowl phaeton, 1928 Stutz Model BB Blackhawk Speedster, 1917 Stutz "Bulldog" Model 4-R tourer, 1914 Stutz Model 4-E "Bearcat," 1918 Stutz Model S "Bearcat," 1926 Bentley 3-litre "Red Label" Van den Plas, 1923 H.C.S. special phaeton, 1927 Type K Mercedes-Benz, 1912 sleeve-valve Model 40 Mercedes, 1926 "28/95" Mercedes Rollston roadster, 1928 Model S Mercedes-Benz Erdmann and Rossi cabriolet, 1913 22-B American speedster, 1920 Model 5 Cunningham de Palma speedster, 1924 and 1925 5th Series Lancia "Lambdas," 1924 Hispano-Suiza Le Baron phaeton, 1926-7 O.E. "30/98" Vauxhall 4-seater, 1927 Type 44 Bugatti, 1928 Model 88 Auburn speedster, 1932 Model L-29 Cord, 1930 Packard 734 Speed chassis phaeton, 1937 Model 812 special-engined Cord s.e. convertible coupé, and a 1936 B.S.A. "Scout" 2-seater. This list contains 21 cars owned, or part-owned, by one member, D. Cameron-Peck, of Chicago.

An Isotta-Fraschini and a 1926 McFarlan are offered for sale.

The club certainly has a vintage flavour, and has also attracted the veterans, although, as two bodies already exist in America to foster the latter, it is emphasised that post-1918 cars are really more welcome. The club president is Theodore F. Robertson; the vice-president and editor, Chapin Wallour; and the secretary and treasurer, E. M. Dickinson, 142, Chestnut Street, Boston 8, Mass. It is hoped later to have regional executives, probably in New York and Philadelphia, etc.

The annual subscription is three dollars. Members may be expelled for disposing of a sports car without advertising it in the bulletin or notifying the club officers ten days beforehand; wilfully breaking up a sports car; failing to notify the club of a sports car about to be broken up; acquiring a sports car which another member wanted within 30 days of this member announcing his intention to purchase, being at fault in an accident damaging another member's car; or for voluntarily disposing of one's last remaining sports car.

These rules seem very commendable if somewhat stringent, and we particularly applaud that which makes the sale of a sports car outside the club without prior announcement punishable—if something like this is instituted after the war by our Vintage S.C.C., we may see a stop put to the present practice of certain vendors in asking immense prices for old cars which they have bought for a fraction of such prices. It will be interesting, too, to see if the early-American-fast-car cult gains any adherents in this country—assuming any suitable cars could be found.

We know all British enthusiasts will join with us in wishing the S.C.C. of A. a very successful future. Incidentally, two gallons of pleasure petrol a week is still available in U.S.A., so club runs will be possible.

More Australian News

AT present I am enjoying my first home leave for over a year. I have just received a batch of *MOTOR SPORT* and, on seeing your appeal for articles, etc., I have decided to write you another "newsletter."

First, however, I would like to make a correction to my article in your May, 1942, issue. In it I mentioned that my friend David Hawker had an "Alpine" Talbot here in Australia. This car is actually one of the earlier racing cars with "crash" gearbox.

I knew that he was having the Talbot engine fitted to an Atalanta chassis. Unfortunately the outbreak of war prevented the completion of this project. David left England before the car was ready, and I understood that after the war he was going to continue with the idea. However, I may be wrong, and this may be (as you suggested) the car now owned by M. E. Nixon and described in the February, 1943, issue. Nixon says that the car was completed in America and it is possible that David's chassis was sent over there for completion after he left England. I would be interested to hear if Nixon's car is really the same machine.

There are two other articles in the February, 1943, issue that interested me very much. The first was the newsletter from my friend R. Beal-Pritchett, and the second was the article, "Australian Veteran and Vintage," being a condensation of a letter from another friend, Nigel Pugh. There are some errors in this article, too. Nigel's T.T. Austin is Cozette blown, not "Roots blown," as appears in the article. Then he mentions the Mercedes, that we now have in our scuderia, as being a "1910 model raced in England in 1906." This is obviously an error and actually we believe that this is one of the 1908 Grand Prix cars, presumably a sister to the one preserved in America.

In your March, 1942, issue you show a photo of the Mercedes that won the 1908 Grand Prix. The similarity between it and Duckett's car is very evident. On our car the wheels have been rebuilt to take modern tyres (Dunlop 21 in. x 6.00 in. at the back and 20 in. x 6.00 in. at the front). Also the body has been removed, presumably during the last war (see article "Veteran and Vintage" mentioned above). Duckett has restored every detail of the chassis to perfect order, and the car is a delight to the eye of an enthusiast.

The plate on the bulkhead bears the following inscription:—

Daimler-Motoren-Gesellschaft.
Best 648. Com. No. 5871.
Mot. No. 10888. Wag. No. 874.
Gen. Kg. 1300. P.F. SA 66.

Details are as follows: The weight in its present form is 24 cwt.; wheelbase 8 ft. 10 in., track 4 ft. 8½ in.; bore and stroke approximately 7 in.; rated h.p. 78; b.h.p. 130.

Cylinders in pairs. Overhead inlet and side exhaust valves. Camshaft driven by external straight-tooth gears. There are two sets of cams, one for half compression and the other for full.

We print below a condensed version of an enthusiastic letter written to us last February by Robert Hood, of Victoria, Australia.—Ed.



Ignition.—Originally soap and stone, but converted to h.t. with two Bosch magnetos. Three plugs per cylinder.

Lubrication.—Gravity feed to mechanical plunger pump, which has about a dozen outlet pipes to main bearings, cylinder walls, etc. Camshaft lubricated by small drip oilers (the pump also has two drip oilers on the dash for the driver to observe in dull moments).

Transmission.—Small cone clutch (diameter about 6 in.) of steel, with no lining, and 4-speed box which incorporates a bevel drive to a countershaft, which carries a sprocket of about 19-in. diameter on each side of the car. The drive passes from these, *via* chains, to the rear wheels, which have sprockets bolted on to the brake drums.

The gear ratios are: 1st, 5.5 : 1; 2nd, 2.0 : 1; 3rd, 1.6 : 1; 4th, 1.3 : 1.

Retardation.—Two rear brakes with cast-iron shoes and no lining and a transmission brake with normal lining. The latter brake enjoys a pedal of its own. A second pedal operates the clutch and a third operates both the clutch and a brake arranged to act as a clutch stop.

Carburation.—Originally fitted with a Daimler-Benz product operating like a lavatory cistern with chain throttle (figuratively). After the first run it was decided that this was unsatisfactory, and a huge twin-choke Stromberg of modern design was obtained. This had been sitting in a shop window, presumably as an object of interest rather than one of utility, as there are very few engines as large as the Mercedes. The Stromberg gives much smoother running and a petrol consumption of 12 m.p.g.

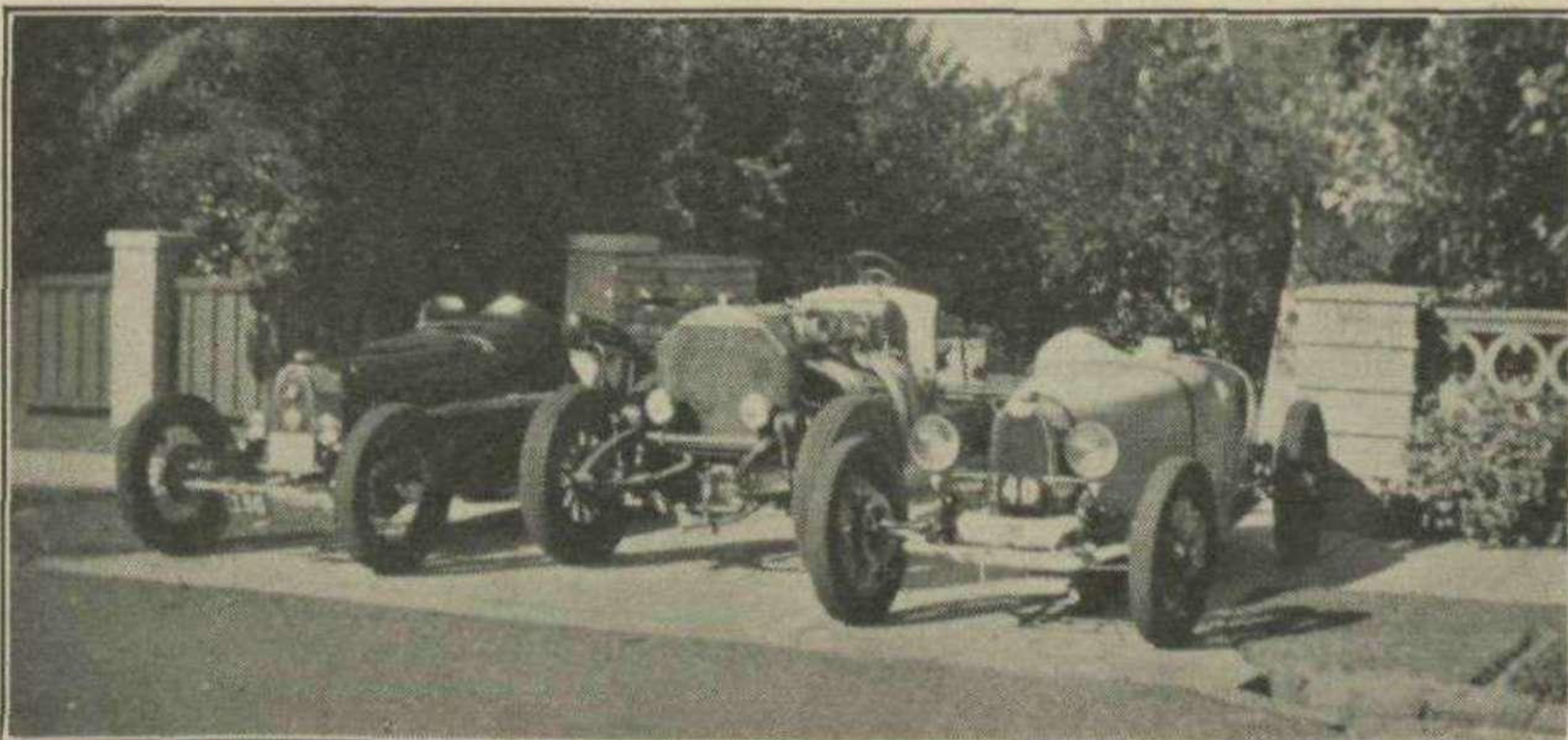
Performance.—The only figures Duckett has been able to obtain are the standing ¼-mile in 19 secs. I believe it was timed in its original form before he bought it

and gave about 110 m.p.h. (anyway, definitely over 100 m.p.h.).

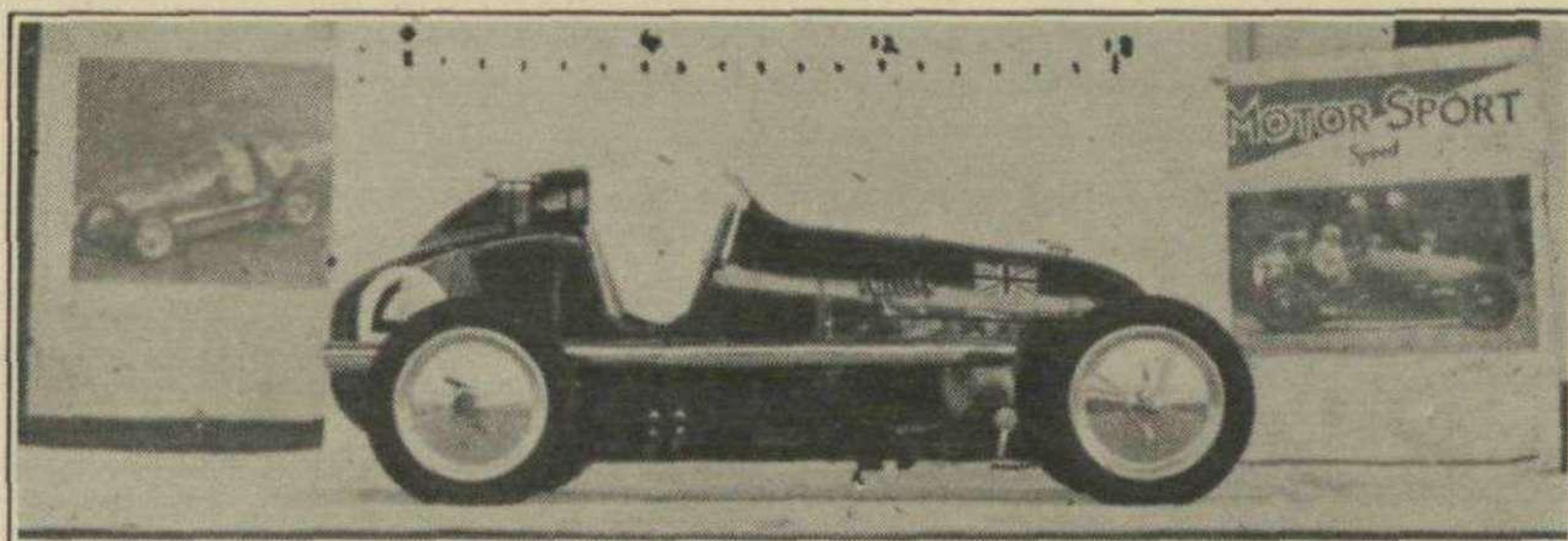
Talking of veteran cars, there must be a number in Australia. I can recall a run organised at the time of the Geelong (Victoria) Centenary celebrations in about 1935. I seem to remember about 20 pre-1908 cars appearing in running order, including a 1899 Panhard, a De Dion of about 1903 vintage, and a 1908 Austin, which seemed to be of quite modern design. In addition to these a friend of mine had a 1912 Minerva, with a very high body featuring an immense area of plate glass. This car had electric lights, run by a huge nickel-iron battery. The sleeve-valve engine was very easy to start and was far more silent than many modern engines. It was capable of about 50 m.p.h. I also know of a 1911 Rolls-Royce in running order. In Sydney there is an early electric car in regular use; it is very difficult to tell which is the front end, as it is almost symmetrical. However, for all its odd appearance it has come into its own since petrol rationing was introduced. I know of other veterans stored away in various places, still in the possession of the people who bought them new. Unfortunately, some of these have suffered in recent scrap-metal drives.

