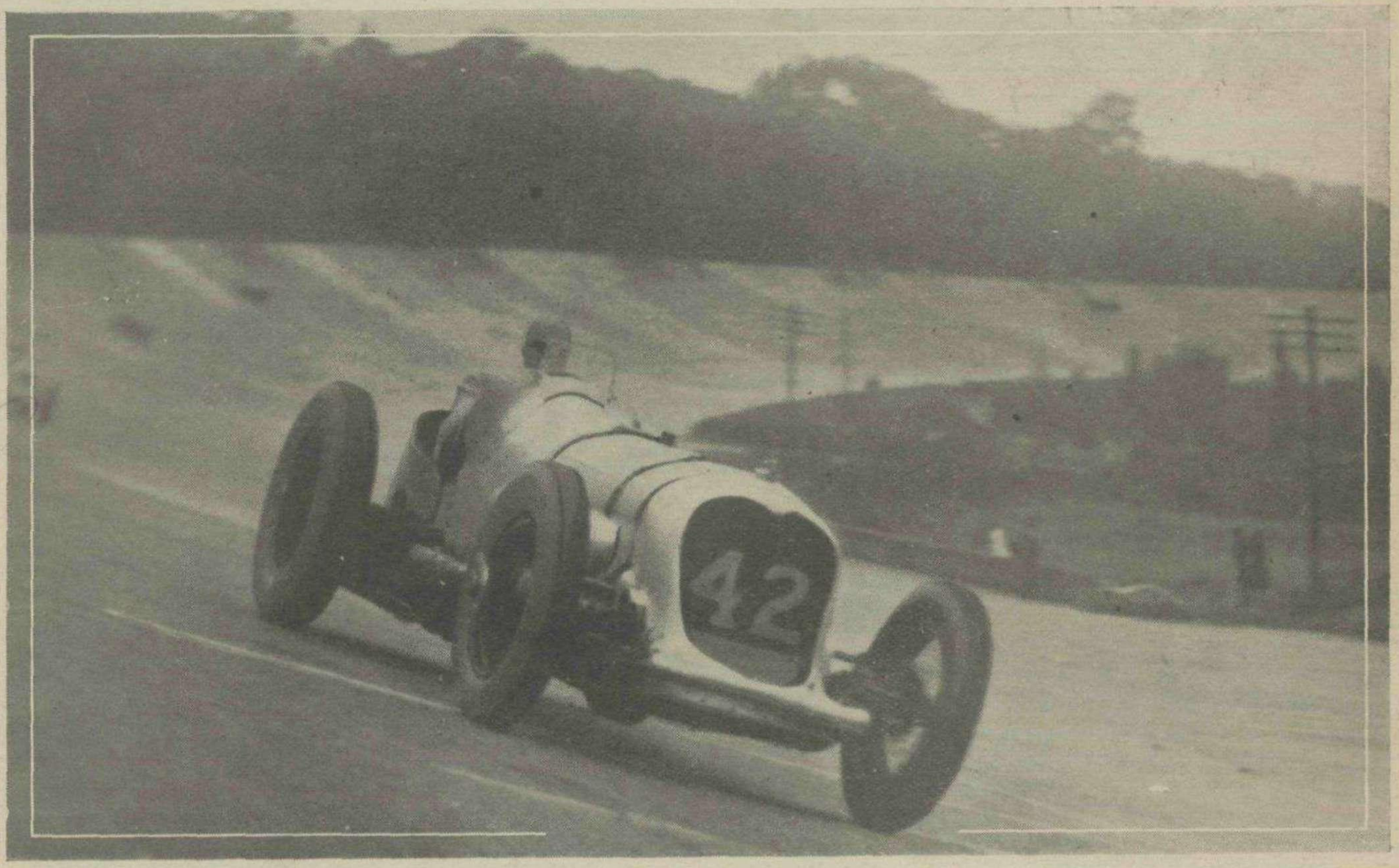
Vol. XVIII No. 12. RACING CARS AT REST—A VISIT TO T. & T.'s December, 1942

MOTOR SPORT

INCORPORATING

Speed

ONE SHILLING MONTHLY



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MOTOR SPORT

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GENERAL NOTES

A VERY SOUND SUGGESTION

In the issue of its "Gazette," which it circulated for July, August and September, the Junior Car Club puts forward the following very sound suggestion :—

In London, for the entertainment and interest of troops on leave, war workers and others, there are theatres, cinemas, restaurants, art shows, clubs, museums and what-not. In the crowds of people who are in town on any one day of the week there must be quite a number who are interested in motor sport, and who would be only too glad of the opportunity of whiling away half an hour or so in a motor sport atmosphere.

Is there room, therefore, for a permanent motor sport exhibition in London ?

The kind of place we have in mind would be set up in the West End, and would not be under the auspices of any one motor firm, who might be suspected of advertising motives.