Since my last article our scuderia has grown considerably. I have added a Vauxhall "30/98" (engine number OE 276), and Peter Williams and John Floyd have acquired E-type "30/98s." At present my "30/98" is a very standard example, but I have hopes of "doing" things to it. It has a bath-like four-seater body. The wings were very bulbous affairs, so we cut more rakish ones from the original wings with the aid of a pair of hedge clippers. Peter's E-type is also a four-seater, while John's has a quite distinctive two-seater body.

Ian Williams had a "Blue Label" 3-litre Bentley tourer for a while. However, the long chassis and "B" gearbox rather limited the performance. Accordingly, it was replaced by an 8-cylinder Delage saloon, to which Ian has fitted a gas-producer for war-time use. Ian has also bought a 350-c.c. T.T. Velocette,



Part of the Australian Scuderia—Duckett's twin-o.h.c. Anzani-Bugatti; his Mercedes, believed to be one of the 1908 G.P. cars, and a friend's Type 37 Bugatti.



The model o.h.c. Austin Seven, with 10-c.c. petrol engine, mentioned in Hood's news-letter.

which will do 110 m.p.h. on racing fuel with 8 : 1 compression ratio, and 100 m.p.h. in its present form with 7 : 1 compression ratio and using a 10 per cent. alcohol mixture.

The Williams brothers have persuaded their father to obtain a beautiful 3-litre "Speed-Model" Lagonda, with pillarless saloon body. The performance is not outstanding, but it is a delightful car to drive. Gear-changing with the crash box seems far simpler without the aid of the clutch.

Thus we now have in our scuderia four "30/98s" (2 OE types and 2 E types), Ian Williams's T.T. Frazer-Nash, Delage and Velocette, the Lagonda and Duckett's "Special" (Type 37 Bugatti chassis with twin-o.h.c. Anzani engine). Then there is the Mercedes and Nigel Pugh's T.T. Austin and Indian-engined "Special." Finally, there is my Stoewer and Bruce Shanks's "Red Label" Bentley.

In addition to the above, I have had two s.v. 8-h.p. Amilcars, a 1931 2½-litre Citroen, and a 250-c.c. o.h.v. B.S.A. by way of transport at various Air Force stations. However, these hardly count as part of the scuderia. The two Amilcars gave me nearly 2,000 miles of war-time motoring in six months. The first of these had a rather nice sports body and a superb exhaust note, but little else to commend it. It embarrassed me considerably by shedding one of its rear wheels whilst I was cornering in front of quite a large crowd. Also, it had a fantastic thirst for oil. Accordingly I bought Amilcar number two, which I had seen outside a garage, suffering from a bent front end. From the two cars I made one quite respectable model. On being posted to my present station I sold the Amilcars. After being without transport for some time, I bought the Citroen, but I never seemed to have any petrol to run it. Thus I replaced it with the B.S.A., which I still have.

My previous experience of motor-cycles had been limited to my Indian, and before that a 1914 Triumph with belt drive and no clutch or gearbox. The Triumph was over 20 years old when I had it. I was about 14 at the time and it was the pride of my life. It used to go very well in dry weather, but in the wet the belt slipped continuously. Alas, one day the belt broke at speed, and before I could close the throttle, the engine had exceeded safe r.p.m. and expensive noises ensued. While searching for parts I found one of these Triumphs that had only done about 3,000 miles! Unfortunately the owner would not part with it for a reasonable sum, so I had to make other

parts do. After much filing of pistons, rings, etc., I got the engine to run again, but its days were numbered, so I sold it for 30s. Thus, by comparison, the B.S.A. seems very superior.

Incidentally the C.O. of my present station is an ardent enthusiast, and during the past seven months he has constructed a scale model of one of the twin-o.h.c. racing Austins. The car was built to a scale of 2 inches to the foot. The only data he had to work from was the photo on the cover of the February, 1943, MOTOR SPORT and another photo in the *Motor* of January 6th, 1943. The model is powered by a 10-c.c. single-cylinder two-stroke motor. The weight complete is 7½ lb., and a speed of 60 m.p.h. should

★ Book Reviews

"Road Star Hat Trick," by Prince Chula Chakrabongse. (Foulis.) 8s. 6d.

This excellent account of "Bira's" 1937 and 1938 seasons was originally published for private circulation in 1939, but it has now been re-published and includes a most attractive jacket and a full list of "Bira's" race results for 1936-39. It makes a most valuable and welcome addition to the enthusiast's library.

♦ ♦ ♦
"Floyd Clymer's Historical Motor Scrapbook." 1st Edition. 1.50 dollars.

It is astonishing how versatile is the quality and composition of American publications. On the one hand we have beautifully produced, lavish magazines like the *Saturday Evening Post* and, on the other, works like this little book, which is composed mainly of reprints of a mixed collection of advertising pages from numerous American publications dating from the close of the 19th century to the mid-1920s. Frequently a typed date is the author's only contribution to a page, which is otherwise as the original. A short introduction, some disconnected jottings, and some photographs of such things as B.M.W. and streamlined Brough-Superior motor-cycles, modern freaks, etc., are thrown in to make up weight. Over here it would be difficult to find a publisher who would look at such a work, but it sells for 1.50 dollars in the States. It covers early motor-cycle advertising also, and is actually quite acceptable; veteran car enthusiasts should try to get a copy. Later editions will follow, and Clymer Motors, 2125, W. Pico Street, Los Angeles, 6, California, also supply "Saga

be possible, though no trial run has been made so far.

There are two obvious departures from the original. Owing to the design of the engine, the exhaust pipe had to be put on the wrong side of the car. Likewise the hand-brake lever, which operates the ignition switch, is also on the wrong side. The workmanship and finish is first class and the detail work of the steering mechanism and suspension is excellent.

Despite the fact that most of the cars in Australia are of American origin, there are quite a number of enthusiasts who possess sports cars, carefully stored, or under reconstruction for post-war activities. The popularity of the large American car is understandable when one considers their low first cost, their ability to deal with the very second-rate roads and tracks, of which Australia has plenty, and their cheap and abundant spares. Also they provide very generous luggage space, and their bodies keep out dust far more efficiently than most English bodies. Our family Dodge (a 1937 25-h.p. saloon) has now done 70,000-odd miles and yet the whole car is in excellent condition. In short, the American "tank" provides a very good means of transport for Australian conditions. Nevertheless, let us hope that there will always be enthusiasts who appreciate all that a sports car gives and which no family fubbox can provide.

of the Roaring Road," "Auto Racing Photo Album" and "Excuse My Dust"—which may, or may not, be so worthwhile.

★ ★ ★

Obituary

The horrible affair of the shooting of 50 British R.A.F. officers by the Germans will probably decrease any leniency which Commandos and others of the Second Front forces might have felt inclined to display towards their prisoners. It should also bring home to every man and woman in this country the desperate need to do everything in their power to assist the war effort and end the Nazi regime.

We, in particular, have lost Flt. Lt. E. Gordon-Brethell, who was one of the officers who were shot. Brethell started competitive motoring while he was at Cambridge and, later, in conjunction with Peter Monkhouse and Monaco, Ltd., evolved a very effective supercharged Austin Seven single-seater, with which he won a 1937 Easter Mountain handicap, lapping at over 64 m.p.h., and a 1938 Whitsun road handicap, lapping at 62.87 m.p.h. It was on this car that he went over the top of the Members' Banking while braking rather late in a Mountain race on Whit Monday, 1937. He was co-opted to the E.R.A. Club committee just before the war, and did useful work. He was also very keen on amateur theatricals.

It was natural that Brethell should have taken part in the R.A.F. attacks on Germany, but very sad that he should have paid the supreme penalty in such disgusting circumstances. To his parents and friends, our deepest condolences.

IT is a most unusual thing for me to rush off and write to the editor of any journal, but the September issue of MOTOR SPORT arrived in this rather remote corner yesterday, the first actually since my wife placed a regular order for it. For many years now I have been one of your "casual customers," but from now on I hope it will continue to arrive at regular intervals. Anyway, I do think you deserve a word of appreciation for maintaining the interest level so extremely high in these difficult times, and for catering so well for the tastes of those people who still think in terms of motoring as distinct from transportation. I cannot claim to be anything more than a keen looker-on at the game, as such cars as I have actually owned myself have had to be run as cheaply as possible, without courting the inevitable financial suicide that participating in competitions would have brought about! I do, however, claim to be an enthusiast, if only on the basis of having consumed every copy of the two weekly publications we all know so well, since 1923, when I started worshipping at the shrine at the tender age of eight! However, the war has seriously interfered with that also, and in a way, now we are all more or less cut off from that sort of thing, I count myself one of the lucky ones in having a long list of memories to fall back on. How much more fortunate am I, who can remember with a thrill reading the account of the G.P. at Tours when Segrave won and the first Bentley success at Le Mans in the hands of J. F. Duff, than the mere beginner, whose memory does not reach back as far as the days when "Bira" (to whom no slight is intended) spent his time going round every corner at Donington backwards in a Riley "Imp"! Unfortunately, there is no one with whom I am in immediate contact at the moment who shares my tastes, so that may account in part for you having to suffer this outburst.

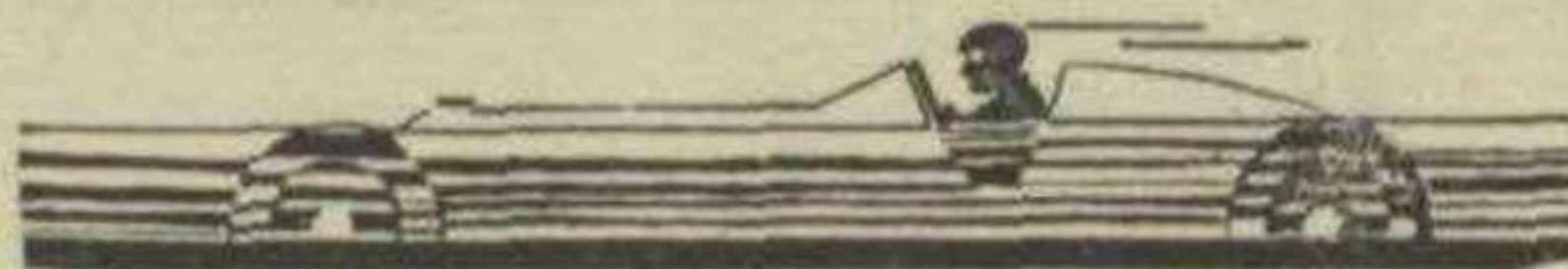
My apprentice hand was first tried, at the aforementioned eight years, on a 27-h.p. Buick tourer of 1921 vintage, owned by an uncle; it was on this that, while sitting close beside the driver, and propped up by him, I used to do all the gear changing, such as it was, and the steering. Thus was my imagination fired, and I already saw myself as a member of some future Sunbeam G.P. team, and from then on I poked my nose under every available bonnet, talked to any driver who would listen, and devoured every bit of reading matter I could lay hands on. In short, I was what was popularly known as "motor mad." I still am.

I could not hope to compete with that most interesting series, "Cars I Have Owned," but the following notes on my family's various cars may be of slight interest, so W.P.B. or no, here goes. [False modesty, sir!—Ed.]

My father and I visited the 1923 Show, as a result of which he purchased his first car, a 10-h.p. Galloway drophead coupé. Having lived for many years in Scotland, this was bought largely for sentimental reasons, as during that time he had acquired a great respect for Scottish engineering, and he liked the idea of a miniature Arrol-Johnston, which indeed it was. This Galloway was really an

CARS I HAVE OWNED

This contribution to the series is rather unusual, being in the form of a letter to the Editor from Capt. K. Richmond, R.A., of India Command. Riley enthusiasts will find it of especial interest.—Ed.



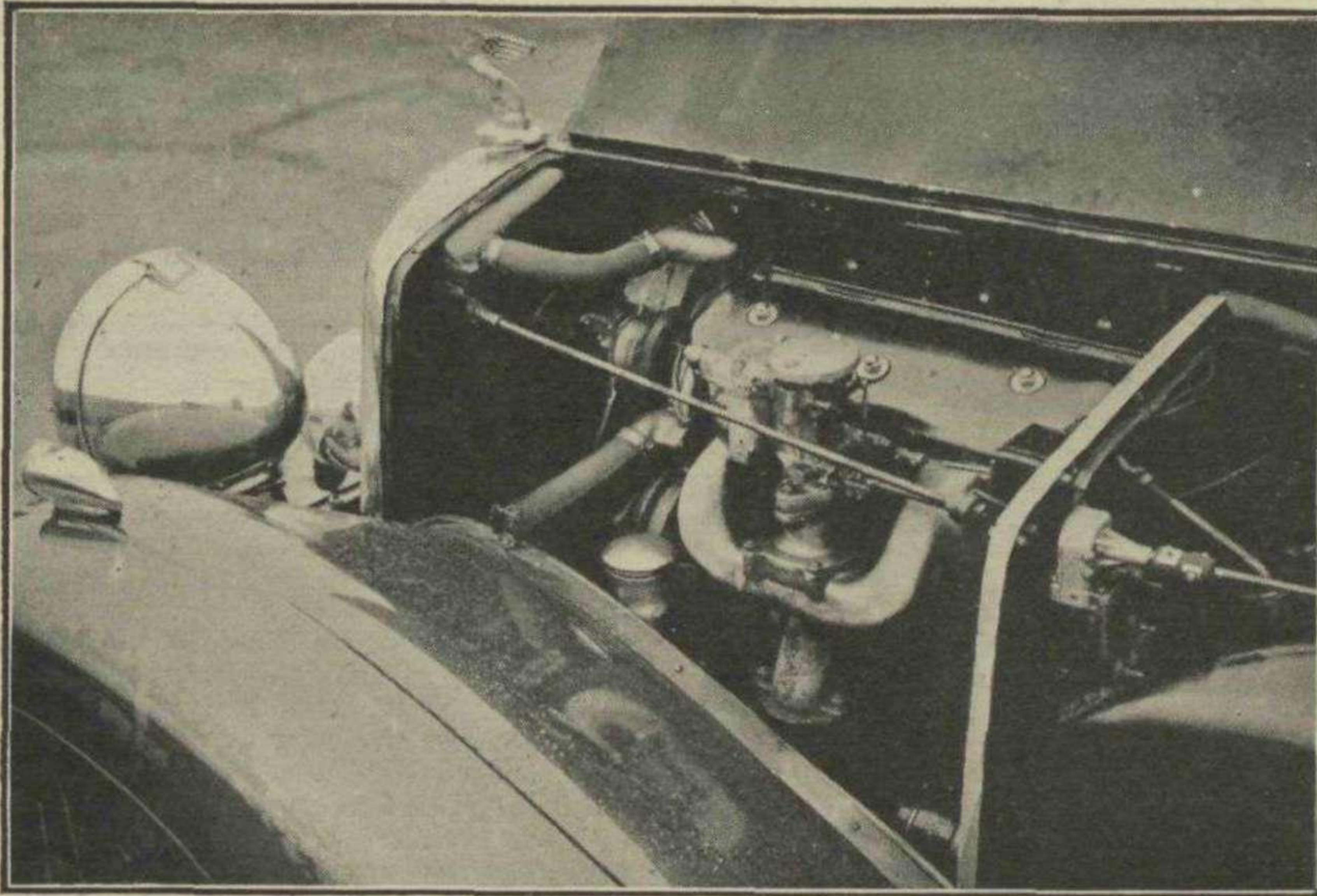
excellent little car (though not so little in its overall dimensions) and gave us many thousands of miles of completely trouble-free motoring, even if the performance was not brilliant. It may be remembered that a team of these cars performed very well in the Scottish Six Days' Trial of 1924. The clutch, a leather-faced cone, was positive, very positive indeed, but nothing in the transmission broke in spite of the wild leap which marked each of my father's inexperienced getaways. She had a maximum speed of 50 m.p.h., and had a very pleasant four-speed gearbox, with right-hand change. In the autumn of 1925, the local agent showed my father another Galloway, which was to be next year's model, he said. We were suitably thrilled, as on inspection it proved to have a 12-h.p. engine, of very clean push-rod design with lots of polished aluminium alloy about it. The clutch was now a single plate and there were four-wheel brakes. We took delivery of our sample, a 4/5-seater de luxe, on Christmas Eve, 1925, and for the next two years this car was on the road every day, and we got about 40,000 miles out of her. She was very reliable, and would be advertised in America to-day as "rugged." You just could not break her, and although her all-out speed was no more than 58/60 m.p.h., she would cruise all day long at 45 m.p.h., and frequently did. Her consumption was better than 30 m.p.g., and her upward gear change was recalled forcibly to me in later years when I drove a friend's "12/60" Alvis, and once more sampled a quick change. I last saw her in Bexhill in 1934, when she was towing a massive-looking motor boat on a capacious trailer, so she was still being a good friend to someone, and I hope the friendship was reciprocated.

By the Show of 1927 my father was showing signs of the coaching he had been receiving at my hands, and was getting really keen. Anything sporting was out of the question, for family and business reasons, but the more bread-and-butter machinery did not appeal at all. At that time, the Arrol-Johnston company had just amalgamated with Aster, and the first product under the new régime was on the Dumfries stand at Olympia in 1927. This was the "17/50" Arrol-Aster, and we fell in love with it; she had a 6-cylinder engine with single sleeve valves, mounted in a massive chassis with a wheelbase of 10 ft. 7 in. She had the bodywork then in vogue, a fabric saloon of very smart lines (dummy hood-

irons and all) which embodied all the disadvantages of Weymann construction without the advantages. She had one-shot chassis lubrication and brakes adjustable from the driver's seat, and in more ways than one was years ahead of her time. Accordingly, we took delivery of one of the first to be delivered, and began the running-in process. The engine was uncannily quiet and really smooth, but as time went on we realised that the performance didn't really seem all that good. Additionally, the bodywork showed signs of early disintegration; doors dropped, and if they closed properly, would fly open at most awkward moments. However, the makers took the liberal view of the times, and back to Dumfries she went, to be returned about a fortnight later with the Smith 5-jet vertical carburetter replaced by a pair of horizontal Cox-Atmos, which improved the performance, while the body had been stiffened and was now merely a coach-built one covered with fabric instead of paint. Needless to say, no charge whatever was even hinted at for these modifications, and the car then proceeded to knock up forty-odd thousand miles in the course of the next thirty months. Her outstanding features were her sweetness of running, her silence, her effortless 60 m.p.h. cruising, her great comfort and roominess—and the vast volumes of smoke which were left behind when accelerating. I cannot remember the figure for oil consumption, but it was staggering. As witness to this, we bought a 57-gallon barrel of oil and kept it behind our garage, but it lasted a comparatively short time! In the autumn of 1930, to our great regret and at the time embarrassment, she finished her career with us on the wrong end of a tow-rope, most of the expensive parts of the engine having been spilt on the road, through, I suspect, my having delayed my change up to third by one or two r.p.m. too many. In her way a grand car, and had as much been known about metallurgy in those days as they know in these days of the Bristol "Hercules" and others, I think the single sleeve valve would not have died the death it did. On the subject of the Arrol-Aster, how many people remember E. R. Hall's speeds in the T.T. of 1929 on one, when he gave the Bentley boys something to think about?

My father went to the Show of 1930 in rather a more conservative frame of mind, in view of the low value of the remains of the Arrol-Aster, with the result that he ordered an Austin Sixteen "Burnham" saloon. In its way an honest sort of job, but deadly dull. It had a most disconcerting trait of spinning like a top on greasy tramlines, but luckily none of these episodes ended in tears. None of the widely advertised methods of correcting skids had the slightest effect, and once the tail started to swing, to shut the eyes and commend one's soul to Allah was the most effective technique. Still, she served her purpose, but when her time for disposal came along there were very few expressions of regret to be heard.

Owing to an outbreak of marriage in the family, my father thought he would give a small car a year's trial, so he bought a Wolseley "Hornet" saloon at the 1932 Show, and for the next twelve months we gave that little car every



The engine of the Big Four Riley

sort of "tousing," short of actual neglect of proper maintenance, which was never spared. For about 16,000 miles that "Hornet" was driven flat out where possible, up hill and down dale, and not a penny piece in repairs did it cost. It is very pleasant to be able to say that in view of the very mixed reports that gained currency at the height of the "Hornet's" fame. Eventually, my parents grew rather tired of the fore-and-aft pitching motion brought about by the short wheelbase and overhang at each end, and the opportunity of a very advantageous trade-in presenting itself, we took over a shop-soiled 1933 Riley "Twelve/Six" "Mentone" saloon, and that car certainly did something to us, as since then my father and I have owned seven Rileys. This Riley gave us something we had not felt for years—a one-piece feeling; beautiful roadholding, hair-line steering, which is best described, I think, as "unconscious," an engine so sweet-running that its performance was deceptive, and best calculated by the lack of delay in getting to point B from point A. Our best trip in this car was from Eastbourne to Peebles, a distance of 450 miles, which was done in a gross time of 13 hours, with myself driving the whole distance, and in the presence of two stern critics, my parents, who had arrived at the time of life when adequate respite for meals means rather more than a m.p.h. or two on the average in the golf-club bar. That Riley was absolutely tireless, and held a steady 60-65 m.p.h. up the Great North Road with no fuss whatever, and, although some of the people who put up 90 m.p.h. in M.G. "Midgets" must surely have been on the road that day, we were passed only once, and that was near Leeming, and the car was a blown 4½ Bentley. Incidentally, that experience has been repeated many a time and oft; that is, a 60 m.p.h. cruising speed takes you past most, and you yourself get passed very, very seldom.

In the autumn of 1934 our beloved Riley found a new owner, and at the Show her successor was chosen; this

time it was a "16/60" Humber saloon, and a great disappointment she proved to be. Between my fetching her personally from the works in November, 1934, and her final banishment in May, 1935, she gave us quite a lot of trouble. Apart from petty annoyances unbecoming in a new car, well looked after, she suffered from trouble with the thrust bearing to the final drive pinion, and the rear main bearing proved extremely efficient as a sump scavenge pump, so that the whole of the undercarriage and back panel of the body were smothered with oil. The cumulative effect of these things, coupled with a failure on the part of service to produce a satisfactory solution, resulted in my father's motion of a vote of no confidence, and the placing of an order for a new Riley "15/6" "Kestrel." This was a very good-looking car, and embodied several features of our own specification; we collected her ourselves from the works, round which we were given an extensive tour by Mr. Tom Sangster. This car was treated like a baby for its first 2,000 miles, the throttle never being opened more than half-way and free use being made of the gearbox, although no particular limit of road speed was set, the car just settling down to any reasonable speed it felt like on the whiff of gas we allowed her. At 2,000 miles the oil in the sump was changed for the third time, and, finding herself on the Eastbourne-Bexhill road on a beautiful summer morning, she begged me to let her have more than her customary ration of throttle; needless to say, I obliged, and the speedometer needle went round to 70 m.p.h. with commendable lack of delay. Just as I decided that this would do for the time being, my ears were assailed by that high-pitched squeal which heralds a seizure; I coasted to a standstill and, full of remorse, had a look round and a cigarette to calm my nerves while I contemplated what I was going to tell father! However, after a short time, she started up, and I took her home, running very unevenly, and there made my confession,

When calm was restored, my father put in a 'phone call to Bill Slingsby, then service manager at Coventry, and told him what had happened, and what would he suggest, please? Mr. Slingsby suggested that he would get a new engine built up and tested, and would have it sent to our local agents for installation in our chassis, and would we kindly not tell too many people about the affair because he didn't like to think of his engines seizing up all over the country. In due course our new engine arrived and the old one was sent back to Riley's, who traced the trouble to a faulty piston which had "picked up" and made a mess of one of the bores. That episode confirmed us as a family in our loyalty to Riley's, one of the few firms who welcome owners to their factory and regard "service" as something more than a word on the lips of glib salesmen.

After that our "Kestrel" never looked back, and in spite of being in daily use for business, she was runner-up in her class at the 1935 Concours d'Elegance at Eastbourne, being beaten by a sister car in cream and green, attended by a pair of lovelies dressed to match, a combination against which a mere male was powerless. We ran this car for 18 months, and she gave us every satisfaction, her roadholding, braking and steering being well up to the high standard we had by then come to expect; the typical high cruising speed on a small throttle opening was one of its most pleasant features. Acceleration from low speeds was not out of the ordinary, but over 30 m.p.h. it was perfectly satisfactory. The main snag, in my view, was the Wilson gearbox, although in the Riley, by the addition of the Newton centrifugal clutch, the hideous screech on getting away from rest was eliminated, as was the churning of the bands while ticking over in neutral. In January, 1936, I bought my first Riley, and it joined the "Kestrel" in the family garage; she was a 1934 "Special Series" 9-h.p. "Lynx" open 4-seater. She had done 14,000 miles and was in really good order. I used this little car for business in London and made the trip down to Eastbourne and back every week-end for about nine months. She was not terribly fast, but would stand full throttle absolutely indefinitely, and revelled in a run such as London to Norwich. On one such trip she did a stretch of 19 miles, ending at Barton Mills, in 20 minutes, and altogether, throughout that summer she had very little mercy and gave me a tremendous amount of fun and a lot of really first-class trips. Her only competition was the Riley Motor Club Hill Climb, at Lullingstone, in Kent, in June, 1936, where she compared very favourably with a lot of her relations. We had intended having a crack at the Scottish Rally that year, but my friend who was going to share the trip with me could not arrange his annual holiday to suit, so we had one of our own at a later date. In the autumn I met an enthusiast who fell in love with the "Lynx," and in a moment of disloyalty I accepted his offer for her (cash was always a major factor in my personal motoring!) and we parted. For some quaint reason I then bought a new Ford Ten, largely for its acceleration, I suppose, but found that

all the characteristics of roadworthiness that the Rileys had led me to expect were lacking. She rolled abominably on corners, her brakes required constant adjustment, and her absence of road-holding had to be experienced to be believed; in some ways I suppose it was my fault, as I used to put her at corners at the speed my Riley used to take them at, and many were the stirring moments I had as a result. I just could not get used to the soft springing and "jelly on wheels" feeling of the contraption, and was really very glad when one day my father asked to borrow her. He was back in ten minutes, shaking like a leaf and muttering, "This thing must go," and I was told to sell her. Fortunately, our local agents had a beautiful 1936 P.A. M.G. Midget which they were selling on behalf of one of their customers whose creditors were creeping up on him, so I handed over the Ford and a small bag of gold and started to get to know the M.G. She was an extremely pleasant little car, with a delightful gearbox and an engine of dynamo-like smoothness; her thirst for revs. was terrific, and it was very easy to put the needle of the rev.-counter into the red area in moments of excitement when using the gearbox. My three cardinal points of roadholding, steering and braking were all well developed in the M.G., and she really was a pleasure to handle on a fast road with enough curves to keep the interest from flagging. I should put her maximum speed at 75 m.p.h., although I once got a reading equivalent to 82 m.p.h. on a down-grade on Purley Way. Of snags there were very few; there was, of course, the usual oil-leak from the overhead camshaft drive, and my own specimen developed end-float on her crankshaft, which made the bevel gear-camshaft drive noisy when ticking over, this noise diminishing when the clutch was freed, thus pushing the crankshaft forward and meshing the bevels more tightly. This end-float also had a bad influence on the big-end of No. 4 con.-rod, which developed bell-mouthed characteristics. The foregoing were the only troubles I experienced with the "Midget," and for ten months she served me very well; but I was beginning to yearn for something with rather more space for kit and a little more elbow-room, as my usual passenger, now in Italian hands, was a burly chap and had to adopt a rather sideways attitude to give me free access to the gear lever. At this time I happened to call on Messrs. Jack Hobbs, of Willesden, on the off-chance that they might have something attractive in the Riley line. They had. It was my old "Lynx," her previous owner having yielded to his wife's persuasion and bought a "Kestrel." Well, rightly or wrongly—but I have never regretted it—I swapped my "Midget" for the "Lynx," and two old friends took the road together again. In the meantime, my father had also bought another Riley, this time a new 1937 "Adelphi" 1½-litre, so by this time we had become really Riley-minded.