There would be several racing cars, trials cars and veterans on view. There would be a big selection of Gordon Crosby, Brian de Grineau, Roy Nockolds and other paintings, and an even bigger selection of photographs covering all aspects of motor sport during recent years. One section would be set aside for the portraits of leading racing motorists and trials drivers of recent years. There might even be daily cinema shows, for quite small audiences, at stipulated times.

There would be a comfortable lounge where all the motoring papers would be on view, with bound volumes of the technical papers over recent years, and keen motorists would be invited to lend other publications of interest. There might be a small admission charge to this motor sport exhibition, but preferably it would be free. It could be established and supported with the assistance of the wealthy motor and allied industrial firms—if they were willing.

Motor sport took a complete knock with the outbreak of war, whereas other forms of sport survive in restricted form. If such an exhibition were established it would help to offset this state of affairs. Many visitors, not previously interested in motor sport, would be encouraged to attend, and perhaps the appeal of the sport would begin to enter the minds of those previously disinterested.

The men who are most proficient in piloting the planes, and driving the tanks and lorries, were those who took part in the car and motor-cycle races and trials before the war.

Maybe, if a motor sport exhibition were established, the eyes of the public would be opened to the importance of the pastime in this age of the internal combustion engine.

While we think it unlikely that anything so ambitious will be possible in war-time, certainly it is to be sincerely hoped such an exhibition will be staged in the days of peace, even if a proper museum of historic and educative motoring exhibits is still not deemed to be a national asset and necessity. Quite apart from an exhibition of this sort, open to John Citizen and his wife, let us have a motor sportsmen's club in London open to enthusiasts, where they can talk motor-cars without disturbing their wives and girl-friends. Even a modest room on the lines of that operated for a while off Trafalgar Square by the Motor Sports Club would be better than nothing. And, actually, something very much more ambitious ought to be started. Meanwhile, let us avidly hope, if the 750 Club does not resume its monthly war-time gatherings, that someone in the South will throw his house open to periodical enthusiasts' preamblings, as certain persons do in the North, for the relaxation of members of the Enthusiasts' Car Club.

THE EVOLUTION OF THE RACING CAR

Laurence Pomeroy's third article in the above series is unavoidably held over until the next issue, but doubtless the necessity to anticipate it will result in its being read even more avidly than would have been the case had it followed the second instalment, covering the period 1922–25, which we published in the November MOTOR SPORT. These articles, which commenced with the 1895 season, certainly give a history of motor racing and racing car development such as has never before been published in such a concise and yet complete form.

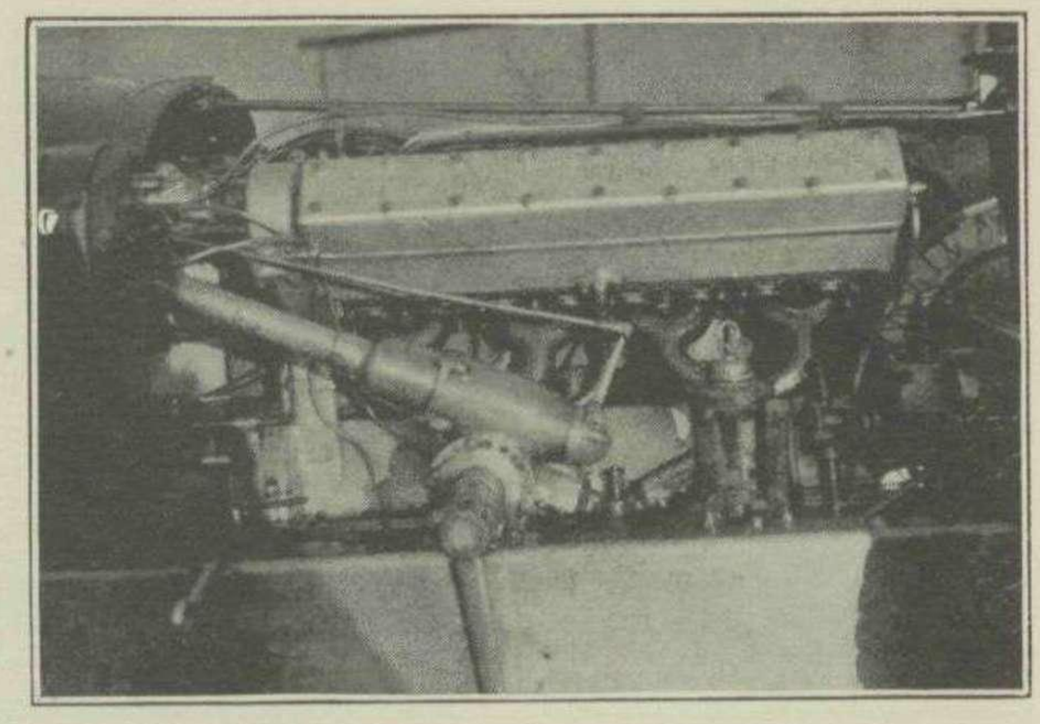
THE TYRE CENSUS

Grant that the rubber situation is likely to become serious and the shortage of this commodity liable to hamper Britain's war effort, and it is not easy to complain of the possible hardships resulting from the National Tyre Census. Nevertheless, considerable ill-feeling is arising. It is centred around the Government's failure to guarantee priority in replacement after the war, and is responsible for one young soldier correspondent writing that : "We in the Forces of the enthusiastic brand have already given 3½ years of our youth to war and I'm dashed if I see why anyone should help themselves to our motors. . . ." And requisitioning tyres with no priority replacement of them after the war is equivalent to requisitioning an entire car, apart from old cars which may be requisitioned as scrap or suitable newer ones taken for military transport. Irrespective of its unfortunate failure to arrange for fair replacement of requisitioned property after the war, the Government has allowed the Civil Service mind to expose itself in the layout of the census forms. No note of tyre condition is called for, presumably because only a Government expert can determine whether or not a tyre is of any use for further service or for salvage. Car types are grouped as coupé, tourer, box or saloon, so presumably the 2-seater is regarded as a less distinct type than these and only fit to be grouped with the other "tourers." The census would provide us with a most interesting check on the location of veterans, and of vintage and modern sports cars, but we doubt if the Government will provide facilities to use it for this end. Doubtless certain black-coated clerks will be mildly surprised at the numbers of really early cars still carefully preserved, even to having tyres, and if such tyres, or racing-type covers, are requisitioned against an owner's will, we can only hope that he will take steps to ask the A.A. and R.A.C. whether they made any attempt to obviate such a happening—one which the most biased persons could hardly advance as having any appreciable influence on the outcome of the war.

RACING CARS AT REST

MESSRS. THOMSON & TAYLOR, of Brooklands Track—familiarly known as T. & T.'s—were ever the premier motor-racing concern, and some while ago it occurred to us to enquire what had become, these unhappy days, of all the fast machinery they once cared for. The outcome of this enquiry was a visit which these times is quite unique. In short, we were invited to inspect some extremely famous racing cars all carefully stored for the duration in a safe place under one roof, an experience we would clearly like to have shared with every enthusiast exiled in H.M. Forces, albeit the shock of seeing once again all these racing cars gathered together would doubtless have vied with any experienced in the course of active service! J. Granville Grenfell kindly devoted a Sunday morning to showing us round, and we will refrain from saying in which direction we followed his special home-brewed, but very presentable, motor-bicycle after leaving the vicinity of Brooklands, except to mention that a very highly scented pig farm had to be negotiated ere the cars were located, three abreast, in their long cow-shed. Incidentally, the conveying of them all from the Track must have been a remarkable spectacle to any enthusiasts who encountered it.

Opening the humble doors of this temporary racing stable you pass a Railton saloon owned by the late Mr. Spurrier, of Leyland Motors, Ltd., and pause to admire several sports Alfa-Romeos, Bagratouni's car amongst them. What lies beyond impels but brief inspection of these road-equipped motor-cars, for here are some of the fastest and most renowned racing cars ever seen in this country. There is a twin-blower



The remarkable induction arrangements of Powys-Lybbe's Talbot

"Shelsley" Frazer-Nash with the sports bodywork, proudly bearing its maker's name on the ribbed inlet manifold into which the two Type 260 Centrics feed.