In the autumn of 1937 a period of more than usual financial stringency coincided with the return of my brother-in-law from overseas service with the R.A.F., and I yielded to his tempting offer to sell him my "Lynx." In the two years before the war he did a big mileage in her, and

just before the outbreak had completed a rebuilding scheme, with the result that she was as good as new, and very much better than any cheap new car to anyone at all interested in design and workmanship. She is still on jacks in Montrose, waiting for her owner's return from another overseas tour, and has years of useful life ahead of her.

At the Show of 1937 there appeared on the Riley stand a new model of great promise, the 16-h.p. "Big Four" with overdrive; at the time my father's 1½-litre was giving him every satisfaction, and he could not think of a reasonable excuse to part with her. However, after the local agent had given him a demonstration run on a familiar road in the new model, he began to salve his conscience by suggesting that covering a big annual mileage as he did, it really was more economical to run a new car "as you always knew everything was on the top line." Anyway, the "Big Four" replaced the 1½-litre, and between January, 1938, and October, 1941, that wonderful car clocked 60,000 miles, and apart from periodic decokes and tyre replacements, she did not cost a penny piece in repairs in that fairly considerable mileage. To my mind, the Riley Sixteen did not get anything like the publicity it deserved, and I know of no other car of comparable price, passenger accommodation (the roomy "Adelphi" body was mounted on the chassis), or economy of running which could get near it if its driver thought otherwise. You may recollect that the performance of the "Kestrel" which you road-tested and reported on in your issue of June, 1938, was pretty good. Our "Adelphi" had a speed of 85-90 m.p.h., and with a following wind, frequently throughout her life with us she put the speedometer needle well past the 90-m.p.h. mark. On her overdrive top gear of 3.97 to 1, 2,000 r.p.m. represented 40 m.p.h., so that the effortless cruising speed was limited by road conditions alone rather than by the limits set by the engine. I remember with great joy a dust-up I had with a

3½-litre S.S., acknowledged by many to be a pretty quick car, which started at Newark and ended at the Scotch Corner Hotel, with the Riley the winner by 15 secs. ! Using the gears, the acceleration was as good as one could wish, and judging by the number of cars famed for acceleration that one could beat at the game, it was very much above good average. The steering was typically Riley (and I always maintain that there are very few firms indeed who can teach them anything about steering), and the enormous Girling brakes were powerful, positive and—a great point to my mind—consistent. Neither my father nor I use brakes very much, but when we do we like them to be good. The gearbox was straightforward synchromesh, which, in conjunction with the overdrive, gave five well-suited ratios. On the subject of the overdrive, I would prefer to have a positive control over it, rather than the centrifugal control combined with free-wheel as was customary. To my mind the answer is a normal gearbox with an auxiliary ratio to give the overdrive, engaged, if necessary, by a separate control. In justice to the system as used in the Riley, though, I must say that the change from normal top to overdrive was extremely quick, smooth and positive. On the subject of the free-wheel, I cannot make myself like the feel of a car free-wheeling at any speed; one seems to have the machinery under very remote control indeed. The Riley Sixteen was easily the finest car that left the Riley works, and it is a matter of great personal regret to me that it was evolved too late to save the company in its financial difficulties. In its modified form, as produced by the firm under the patronage of Lord Nuffield, it was a fine car still, and I am sure that when peace returns it will add to the reputation of its makers in no uncertain manner. With its orthodox transmission, I wonder how much of the charm of its performance on the overdrive has been lost, as I believe the present top gear ratio is round about 4.25 to 1, which is still quite high for present standards.



A Big Four Riley crossing the Fork at Brooklands during a MOTOR SPORT test

The surge of power throughout the range of that big 4-cylinder engine was a joy, and one person, at least, who received a surprise from the innocent-looking "Adelphi" was the managing director of the Sussex distributors for Wolseleys, who thought that his new short-chassis 25-h.p. Wolseley coupé was a fairly fast motor until he failed to catch the Riley over quite a fair distance. A great car, of which more will be heard in the future, I feel certain.

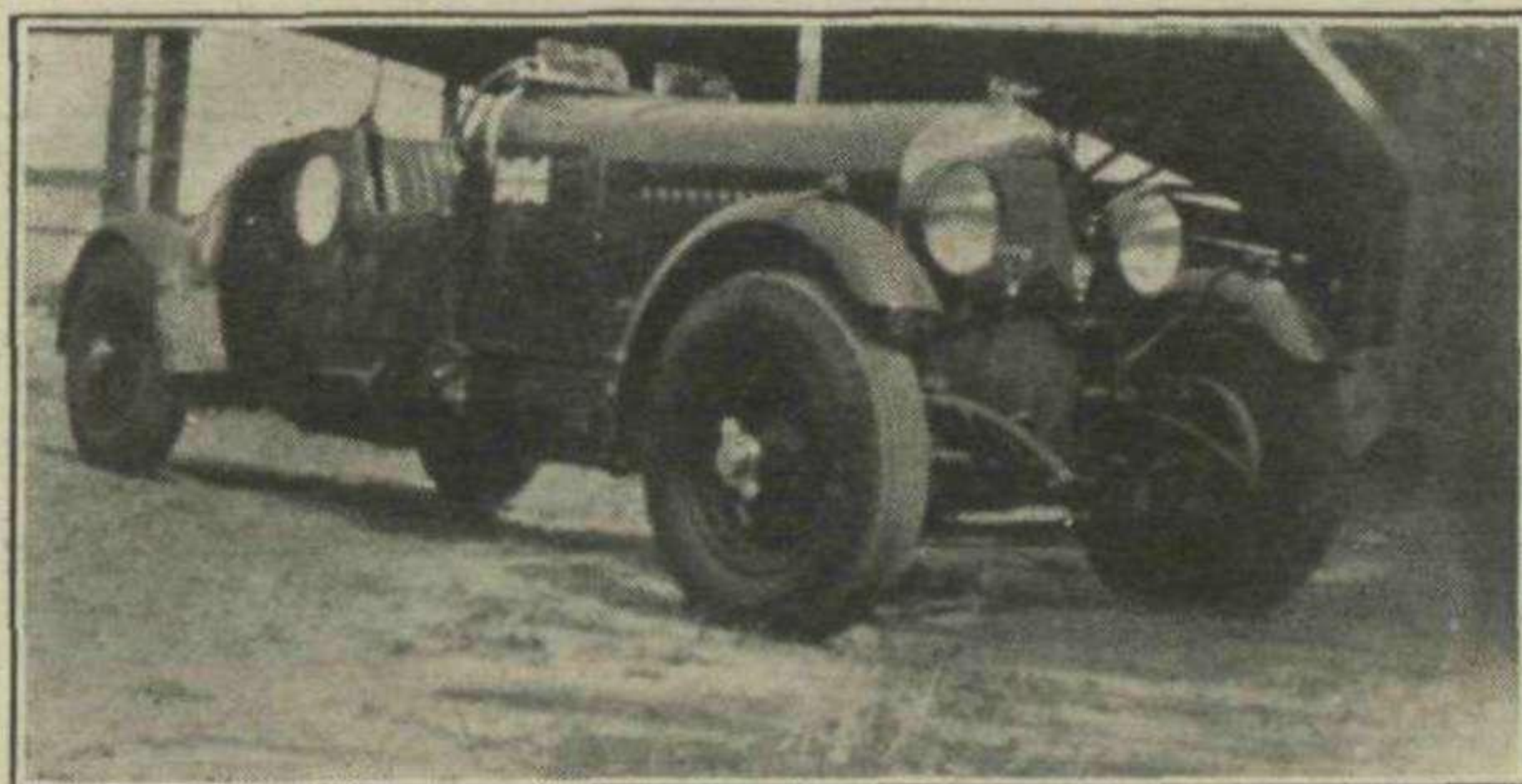
In the summer of 1939 the urge to become a Riley owner once more got the better of me, and I set out to find a "Gamecock" in reasonable condition at a reasonable price. After a long search, I found the one I was looking for, and once more the old sock was emptied and GX2452 was mine. She was a grand little car, had had a lot of attention from a devoted owner, and had been reconditioned at the works quite recently. I immediately set off for a tour of Scotland in her, during the course of which we got to know one another pretty thoroughly, finishing up with a run from Merchiston, Edinburgh, to Swiss Cottage in ten hours dead, though I won't pretend that my lunch took me longer than is necessary to sink a pint of bitter and a sandwich. Her handling was delightful and can be dismissed as typically Riley. The diminutive gear lever was a joy to handle, making clutchless changes a simple matter, while I am convinced that there are few cars sold to the public which are faster round a corner than she could be. Great fun could be had by watching V8s and similar ironmongery coming up fast astern, only to come unstuck at the first bit of swerve that had to be negotiated. A driving mirror provided a lot of innocent merriment in those days. My car had rebuilt wheels with enormous Michelin R.L.P. tyres, and whether they detracted from the performance in other ways I know not, but they certainly gripped the road in all circumstances and made cornering possible at speeds which would normally

produce embarrassing results. The war came, and the "Gamecock" accompanied me to the various gun-sites around London at which I served in those days, and eventually down to Cornwall, where she successfully dealt with Bluehills Mine, but petrol was by then becoming increasingly difficult to come by, and the "Gamecock's" outings became fewer and farther between, except for duty runs. In the spring of 1941 service overseas appeared imminent, and the problem of her future then reared its ugly head. In the part of the country where I was then stationed suitable storage accommodation was not easily to be obtained, so I decided that a good home for her was better than leaving her to rot away for a matter of years in uninterested hands, so she was sold to a very enthusiastic R.A.F. man near Plymouth, from whom I later heard that she was going strong and was providing him with just the sort of motoring he had looked for for years—so the loss of her was somewhat eased in the knowledge that she was in the hands of someone who would appreciate her. Incidentally, it's odd to refer to a "Gamecock" as "her," but I see no way round it! To continue, unfortunately my trip overseas was postponed, and I would have given a great deal to have had my "Gamecock" back, but that was out of the question, and petrol rationing did not make any search for a car worth while in the circumstances, so my private motoring came to a full stop at that point. In the autumn of 1941 my father obtained a most attractive offer for his "Big Four" from some lucky man engaged on essential work, who could get the petrol which was denied the less fortunate basic-dependents, so she went from us, with nothing but the feeling on our part of "When shall we look on her like again?"

Now the only Riley in our family is my old "Lynx," just completing her fourth year on jacks; I hope that the passage of time has not dealt too hardly with her. There is the future to look forward to,

and when sanity returns I must confess my ideas centre round a "Special." At the moment I have visions of a Riley "Imp" chassis, with a 1½-litre engine and crash box. Impossible? Maybe, but I really think there you have the makings of a fairly potent motor-car, and without the slightest technical knowledge to base my opinions on, such difficulties as no doubt there would be do not appear to me to be insuperable; anyway, I shall have to renew my allegiance to the Blue Diamond in some form or another, and am looking forward once more to watching Percy Maclure performing his miracles at Donington and the Palace. By the way, what would he have done had he been put at the wheel of the new type E.R.A.? Perhaps we shall still see; to my mind, he is the best driver we have, a controversial point, I know, but it is an opinion shared by many others, and without wishing to detract at all from the really wonderful car he has built up out of basically sports-car components, I long to see him competing with the rest on a car of at least equal potentialities. When that happens, perhaps it will be generally realised just how good he is. Or will he have to dress up in overalls to match his car, with zippers on every available square inch and surround himself with blondes before he gets the recognition he deserves?

I am horrified, on reading this over, at the extent to which I have gone burbling on, and duly offer my apologies. However, I will send it, if only for you to read the first paragraph, which was, anyway, the original reason for writing you at all, so please forgive the rest, and if you like, blame the climate! I have run across practically no enthusiasts out here, with one notable exception, namely, B. W. Fursdon, of rally fame, who is a captain in the R.A.S.C. in this Division. I think it advisable to add, in view of the foregoing, that my only connection with the Trade, in any shape or form, is that of customer!