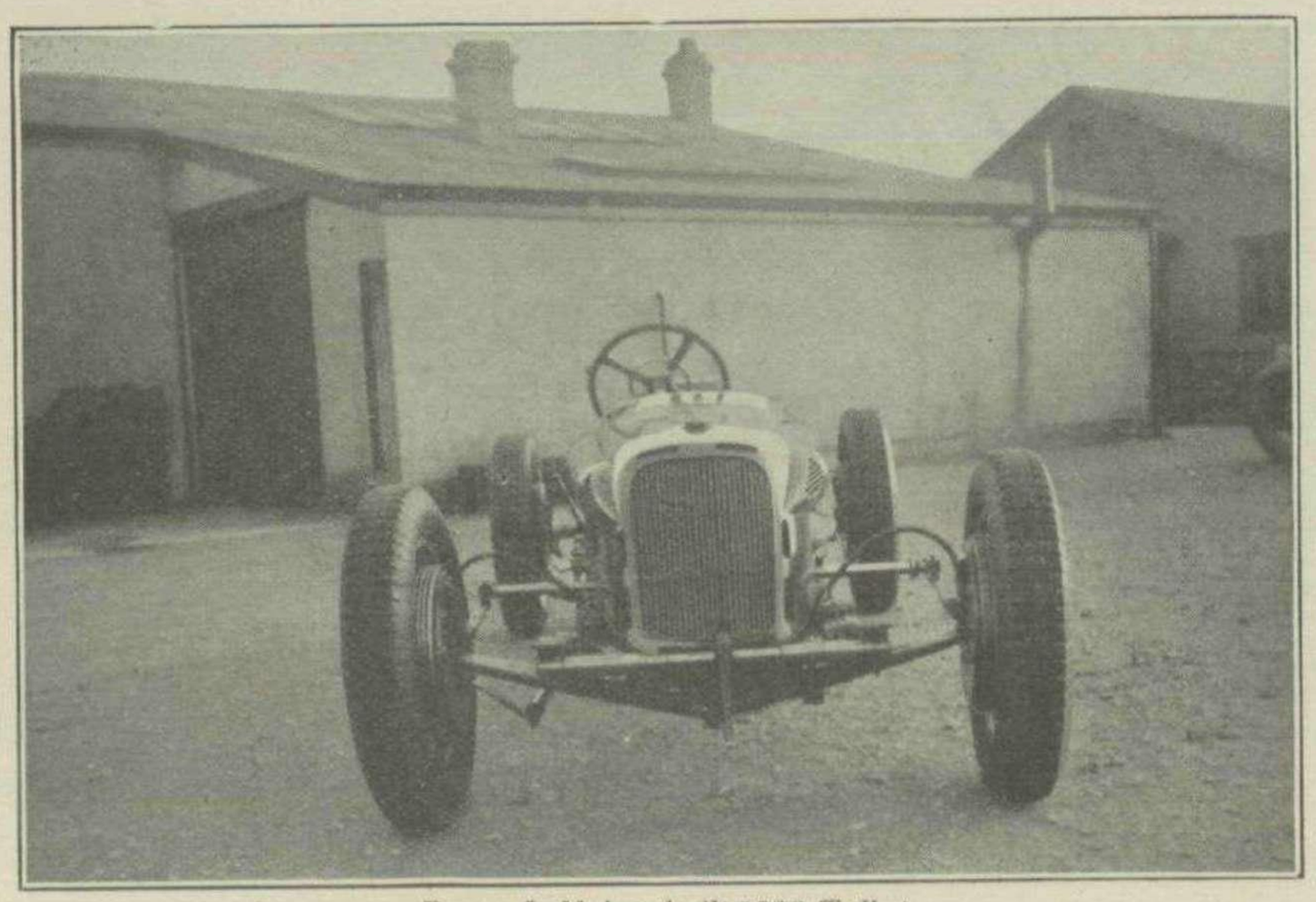
Dual ignition with the coil set feeding plugs on the exhaust side of the head is an interesting feature, and it is pleasing to find that the four-branch exhaust system and tubular front axle are well greased against a long hibernation. Next

Thomson & Taylor's War-time Stable

one comes on that remarkable little car which W. E. Harker developed, first with a 1½-litre V8 engine having Austin Seven cylinder blocks, later with M.G. blocks and valve gear, until he won a Mountain race with it, lapping at 69½ m.p.h. in 1934. The Zoller compressor is driven by no fewer than three chains, each o.h. camshaft by two chains, and the off side exhaust pipe is on a level with the adjacent valve cover. There are two downdraught S.U. carburetters, an oil cooler is visible at the forward end of the sump, and cooling is by pump. The starting handle is offset to the near side and the mass of chains afore-mentioned is the outstanding feature of this amazing engine, the camshaft drives running from the off side of the Austin Seven timing case and having jockey sprockets. The water from the forward-set radiator enters the heads at the rear and leaves *via* three separate outlets in the off side block. The magneto is on this side and the supercharger hangs precariously on a mounting plate between engine and chassis. The chassis looks like Riley and has Perrot-type rod-operated front brakes, outrigged half-elliptic underslung rear springs and an I-section front axle with tubular ends.

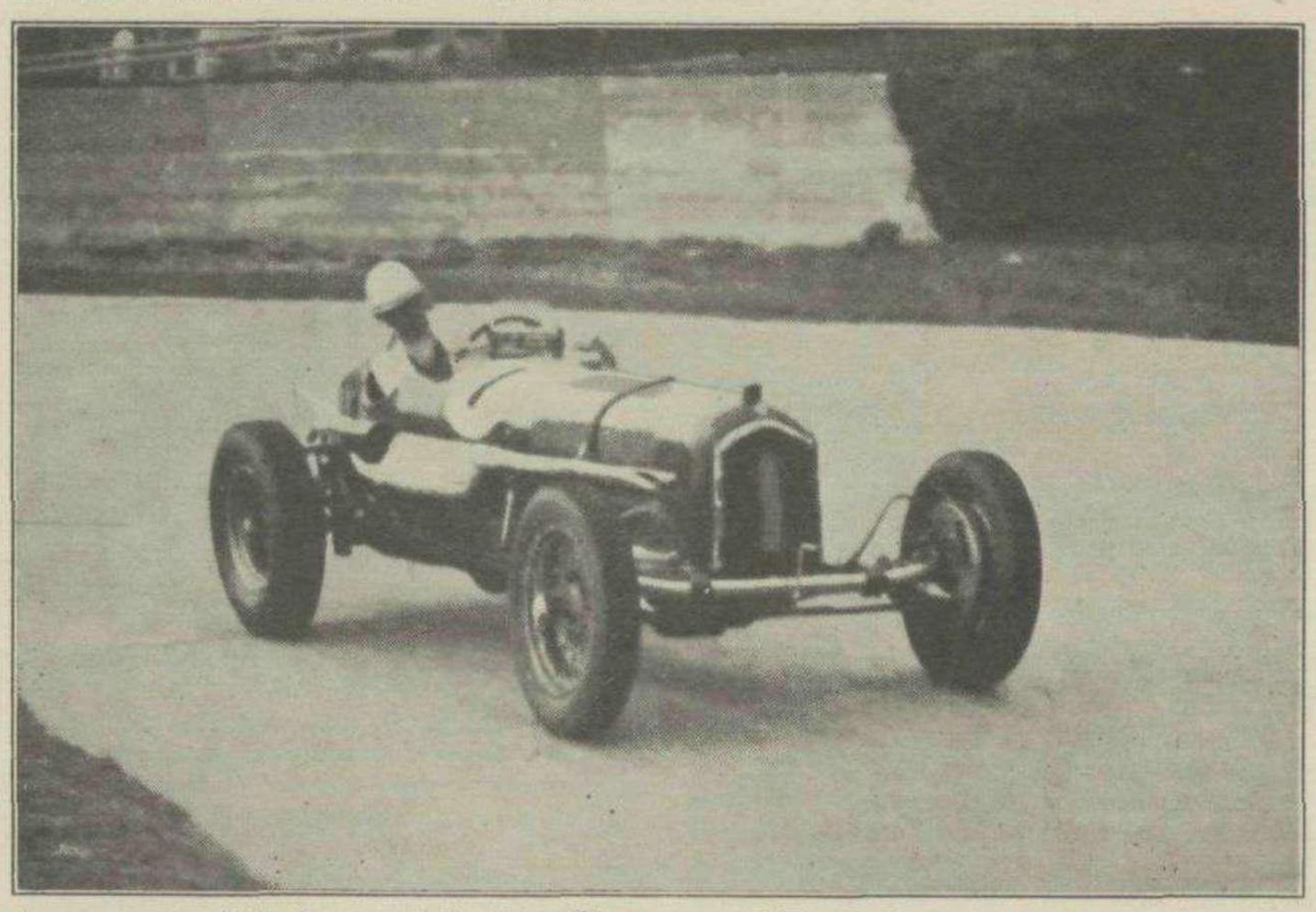
Further along the line is a genuine monoposto Alfa-Romeo, Tipo 8C, with the traditional, delightfully unadorned cockpit, gear lever long and cranked, facia carrying merely a rev.-counter (to 6,000 r.p.m.), and, on a separate panel, an oil gauge and a thermometer. The very brief, non-underslung half-elliptic rear suspension, the twin fillers in the tail, the diminutive hand-brake lever beside the gear gate and the shield over the exhaust to protect the driver's elbow were likewise typically Alfa-Romeo. Intriguing, too, was the cockpit detail—the big treadle-type accelerator, the tiny guard beside the pedals to prevent the foot from slipping and the footrest beside the clutch pedal.

Turning from one's contemplation of this Alfa-Romeo, the eyes alight on the most perfect racing car we have yet seen. None other than Reggie Tongue's four-cylinder sixteen-valve 1½-litre Maserati. It is covered, not unexpectedly, by a dust-sheet, and every so often Tongue comes from his spells of duty with the R.A.F. to sit in it. It is the finish and detail inspection of this Tipo 4CL Maserati that commend it so highly. Each of the four water outlets rising from the twin-cam head has its own diminutive hose connection. The short, ribbed casing of the Roots supercharger at the nose of the crankcase carries a single Weber carburetter, and eight compact plated exhaust pipes leave on the near side of the bonnet. The huge brake drums have generous cooling scoops front and back. Front suspension is by 2-ft. torsion bars and transverse wishbone links. Each camshaft cover is retained by 11 nuts and the proportion of every aspect of the