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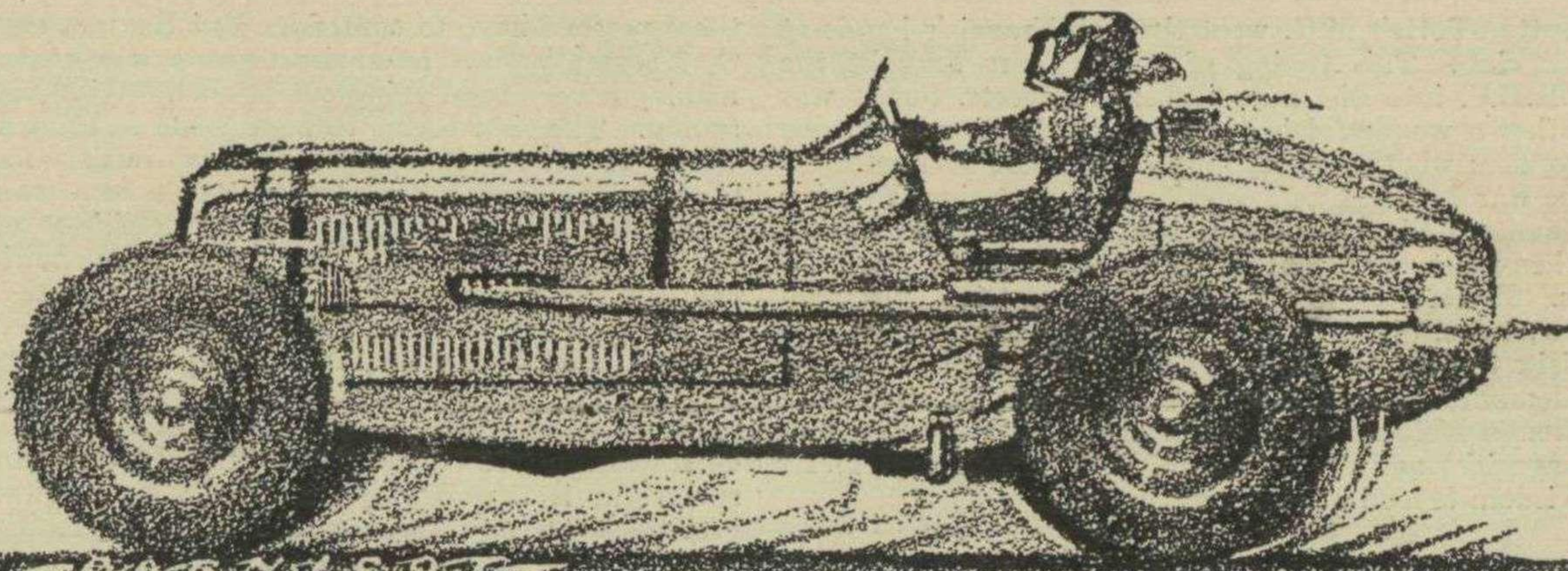
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RUMBLINGS

As we pen these words it is just under a week since the first news of the Second Front came in, but in this short space of time it has been possible to realise what a wonderful show has been put up. At a time like this our thoughts go out to all those motoring

Wonderful Show

enthusiasts who are serving on land, on and under the sea, and in the air. At home, things go on much as usual. Sitting any lunch hour for a mere ten minutes or so in Hyde Park, the great 360-acre open space which divides Kensington on one side and Bayswater on the other, from the fashionable West End, is usually sufficient time in which to see a couple of Rolls-Royce cars glide by. At rush hours it is almost impossible to cross the roads in the immediate vicinity of Paddington Station because of the press of taxis. On a local common an immense road show has come for a week or so, unloaded from at least a score of big lorries, many of which keep their engines running for hours on end generating light and motive power, while, beneath the trees, stand the private cars of the numerous stallholders—smart Wolseleys and S.S. alongside older Austins and Morrisies, some, we notice, on trade plates, which we thought were the prerogative of the Motor Trade. On Saturday afternoons taxi after taxi passes by, bound for a distant dog-track, and every public holiday sees the racing of horses. In all sincerity, a country which can push back its enemy as we are doing without seriously disrupting the lives of its civilians is a wonderful country indeed.

* * *

We heard the other day from Alec Francis, who is now engaged on war-vehicle work. Francis has had an extremely interesting career and we hope he may one day be persuaded to write of his experiences. In 1911 he joined the Duo Cyclecar Co. as designer, after finding speed on two wheels rather dangerous—he had been twice to Weybridge Hospital within six months. He ran a belt-drive Duo at Brooklands, and in the Amiens Cyclecar G.P. in 1912, afterwards winning the Six Hour Race at Brooklands in

Varied Career

one of these cyclecars. Incidentally, this rather disproves our recent statement that the 1921 J.C.C. 200-Mile Race was the first long-distance event held in England; the 1912 event was organised by the B.M.C.R.C. for motor-cycles and small cars. In 1914 Francis went to serve on speed boats with the R.N.V.R., and in 1919 joined Wm. Beardmore as chief designer. Here he designed the 2-litre o.h.c. cars with which he and Cyril Paul did so well. In 1924 Francis took over 60 firsts in sprint events and Paul 14 firsts, the latter also breaking the Shelsley Walsh record with a climb in 50.5 secs. In 1922 Francis designed the 350-c.c. Beardmore T.T. motor-cycle engine, which had many ingenious features, including a crankcase split horizontally like that of a car, a head containing four valves which were semi-positively closed by a second cam operating against a small leaf spring, and a means of adjusting tappet clearance from the saddle. After this, this versatile technician took up outboard motor-boat racing. Then, after ten years' work, he left Scotland and joined Cyril Paul, tuning numerous racing cars. The big Benz was taken in hand and, from lapping at about 103 m.p.h., was made to go round Brooklands at over 115 m.p.h. The 6-litre Delage I and the old Wolseley "Moth" were successfully rebuilt, and Bill Humphreys's Amilcar Six was entirely rejuvenated, winning two races at one meeting, in spite of the handicapper's threat. Widengren's Amilcar Six was also attended to and took the class Hour Record at Monthèry at 118.6 m.p.h., and covered a flying mile at Avus at 126 m.p.h. Clayton's Amilcar Six, which took the class s.s. Mile Record, Jack Bartlett's Salmson, which did so well on the Mountain Circuit and won a 100-mile race at Southport in 1932, Harvey-Noble's Salmson, Baker's Minerva, and 1,100-c.c., 1½-litre and 2.3-litre Maseratis were also amongst the cars which Francis prepared. In 1932 the Junior Racing Drivers' Club engaged him, and later a tuning establishment was opened to the premises, to which members brought their sports cars. Hodge's Singer, the later single-seater Singer of Hodge's, Dobbs's Riley, Morgan's bronze Austin, the Graham-Paige, and

Hutton-Potts's M.G. went through Francis's hands at the club. This tuning of clients' cars brought the J.R.D.C. into disrepute in some respects, but it was rather a wonderful institution and, looking back, one wonders whether something of the sort revived after the war wouldn't be a very sound happening. Evening Mountain Circuit practice was held at Brooklands, when races were held, for which the entry fee was only 5s. Invitations to other clubs' speed trials, pit practice, talks, discussions, technical advice and organised visits to Continental races figured in the menu. Louis Klemantaski was secretary (he used to contribute Klem's Kolumn to *Amateur Motor Racing*, the club magazine) and people like S. C. H. Davis and T. H. Wisdom helped at club meetings.

* * *

Looking through some *Vintage S.C.C. Gazettes* the other day we were interested to note how cheaply it was possible to buy vintage sports cars before the war. For instance, in mid-1939 you could wander down to the "Phoenix," where Tim Carson would sell you a "30/98" Vauxhall for £35, a 4½-litre open Bentley for £75, or a real sports outside-piped "12/50" Alvis for £25. In May of 1939 someone else offered a really sound O.E. "30/98" for £45 and, again at the "Phoenix" £30 would see you off in a 3-litre Bentley, or £65 buy a 2-litre G.P. Bugatti, while old s.v. Amilcars and much later Ford Eights were chalked up at £20 apiece, an "18/80" M.G. at £38, and a couple more "30/98s" at £20 each. Complete Lancia "Lambdas" fetched rather more, but you could get a 1936 6-cylinder Frazer-Nash for £130. Not so to-day. £50 buys hardly anything at all. A really elderly s.v. Anzani Frazer-Nash was recently listed at £125, and any reasonable "30/98" or Bentley starts at about £150. A clean sports "12/50" Alvis is deemed to be worth £75 or so. And we heard recently of a Type 40 Bugatti, which set its new owner back £200 in cash, and his M.G. as well. This state of affairs may be attributable to the growing rarity of vintage cars, to the increased cost of living, and to the heavy overheads borne by those dealers who are able to remain in business. We appreciate the difficulties with which

Pre-war Prices

these persons have to contend. But the fact remains that some vendors of ancient sports machinery are making a very good thing out of such buying and re-selling. The time seems to have come to utter a few words of advice in respect of such deals. Paying stupidly high prices for vintage sports cars tends to inflate the market generally, to the detriment of the impecunious. A sound car thoroughly re-conditioned can obviously command a big price, for spares and labour are at a premium these days. But sometimes a liberal coat of fresh paint and some fabrications on the vendor's part are the sole assets, and in such cases it is as well to remind prospective purchasers that, as Cecil Clutton told us last month, the ordinary vintage sports car is nowadays justified only on sentimental grounds. To pay through the nose for indifferent specimens is foolish in the extreme, and we hope demobbed Service enthusiasts will not need to do so. If someone will start a business in such cars, selling them for a modest profit and relying on a quick turnover, he should do quite nicely for himself.

* * *

Passing through Chobham the other day we stopped at the Central Garage to see what sort of a show Rodney Clarke and Leonard Potter had made of it. Their stock numbered some very interesting cars indeed. Pride of place should probably go to two Type 55 Bugattis, a 2-seater and a fixed-head coupé. Asked how rapidly the former would motor, Potter remarked sadly: "Only about 110 now," so apparently some more lead in the petrol would be appreciated. Clarke's 5-litre Bugatti saloon, its engine out of the chassis for overhaul, is most imposing. Keeping the Bugattis company were a rather rare 1927 single o.h.c. Alfa-Romeo 4-seater, a "Brooklands" Riley Nine and a blown "Balilla" Fiat. The last-named has, we understand, extremely potent acceleration from the lowest speeds and yet contrives to motor its puffer round if the belt is off. There were also swarms of Fiat 500s and an "Ulster" Austin Seven, and an overhaul of an Alfa-Romeo had recently been completed for no less fastidious an owner than Peter Monkhouse. Quite a spot!

Sports Cars in Surrey

CONTINENTAL CARS

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ALFA-ROMEO

MERCEDES-BENZ

B.M.W.

We are now able to take on overhauls and rebuilding of the above type of motor car. We can also assist in the purchase or disposal of the same.

RODNEY CLARKE
LEONARD POTTER

CENTRAL GARAGE,
CHOBHAM
nr. WOKING

WE HEAR

Interesting sports cars continue to come to light. At Ewell a rather derelict "14/40" Delage with very Continental 4-seater body stands forlornly in a back garden and could, we believe, be bought for a reasonable sum. Not far from it, outside a shop on the pavement, is a "Blue Label" Bentley 4-seater, but that is *not* for sale. Then Kenyon, now motoring in a Riley Nine, knows of an Anzani-engined G.N.-Frazer-Nash in need of completion, for £22 10s., and a sound 6-cylinder O.M. 4-seater, very nice to handle and well-braked, with lots of engine and chassis spares, was for sale at Staines for about £30. Taylor, who owns the 1924 Le Mans-winning Bentley, also has a Morris Eight tourer, and recently acquired a very clean, and slightly special, 1930 Riley Nine "Monaco" fabric saloon, intact even to an 8-day clock. Birkett has had the misfortune to be set upon by an Army lorry while motoring his Austin Seven-engined tricycle, the result being a very lucky escape and some personal injury to himself and Joan Passini, who was with him, and the loss of the vehicle. However, he has salvaged the sports Austin engine and, meanwhile, does his professional motoring in a 1926 "Chummy" Austin Seven, when not using his Bugatti.

A. W. Jones has finished rebuilding a 1935 Lagonda "Rapier" 2-seater, and in doing so has incorporated certain special features, such as a jockey sprocket for the timing chain and two high-tensile fully-adjustable blocks to replace the spring-blade chain tensioner. He now plans to install a No. 8 Cozette supercharger between the dumb-irons, driven from the nose of the crankshaft. His brother, by the way, seeks a "Brooklands" Riley Nine, if anyone has one for disposal. Rivers-Fletcher is enthusiastically preparing his "12/60" Alvis 2-seater, and he recently had an article in *The Light Car* on racing prospects after the war, in which he put out a strong plea for an early resumption of simple club rallies to enable re-unions of drivers and the airing of sports cars to take place.

L.A.C. C. B. Taylor is anxious to obtain copies of *Motor Cycling* and *The Motor Cycle* containing reports of the 1935 Junior T.T. and practice for that race, as his copies were, unfortunately, recently destroyed. The 1924 Horstman brought Rowland, of Byfleet, numerous letters and telegrams and it has gone to a good new home in Surrey. In London, two early 4-cylinder Unics, one a lorry, the other a smart van, still serve. Then, from Australia, via Sam Clutton, comes news of a 12-h.p. Hurler of the early nineteen-twenties, owned by Edward Godfrey, of Hazlewood Park. It weighs 25 cwt. and is alleged to have been timed to do 72 m.p.h., but Godfrey keeps to 55 to humour its age. He is anxious to know if any similar cars exist elsewhere—his engine number is 7582. He also has a 1923 "14/40" Vauxhall 2-seater with aluminium body and disc wheels, which has only run 20,000 miles since new, and performs well.