Powys-Lybbe's rebuilt 1926 *Talbot*

RACING CARS AT REST—continued



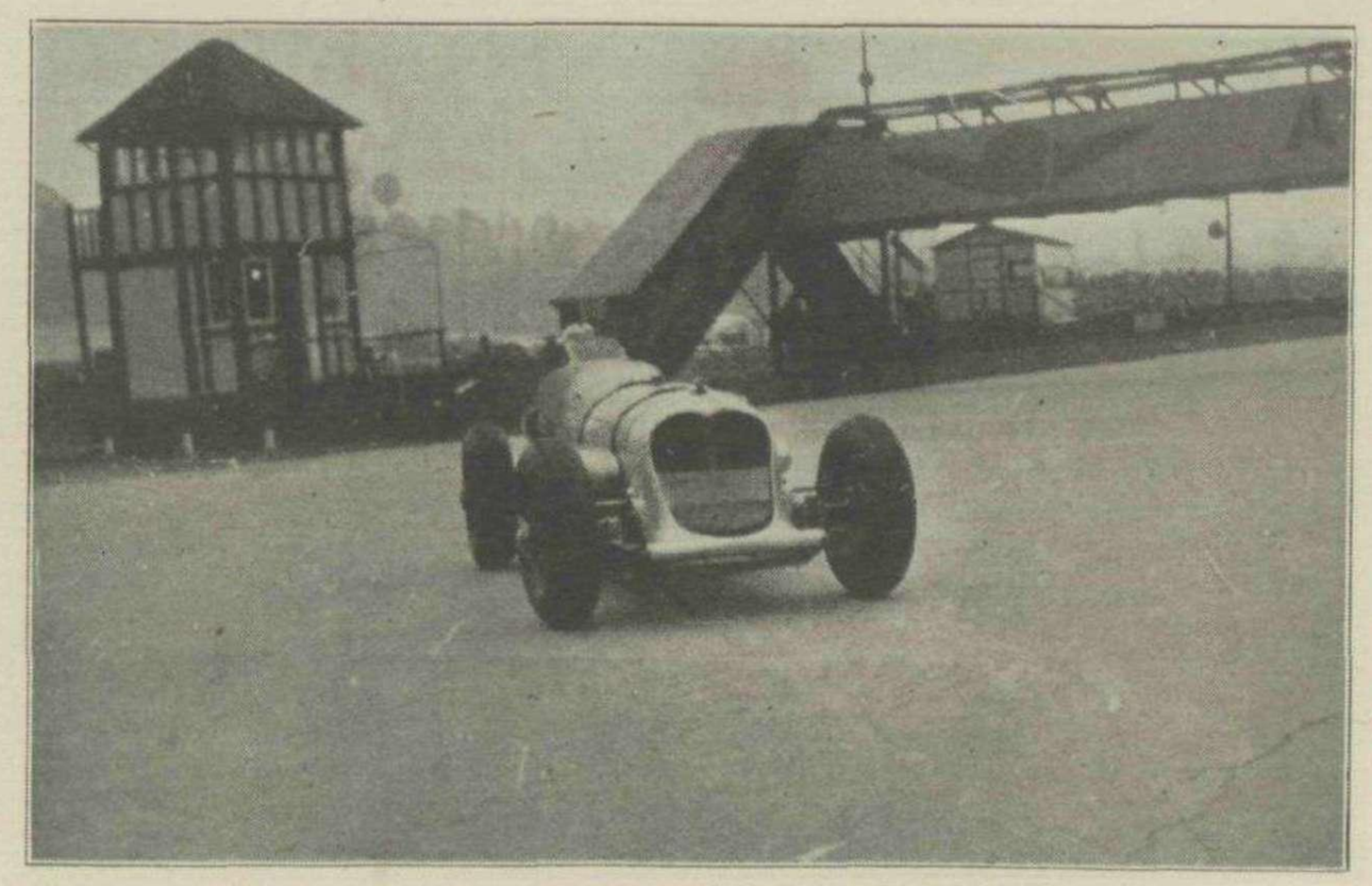
A monoposto Alfa-Romeo of the type Thomson and Taylor have in safe storage for the duration of war. The car shown here is Kenneth Evans's property

engine is admirably gauged. A four-way fuel-line union has its own bracket mounting, extensively drilled. Rear suspension is by simple quarter-elliptics, with torque arms outside them. A very small instrument panel is set to the off side of the facia and carries four dials only—the rev.-counter reading to 10,000 r.p.m. (with a red line at " 7,800 "). The edges of the cockpit are heavily padded, there are streamline mirrors on either side and the radiator filler cap is internal, no break in the bonnet line being permitted. The tiny brake lever is in the centre of the cockpit and brake actuation is, of course, hydraulic, with two master cylinders. Ignition is by Scintilla Vertex magneto and what appeared to be 18-mm. plugs, and the inlet pipe from the blower is of noticeably large diameter, is unribbed and runs to the manifold centre. There are two blow-off valves. The front wheels carry 5″×17″ tyres, the rear 5.50″×19″ covers. Verily, Reggie Tongue may well cause a stir in 1½-litre circles with his Italian automobile when racing resumes. If the Maserati runs as well as it looks, E.R.A. exponents won't have a dull moment.

Too obvious almost to comment upon was the contrast of the Napier-Railton. Yes, this great car is also safely stored here, the installation of Napier " Lion " into what is a very compact, if huge, car being a job of work of the greatest credit to Reid Railton. The little hand-brake looks so delightfully stupid and, as someone remarked, the rubber controller would be overawed by the 7.50″×20″ Dunlops on the gold-hued wire wheels. The aeroplane aspect of the cowling panels calls for prolonged study and the cockpit is a place truly inspiring—one admires John Cobb's courage and masterful control no less because one is examining the seat of government in an atmosphere of quiet, far removed from that which went with 145 m.p.h. exploits at Weybridge and 180 m.p.h. jaunts at Utah. Three tubular bracings to the steering column suggest extreme stresses on one of the latter, successful, record runs.

Behind the Napier-Railton rests the Barnato-Hassan, holder of the Class A Brooklands Lap Record at 142.6 m.p.h. The cockpit is a restricted affair after that of the Napier, and the offset of the steering column very pronounced. The famous tapering air-scoop on the off side, from out of which protrude the tops of three S.U. pistons, is an obvious feature. Brake and gear levers, giving away the Bentley parentage, are external, the steering wheel asks 1¼ turns only, lock to lock, and the driver's view is somewhat limited to far ahead. Two thermometers, an oil gauge and a 4,500-r.p.m. rev.-counter grace the facia, while the front tyres measure 6.50″×20″ and those on the rear wheels 7.50″×20″.

Even now one has not exhausted this remarkable collection. Dorothy Stanley-Turner's Q-type M.G. 2-seater, with four small-diameter exhaust pipes in two pairs, has to be seen, and Powys-Lybbe's rebuilt 1926 straight-eight Talbot is most interesting, especially its inlet manifolding with its low set blow-off valve to obviate fire and its Y-shaped feed pipes, and the hydraulic brake-actuating cylinder on the off side of the car. Then Major Gardner's 1,100-c.c. offset bodied M.G. (holder of the Class G lap record at 124.4 m.p.h.), with self-change gearbox, rev.-counter reading to 8,000 r.p.m. and *very* offset propeller shaft on the near side of the seat, is there, looking a little soiled but entirely complete. Its huge head fairing, very lengthy tail and twin exhaust pipes are typical of these cars. Kidston's clumsy " 36/220 " Mercédès-Benz 2-seater has a similar tail, likewise offset, boxed-in dumb-irons and New Zealand registration numbers. Beside it is a closed Mercédès of similar type and, even more imposing, an 8-litre Bentley saloon, for which a doctor-owner does not get sufficient supplementary these days. Sir Lionel Phillips's black Leyland Eight 2-seater rests here amongst these noble cars, they say awaiting a new owner, and, as excitement at being again amongst cars last met in the Paddock stalls at Brooklands lessens, one notes a coupé Alfa-Romeo, an earlier 4-seater Alfa, the ex-Arbuthnot Alfa-Romeo 4-seater, several modern Railtons, a Wolseley, even a decrepit Hillman Minx saloon and a bulbous Chevrolet. But the racing cars have it, decidedly. One murmurs thanks to Mr. Grenfell to hand on to Mr. Thomson for permitting us such concentrated pleasure this wartime; perhaps rather perfunctorily, for one is mainly aware of an intense longing to see these cars in action again, a longing which is only too evidently shared by thousands of enthusiasts all over the world. On their behalf let us hope for a speedy return to former times—and a lucky miss for this cowshed full of cars from the ministrations of stray representatives of an at present not so troublesome Luftwaffe.



The Napier-Railton is no longer at Brooklands, but is stored safely elsewhere, in company with other famous cars, comprising the unique assembly described herewith