Robertson Rodger has been seen flying a Harvard, and Kent Karlake, one of the finest motoring historians of all time, has turned up again. Capt. John

Club News



Eason-Gibson, R.A.S.C., went all through the African affair and is now in Italy—he managed some rapid laps of the Carthage circuit on borrowed cars, and had dinner one night with Norton Bracey. He has also met the brother of a man who won at Tunis with a Maserati one year, and someone else who claims to be a racing motor-cyclist, and he hopes yet to see Nuvolari. He has lost his B.R.D.C. buttonhole badge and asks if anyone has one to spare—we gather he sports a B.R.D.C. badge on his Army overalls! Second Lt. T. A. Jones, of the C.M.F., says he can always tell when his MOTOR SPORT has arrived by "the faintest whiff of Castrol 'R' in the air when I near my tent!" He met Barry Woodall, who owns the White Riley, in Palestine, and has in his battalion Cyril Petts, who drove a "328" B.M.W. in M.C.C., J.C.C., and other events.

Peter Clark is about to become a sailor, starting off as a junior officer, and Thomas Wisdom is back from the East and looking very fit; Mrs. Wisdom and her small daughter are in the country and also very well. Lt. Riley, a Canadian soldier now in this country, has acquired a very beautiful ex-Bachelier Type 40 Bugatti, with aluminium wheels and Type 55-style body, and in Weybridge lives a Type 44 Bugatti fabric saloon originally bought direct from Molsheim, and still in the same owner's hands. Then Sharp has a 1926 Rex Acme Blackburn motor-cycle which he is rebuilding, and Jenkinson works when time permits on his A.C. Six-engined Frazer-Nash, and cleaned up the O'Boyle Alta recently just as a labour of love. Boddy is contemplating a "30/98" O.E. Vauxhall, at present adorned with a breakdown crane, an early 20-h.p. Royce, and a Schneider, and may sell his Frazer-Nash and the big-port Alvis cars to provide storage space.

Flt. Lt. Anthony Crook has purchased the ex-E. M. Thomas Type 328 B.M.W., which lapped Brooklands at 109 m.p.h. just before the war. This car, and Crook's 2.9-litre Alfa-Romeo, were exhibited at the owner's R.A.F. station during a recent "Salute the Soldier" week, and some 200 persons gave 6d. a time to the fund to examine the two cars. Kenneth Wharton has bought the 1914 Sunbeam tourer found by Heal at Ascot. It started easily after changing the magneto and freeing two valves. Wharton intends to fully restore this car, and he also plans a 3-litre twin-o.h.c. Sunbeam engine in a shortened Talbot chassis as his post-war car. He seeks engine spares and a high-ratio Talbot axle.

ULSTER A.C.

A recent talk on American racing at the Grand Central Hotel, Belfast, by Edwin T. Meyers, was very well received. A special Ford V8 was mentioned, able to run regularly at 8,000 r.p.m. with standard rods and crank. This resulted in a great uprising, because McQuillan raced a V8

Ford-engined "Special" in Ireland, and said he had several such engines from which he was unable to remove the crankshafts, because the rods were adhering to them in the shape of an "S"! It was also pointed out that 8,000 r.p.m. equals a piston speed of well over 5,000 ft. per min. But the American was apparently unmoved, and said the later-type V8 as sold in the States had very different rods. He said he had 140-145 m.p.h. from V8s at Muroc—once again, are American miles shorter than ours? However, apparently he had taken world's records with a Ford V8-engined hydroplane, and for this engine he claimed over 7,000 r.p.m., maintained for 50 miles on the water.

I.A.E.

A paper on High Octane Fuels was read to members recently, and Air Comdr. Rodwell Banks, Maurice Platt and Laurence Pomeroy were amongst those who took part in the discussion. The I.A.E. and the I. of Petroleum Technologists intend to get together after the war to ensure that engine design and fuel development are better co-ordinated than was the case in the past.

J.C.C.

At the J.C.C. Council lunch on June 6th the principal guest was P. J. Noel-Baker, Parliamentary Secretary to the Ministry of War Transport. The good which such meetings do to the motoring movement as a whole must be clearly evident, and we all owe the J.C.C. a big debt of gratitude for continuing to hold such influential functions from time to time.

COVER PICTURE

With the opening of the Second Front hopes turn to a resumption of motor- (as distinct from dog- and horse-) racing in the not-too-far-distant future. This month's cover picture shows cars taking the Fork hairpin during a Mountain race at Brooklands—M.G., Alfa-Romeo, Austin Seven, Riley and Bugatti cars are recognisable. In the foreground is Kenneth Evans's famous sprint M.G. Midget, developed by Wilkinson, of the Bellevue Garage, from a sports "Montlhery" model into a very successful racing car. It is a sign of the times that the driver is an Army captain, Bellevue Garage is an A.R.P. station, and Wilkinson now applies his magic to aeroplane engines. We believe the M.G. is in the hands of a South London breaker, who proposes to convert it into a trials car.

M.M.E.C.

The next meeting is scheduled for July 5th, at the "Hope and Anchor," Edmund Street, Birmingham.

APPEAL

The Editor would like to know the present whereabouts of the 1926 "12/50" Alvis which H. Whiteside lent to him for road-test in 1939, if anyone can assist.

LETTERS from READERS

Sir,

As threatened, this letter follows my cable requesting a little information on the Type 43 Bugatti. My Type 43 is the only one in this country and has had a somewhat chequered career. It appears to have been imported in 1929 when new, and passed its first four or five years in a most energetic manner; races, hill-climbs and trials being the daily recipe. Disaster befell in 1934, perhaps not for the first time, as a result of energetic but unfruitful attempts to clear an oiled plug. A rod revolted. Rebuilding was not completed until 1936, since when a very small mileage only has been covered. It may be of interest, and almost certainly will cause horror, when I tell you that Le Patron's design has been modified. The big-end rollers are now held in steel cages instead of the original phosphor-bronze affairs. Also three less rollers per bearing are used, the whole thing being copied from the Norton m.c. arrangement. I have not yet thrown discretion to the winds, so do not know whether the new big-ends are a success or not. Petrol being so scarce, a run in the Bugatti is a precious thing indeed, and is always shared by my wife. The latter, in addition to being a most long-suffering Englishwoman in a strange land, and more or less permanently surrounded by strange motor-cars, is nervous at speed. This may have something to do with the relatively trouble-free motoring which I have, with a few variations, enjoyed. The immediate result is that the Type 43 has not yet been extended. Four-five in top always produces a tap on my left shoulder and an appealing look. With 19-in. \times 6.00-in. rear tyres as fitted, top gear gives 22.2 m.p.h. per 1,000 r.p.m. At four-five the supply does not appear to be exhausted by any means, so the thing is quite brisk for its kind. I hope to explore possibilities in a solo run shortly.

With trepidation may I put forward a few comments on the evergreen subject of vintage *versus* modern? I do not think Mr. Cecil Clutton's dissertations on this could be surpassed for both wit and logic, and many other contributors have, I am sure, caused either rage or amusement. Broadly, it would appear that a vintage machine costing £1,000 or more when new was still a better performer in 1939 than any modern costing less than about £500 at that time. Since pretty good vintage specimens could then be bought for about £150 to £200, the financial balance appeared to favour vintage, for those who want performance plus that something which goes with a car that is really built for the buyer and not for the benefit of the shareholder, to the exclusion of all else. I have had a little experience with vintage machinery as represented by four Bugattis, a blown $4\frac{1}{2}$ -litre Bentley, an assortment of Delage, and a reasonably rapid early Riley. To balance these my garage has, at one time or another, been graced or disgraced by a $4\frac{1}{2}$ -litre open 4-seater Lagonda, a Lagonda Rapier, Le Mans (*sic*) Singer, a Hornet Special and a Ford V8. Many, many miles have also been driven in

parental Americans and uxorial Austins. The whole thing seems to boil down to the undeniable fact that what is one man's beer is another man's hogwash, as was ever. My esteemed parent would not keep a "30/98" or similar under any circumstances, whereas I am reminded of lying in a tepid bath when driving the relatively high-class Yanks which are to him the ultimate in comfortable motoring.

The supporters of so-called modern construction deem it extremely odd that anyone in his right mind should prefer the older types of, say, Aston-Martin or Frazer-Nash, when these have not even outstanding performance on their side. The answer seems to be simply in the manner of their manufacture; perhaps I should say creation. A hand-fitted motor-car (if based on sound design) usually possesses that nearly indefinable "controllability with confidence," commonly called "feel." Bugattis have it, in my opinion, to a greater degree than any other make of which I have experience.

Another subject which has filled lots of your columns is the argument over the relative merits of British and Continental family conveyances. Mr. C. W. P. Hampton has put up a sterling and, indeed, impassioned fight for the Continentals, and in doing so seems to me to have forced his opponents on to unfavourable ground. The weight of the discussion has been pushed on to performance and roadholding (presumably at relatively high speeds for the type under discussion). I can only say that there are a devil of a lot of people who use their cars solely as a means to get from place to place at less than 45 m.p.h., at a low cost both in tax and petrol. If their cars meet their requirements in this respect, the detailed manner of doing matters not, so it is better that they should come from a British factory than another. It would probably be safe to say that agents for Austin, Morris, Standard and Singer count their sales in hundreds in Australia, while representatives of Lancia, Fiat, Citroen are counting their single successes. One is tempted to ask if all these buyers are wrong and Mr. Hampton alone is right?

On the other side of the record Mr. Marshall's exhortation that we (the English) should be fair to ourselves, sounded a note of complacency which definitely jarred the ear. Lighter weight and independent suspension, at least in front, must become standard practice on all mass-produced light cars in the interests of controllability and safety. England should have a great opportunity to develop overseas car markets at the end of the war. European factories are likely to be slow off the mark, but the British product will have to embody all the desirable features to which the prospective customers have been accustomed, plus any improvement anyone else is likely to think of in the immediate future. The British small car has many good features, mostly related to comfort and reliability for size, but they do seem to fall short on the score of performance.

If large chunks of surplus weight could be thrown overboard, big improvements in this and economy should result.

Please let me say how much I enjoy MOTOR SPORT, and express my admiration for the remarkable standard of interest that has been maintained by enthusiasm and genius alone.

My brother, who is with the R.A.A.F. in England, has been instructed to send you further supplies of Air Mail stamps for use by anyone who would be so kind as to tell me any of the things of which the canny Type 43 owner bewares or embraces, if he would go fast and far.

I am, Yours, etc.,

T. LUXTON (Lt.-Col.).

Victoria,

Australia.

[Letters from other Bugatti owners, preferably on Air Mail paper, will be forwarded.—Ed.]

* * *

Sir,

Thanks a million for the road test of the Cord; it gave me a most peculiar feeling in my "accelerator toe."

Now, to set enthusiasts looking around, I would like to add that these cars have been coming into this country since about 1927, all of which are left-hand drive up to the 1936 model. Prior to 1936 the engine was an eight in line with gearbox in the front of same, the hand-change was in the fascia panel with a $\frac{3}{4}$ -in. rod sliding in rollers, and carried to the front of the engine; the chassis was nice and low, with knock-on wheels.

A rather interesting feature was the starting handle which was splined and, therefore, would last as long as the car (many have done 100,000 miles without serious trouble). The radiator design of this f.w.d. Duesenberg-Cord was similar to the "S.S." car.

It was rated over here as 28 h.p., and was not supercharged until 1936, when the last of the Cords were made, although some were sold in 1937 and 1938, and for 1936 the Cord took on a different body-style with Venetian-type louvres, retractable headlamps, and electric vacuum remote-control gear-shift.

The engine was by now a V8 Lycoming, rated at 110 h.p. (39.2 R.A.C. rating).

The whole car was well ahead of its time, and about the middle of 1938 the Hupmobile was running around with the Cord body. Yes, the Hupp Brothers had purchased the Cord body dies (alas! no more Cords), but the body design was not yet out of date, for in 1939 the Graham Automobile Corporation had fitted it to their product, and the 1942 Lincoln was a replica of it, so what next?

A few notes may prove useful, so I will quote the following: The car is made by the Auburn Automobile Company, of Auburn, Indiana, makers of Auburn cars and Duesenberg aero engines.

The supercharged Cord will barrel along at 110-120 m.p.h. (160 m.p.h. is not beyond the capabilities of the unit, but not in standard form). The Lycoming engine dimensions are $3\frac{1}{2} \times 3\frac{3}{4}$ in.; it develops 125 h.p. at 3,500 r.p.m. Speeds, four forward, one reverse (ratios were

quoted in the January issue of *MOTOR SPORT*. Independent suspension to front wheels, centre control steering, double-action hydraulic shockers; brakes are hydraulic (the Cord is noted for good brakes). Carburetter is 1 in. Duplex downdraught type, cooling by pump and fan, radiator is made of copper. Fuel tank 20-gallon capacity (any Cord will do 20 m.p.g.). The body is built with the frame as one unit. The ground clearance is 9 in., and the weight is 1½ tons, or 2½ tons for the Berline limousine.

The whole car is of very solid structure and deserves some praise. Many of these cars cost over £3,000, and they were worth every penny of it; in my opinion the best ever made (that is, to take it on all its merits).

I am, Yours, etc.,

REGD. D. WITTHAMES.

Walton-on-Thames,

Surrey.

P.S.—If any reader is interested I know of many Cords for sale; six of these are in the same stable.

* * *

Sir,

True enthusiasts will share Marcus Chambers's feelings in most of his remarks in the December issue.

He omitted the classic crossbred, a 4½-litre Bentley engine in a "30/98" chassis. One can conceive, say, a distracted 4½-litre owner installing an O.E. motor to keep up with the Vauxhalls, but . . .!

The Vauxhall-Villiers and a Type 54 Bugatti head Marcus Chambers's list of bastards, and I should like to set a few minds at rest as far as the unholy alliance of these two is concerned.

The choice was not mine, and the Type 54 chassis has now gone to a Bugatti enthusiast. I hope he finds the correct motive power.

As far as I know I have the only Villiers frame in the country, Raymond Mays's white chassis having been scrapped, leaving David Brown's with the special rear axle. Whether or not any more of this chassis can be used depends upon its suitability, but the front axle has certainly "had it" except as a souvenir.

In any rebuilding I may attempt, the Vauxhall character will be maintained as far as possible, and the Special side played down. There are plenty of 3-litre Vauxhall-Villiers engine spares and castings, but the chassis problem should provide plenty of scope for getting the b.h.p. conveyed to the wheels and keeping them on the road at the same time.

MOTOR SPORT is worth its weight in dollar bills out here. Keep it cracking!

I am, Yours, etc.,

TONY BROOKE.

By Air Mail,
Manitoba.

* * *

Sir,

In reply to your contributor "Two-Point-Six," however anxious he may be to "boost British," the fact remains that the Lancia "Aprilia" would wipe the floor with the 1½-litre M.G.

The M.G. has a capacity of 1,546 c.c., as against the 1,352 c.c. of the Lancia—an advantage of 194 c.c.

The Lancia has a maximum of 81–83 m.p.h. It cruises at 70–72 with four

adult passengers, with a top-gear ratio of 4 to 1. This high ratio is possible because the car weighs only 16½ cwt. The M.G. would attempt to keep up on its top-gear ratio of 5.22, this low ratio being necessary because of its 22 cwt.

The roadholding and cornering of the Lancia is astounding, and is world-renowned. Its b.h.p. at 4,000 r.p.m. is 46.

If facts will not convince "Two-Point-Six," he will probably say that an Austin Twelve would keep up with its French equivalent, the Citroen, across France.

I am, Yours, etc.,

E. J. KEHOE.

Kingston Hill,
Surrey.

* * *

Sir,

How very obvious is the result of the match between C. W. P. Hampton's Bugattis, Types 57SC and 37A, against P. F. Whalley's Talbot and Alta.

I have always admired Hampton's delightful enthusiasm and faith in Bugattis, and I second his views, particularly "as to where bells should be hung and chromium laid on."

I feel so confident as to the outcome of his accepted challenge that I will wager 5 to 1 on that the Bugattis secure the verdict. This I arrive at on the basis that it is "thoroughbreds" versus "mongrels."

In closing, if C. W. P. Hampton has any difficulty in acquiring a Type 37A, I would be pleased to loan him my Bugatti 37A for the occasion, that is, when opposed to the Alta.

I am, Yours, etc.,

JACK LAWRENCE.

London, W.11.

* * *

Sir,

It may be of interest to your readers to hear of my war-time experience of running a 1927 3-litre Invicta, a car which in my humble opinion merits more publicity than it gets even in *MOTOR SPORT*.

The circumstances surrounding the purchase of this car are rather strange. The car, an open 4-seater, previously belonged to John Heal (brother to Anthony) and encountered complete disintegration of the differential assembly near Worcester. Instead of repairing it, Heal part-exchanged it for a 2-litre Lagonda, the garage concerned earmarking the poor old car for the scrapyard. I saw it whilst awaiting removal and was so impressed by the excellence of the workmanship that I purchased it on the spot, a cheque for £4 clinching the deal. This was in 1938. I managed to get a secondhand differential assembly (3.9 to 1) for a further £3 10s., so the old Invicta was made roadworthy for £7 10s. I can say without hesitation that it is the best investment that I have ever made. For those who may not be acquainted with the 3-litre Invicta here is a brief description.

The engine is a 3-litre de Saxe push-rod o.h.v. Meadows, with detachable head and block and twin barrel-type Solexes. The chassis is a fairly light type with normal ½-elliptic springing. The scuttle and dash are both cast aluminium, and the car is comprehensively equipped with first-rate instruments. Here is the standard equipment: two independent fuel systems with remote-controlled cocks operated from the dash, magnificent

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83, Old Oak Road, Acton, W.3
Shepherds Bush 5022.

MOTOR-RACING Books by Eyston, also "Life of Segrave," by Malcolm Campbell, and "Motoraces," by Monkhouse. Newell, Springmount, Shankill, Co. Dublin, Eire.

SPEED, Nos. 1 to 4, 1935, perfect. What offers? Newell, Springmount, Shankill, Co. Dublin, Eire.

AUSTIN Seven specially-made inlet manifold, with S.U. carburetter, good order. £2 5s. Newell, Springmount, Shankill, Co. Dublin, Eire.

2-19 in. Rudge wheels, 4 dozen small Jubilee loose clips. S. R. Green, 117, Trowbridge Road, Bradford-on-Avon, Wilts.

COMplete set unbound *MOTOR SPORT*, 1934 (July) to date. Offers. Mitchell, 37, Damshot Crescent, Nitshill, Glasgow.

1931 "12/50" Alvis front and rear axles, with wheels, W/C Evans, R.A.F., Portreath, Redruth, Cornwall.

3-litre Bentley Instruction Book (reprint). Offers. W. J. Jay Skimpans, Nr. Hatfield, Herts.

FORD Eight sports 4-seater, 19,000 miles, excellent condition and performance. Offers. 6, Crescent Road, Caterham, Surrey.

WANTED

BUGATTI, 1½, 2 or 2.3-litre Grand Prix, complete, or parts for same. F. O. Cleveland Harmer, 83, Old Oak Road, Acton, W.3.

WANTED urgently, manual for P or N type M.G. Have J.2 Riley Manuals. Curtis, The Bretts, Rodborough, Stroud, Glos.

WANTED 1933–1938 M.G. 2-seater, also crashed car and any spares. Curtis, The Bretts, Rodborough, Stroud, Glos.

FOR "N" Magnette K.3 camshaft, Scintilla Vertex, radiator, quick filler cap. Lt. Surgeon D. Hiley, Birtley Rise, Bramley, Surrey.

TWO Rudge 16 by 5.50 knock-on wheels for P.B. Midget. Houghton, 1514, Stratford Road, Birmingham, 28.

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Rotax lighting, and starting equipment with ammeter and voltmeter, oil and water thermometers, A.T. clock and speedometer, combined cigarette lighter and wandering inspection light and two engine inspection lights and a spare bulb rack. The whole car scales 25 cwt. The car was run for one month only pre-war, and there were three noticeable snags: the brakes were appalling, the oil consumption was high, and the prop. shaft vibrated badly at over 50, found to be caused by a short-chassis prop. shaft being fitted in the long chassis, allowing the splines to mesh for only 1 in.

At the beginning of the war, being unable to get into the Forces, I decided to attack the Invicta in earnest. I stripped the engine and carried out numerous jobs, including taking up all bearings and fitting Cord spring steel rings. These were in the nature of an experiment, and proved highly successful. In short, the car was put in good running trim as opposed to good condition by spending a lot of time and very little money. One month's running showed that my labours were not in vain, but further motoring was curtailed owing to my acceptance in the Royal Navy.

However, in February, 1941, I was sent to the West Indies, and contrived to take the old Invicta. What a paradise! Taxation by weight and unlimited gas. My fourteen months in those regions were made doubly enjoyable by the old car. It seemed to revel in the hot, humid climate, and the harder I drove it the better it went. Altogether I covered about 10,000 miles, usually with full load. The oil consumption was cut down from 400 m.p.g. to 4,000 m.p.g. by the Cord rings. Petrol consumption was 18-20 m.p.g., driving at any speed. The road-holding and steering were fair, there being general wear throughout all moving parts. The brakes were bad, in fact, very bad, partly due to the design and small drums, and partly to having 21-in. rims and over-size tyres. The maximum speeds appeared to be as follows: top 80 m.p.h., 3rd 65 m.p.h., and 2nd 45-50 m.p.h. on the 3.9 to 1 ratio. The A.T. speedo flickered badly and read high, but my estimates are based on comparison with other cars, no rev.-counter being fitted. Acceleration was very good, particularly at the top end of the range. The lighting,

which of course was unrestricted, was excellent, and literally put the American types in the shade. Whilst in Trinidad I encountered only three snags: the rivets securing the crown wheel to the differential cage came loose and had to be replaced by bolts, oil found its way into the clutch, and the armature insulation of the Sims magneto melted occasionally, necessitating cleaning to prevent seizure.

Starting, both in English winter and in the West Indies, was magnificent, and was the best ever in my experience. The car created a considerable impression by its age, its performance, and its excellent workmanship, in a country where the American car holds sway. In the vintage class I saw only a 504K Mercedes and a 3-litre Sunbeam. I was unable to bring the Invicta home when drafted, and sold it to a naval lieutenant for 150 dollars. I hear that it has since been smashed up; probably those brakes again. Curiously enough, it is the only 3-litre Invicta that I have ever seen, but it has given me the greatest pride of ownership, and a lasting respect for the marque.

The chassis number of this car was LC134, and it has been suggested that it may have been the car driven by Miss Violet Cordery. The registration book was number two, so this was no check. Perhaps readers may know.

I am, Yours, etc.,

F. C. HANBURY (Lt. (A) R.N.V.R.).



Sir,

I was very interested to read Mr. Jackson's article in the June issue about the M.G. "K3001," as I now own this car.

I bought it, or rather the remains of it, in 1941, to save it from going to a breaker. It seems that the owner had blown up the engine well and truly, and had dismantled it, and sent most of it to a welding firm to have the wide open spaces patched up. The owner was posted abroad at the beginning of the war, and the car was left in a garage, which was later taken over by the N.F.S., and "K3001" was pushed out in the open to rot. It was soon in a sorry state, and sundry parts off it were "won" by various people. The owner then empowered a friend to dispose of it, and I heard of it just in time. I wrote to the welding firm, but was told that the engine had vanished completely in a spot of trouble with Jerry bombers. However, I decided to rebuild it, and try to get a new engine for it. All the instruments, except the rev.-counter, had gone, and all the electrical equipment—and someone had even driven a large spike into the petrol tank to get the last drop out, and then filled it up with broken beer bottles! So far, I have stripped it down to the chassis frame, but have not started reconstruction yet. My aim is to get it back to as near the original Mille Miglia form as possible.

I am afraid I do not agree with Mr. Jackson about the radiator cowl, which I will not replace. I do not think that it is worth while cowl the front end, if the standard slab tank is retained at the rear, and I do like to be able to get at the carburetter. Anent the trouble he mentions they had with the differential adjusting ring nuts, Mr. Jackson may be interested to hear that I found a spare one knocking about in the axle casing when I took it down!

The only engine parts I have are the cylinder head, sump, Centric blower and carburetter, all the rest being missing. If any of your readers can help me to get hold of any of the missing parts, or a complete engine, I shall be very grateful. The front mudguards and supports are also missing, but I have the rear ones.

I am, Yours, etc.,

M. C. CROWLEY-MILLING.

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Cheshire.

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Sir,

With regard to Mr. G. C. Dix's interesting comments on the revision of taxation I cannot agree that it will be necessary to fix definite classes of swept volumes.

Surely the simplest method would be to adopt a flat rate of taxation per 100, or even 50, c.c., thus avoiding the bugbear of over-classification.

However taxation may be applied, manufacturers will, for their own good, build models which have favourable tax ratings, even though in the long run the total running costs may outweigh the apparent advantages.

The alternative of a nominal registration fee, coupled with an additional fuel tax, giving an apparently attractive pay-as-you-drive scheme, should, in my opinion, be treated warily, as examination will show that the driver who covers a small annual mileage gets off very lightly, while the man who covers a large distance will pay heavily for his use of the roads.

The fallacy, to my mind, being that while it is reasonable to expect the large mileage man to pay a greater annual tax, which he does, incidentally, under the present system through the fuel tax, it is not fair to charge him in direct proportion to the mileage covered.

Examination of the allocation of funds to the roads will show that a considerable proportion is devoted to the improvement and making safer of the highway, which is of benefit to all road users, as compared with the actual amount spent on their upkeep, required by their use, *i.e.*, wear and tear.

Cecil Clutton's remarks concerning the Rover are very welcome, as this most creditable example of British design along orthodox lines, while not, of course, of sporting type, has not received the credit and interest due to it.

As an M.G. T.A.-type owner, your recent correspondents' letters have been most refreshing. I have always had the impression that the T.A. is a little too high geared and I believe, though I am relying on memory, that the T.B. type has a slightly lower final drive ratio.

I am, Yours, etc.,
D. G. BENNETT.

Emsworth,
Hampshire.

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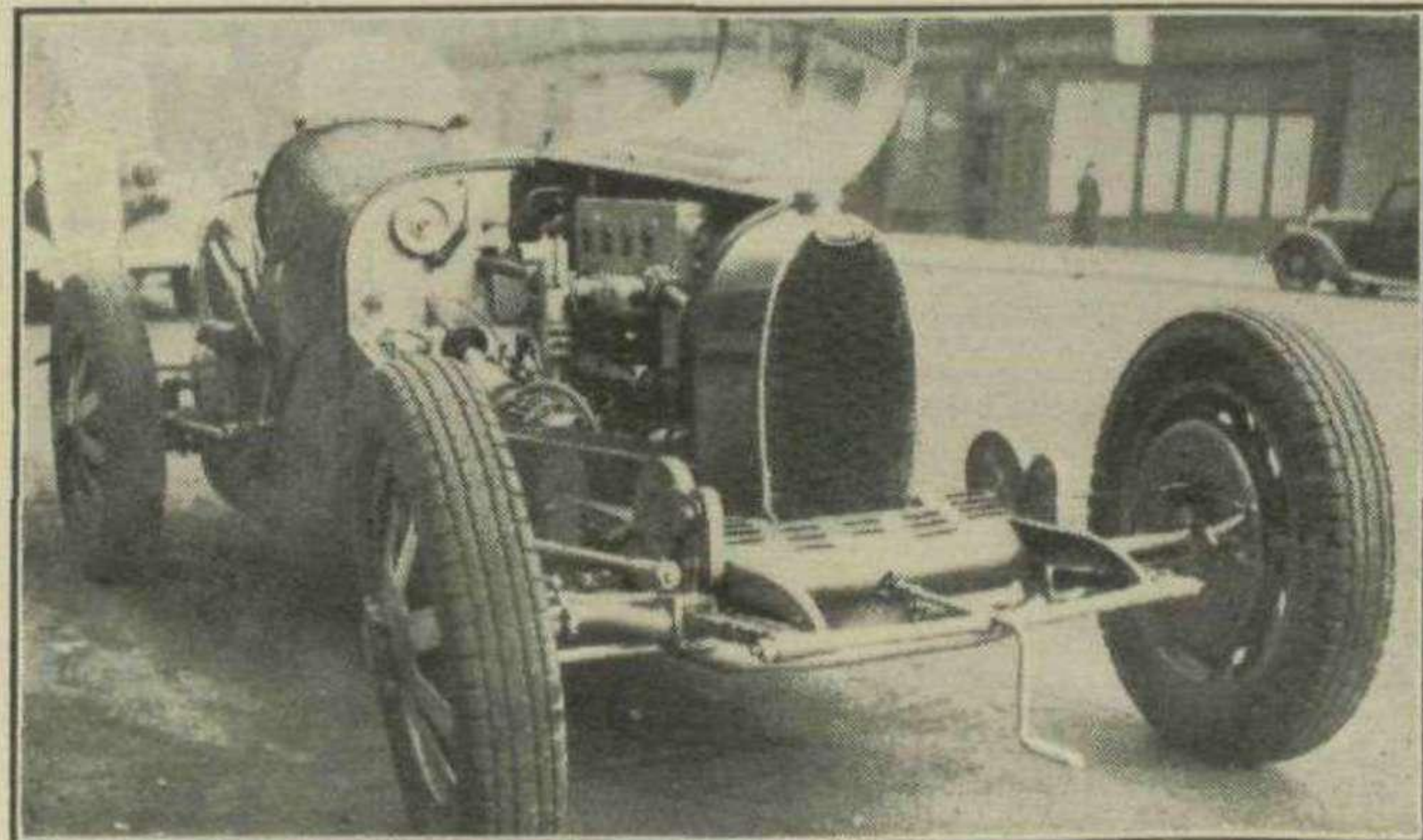
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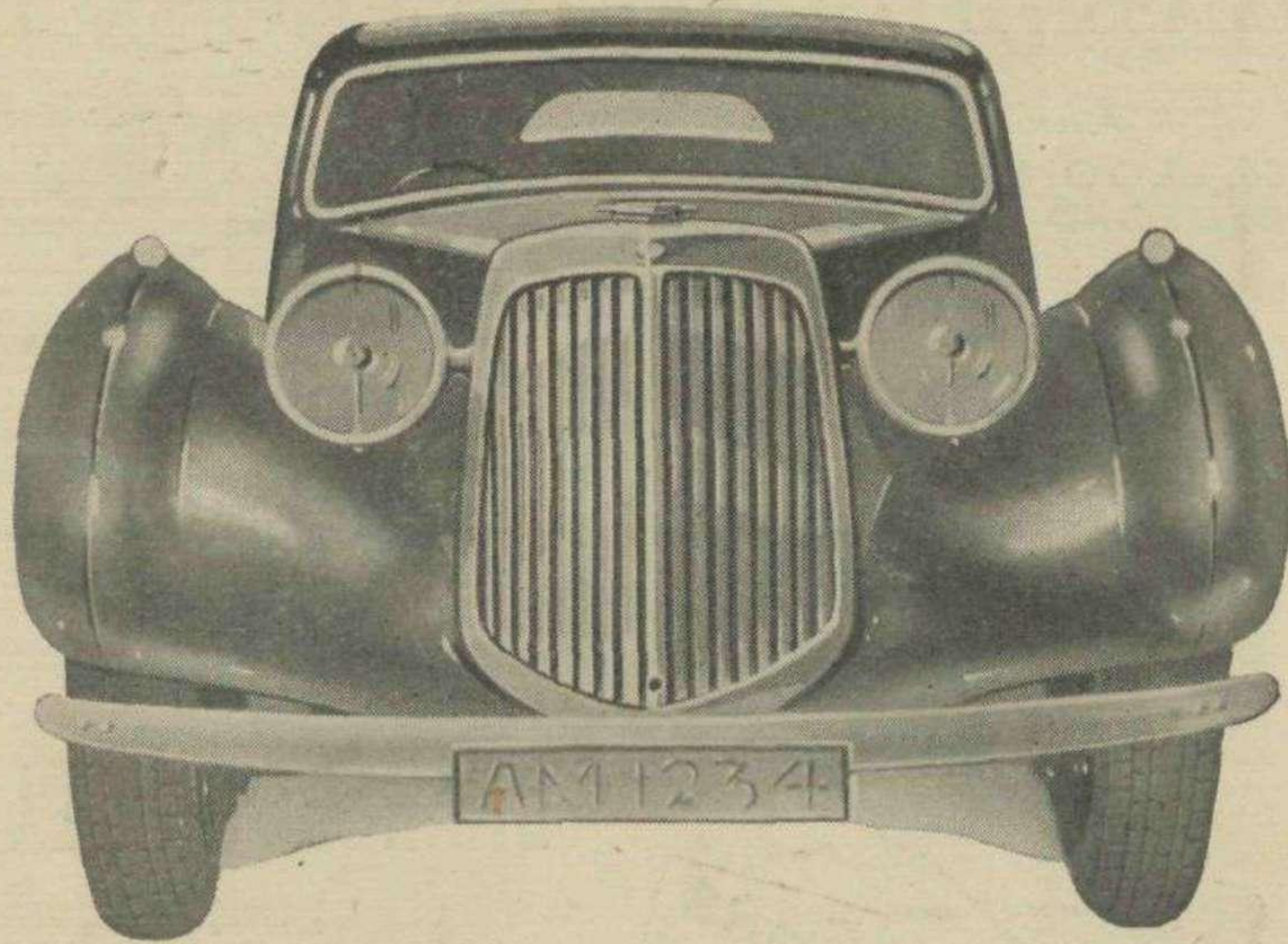
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Type 37A. Produced in 1927 as a super-charged 4-cylinder Grand Prix Bugatti.

With this particular Bugatti, C. W. P. Hampton has outstanding possibilities of beating the 1½-litre Alta in a post-war match.

Former ownership has been Robert Arbuthnot and Jack Lawrence.

★ Cars illustrated in this series are not necessarily for sale, but shown for the interest of Bugatti enthusiasts by Jack Lawrence, of 166, Clarendon Road, Holland Park, W.11. Phone : Park 5705

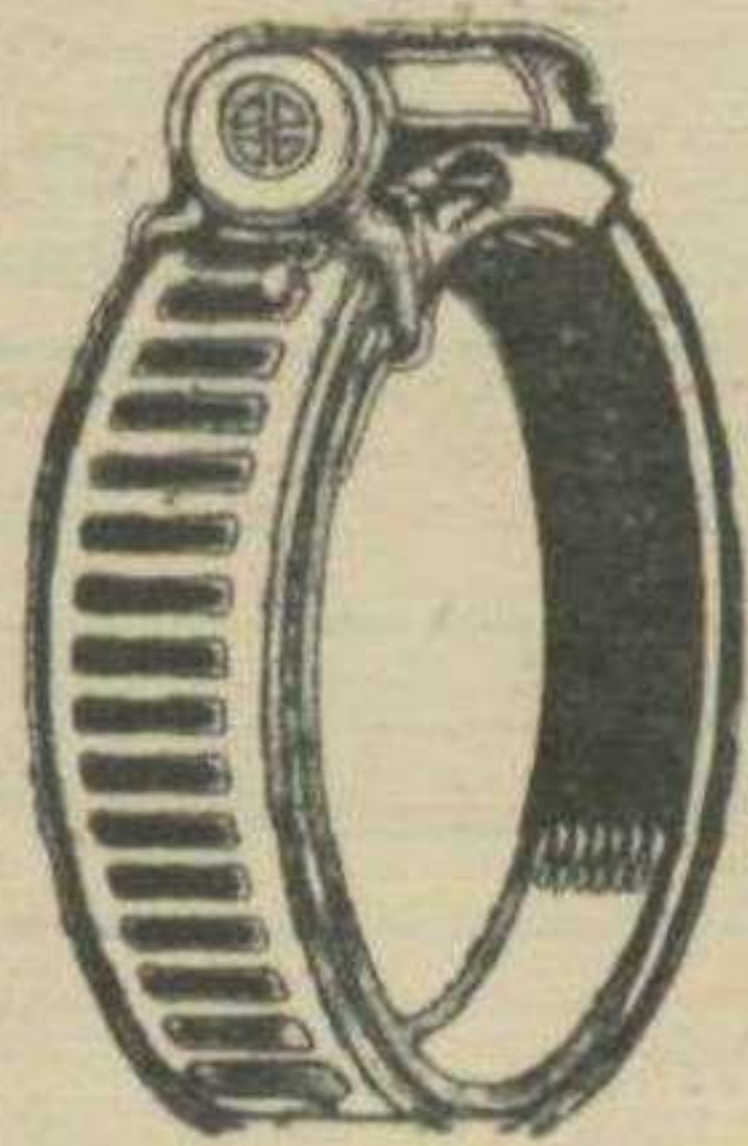


The great aim of culture, the aim of setting ourselves to ascertain what perfection is, and to make it prevail"
Matthew Arnold

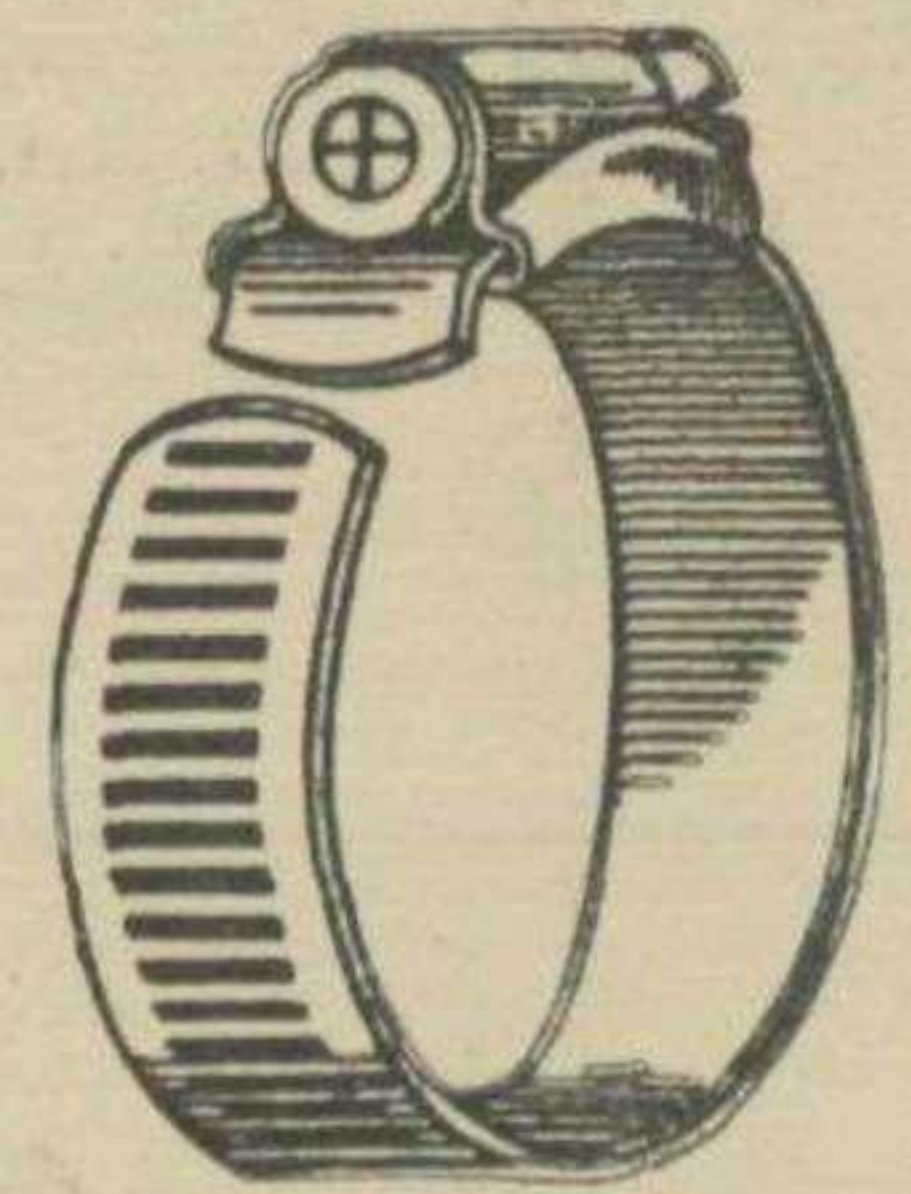
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