THE V12 IN PRODUCTION

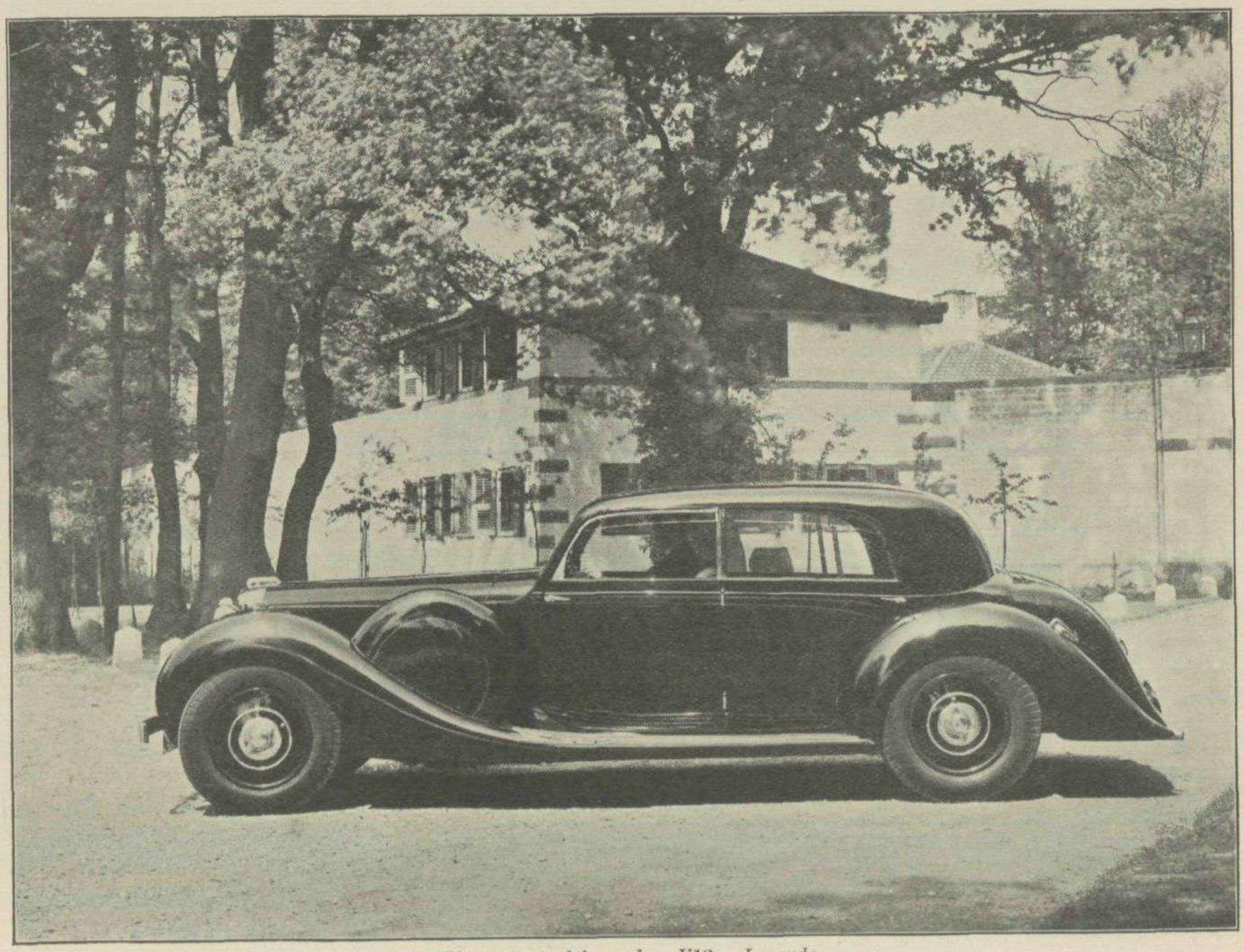
There is something definitely intriguing about the V-twelve, and in this article Cecil Clutton traces the history of production examples of the type, from the Packard of 1915 to the 4.3-litre Alfa-Romeo of immediate pre-war days.—Ed.

SIX-CYLINDERS we accept as a matter of course, and Eights are in fairly common parlance, but there is something rare and exciting about a twelve-cylinder motor, even though it has been brought into the mass production market by the Lincoln Zephyr. It is, however, quite interesting to glance at the outstanding points of the very few twelves which have made good in production, and one or two others besides.

The first serious competitor was the V12 Packard, introduced in the early part of 1915. Like all its successors, it had a 60° V-engine and the dimensions were 76.2 × 127 mm., giving a capacity of 6,950 c.c. The blocks were staggered to each other, and each opposite pair of rods (rather long and flimsy H-section) shared a journal. The crankshaft was supported in only three main bearings and was only 2″ in diameter. Despite this it was described as being perfectly smooth up to its maximum of 3,000 r.p.m., although one cannot help wondering. Ignition was by coil and power was transmitted to a three-speed unit gearbox *via* a multi-plate clutch. With a 4.36 to 1 axle ratio it presumably had a maximum of not more than 70 m.p.h., but it must be remembered that American roads at that time were not conducive to high speeds. The car was certainly an innovation and its turbine-like torque must have been a revelation in those days, because the next year no fewer than six American manufacturers were offering a V12. Although not much seen in this country, the V12 Packard was still in production shortly before the war, with independent front suspension, and was capable of over 100 m.p.h. with ordinary coachwork. Many American V-engines have had side-valve engines with valves inside the V, and until the invention of the hydraulic tappet, adjustment was a most formidable undertaking.

In 1931 Packard's tried an experimental front wheel drive V12, but it does not seem to have gone into serious production.

The immediately post-war period produced one or two interesting examples, and the 1919 Salon contained twelves by Lancia, Lorraine Dietrich and Voisin. The Lancia was an 80 × 100-mm., 22° V, o.h.v., single carburetter affair; the Lorraine measured 70 × 140 mm., with o.h.v. and dual ignition; and the Voisin was a 7,238-c.c., 80 × 120-mm. unit with two aluminium blocks bolted together and cast-iron sleeve valves working direct in the aluminium blocks. The inside of the water jackets was enamelled under pressure and stoved to prevent porosity—quite a point, as some Bentley owners may care to recollect of their aluminium side plates. Half of the induction manifold was cast with each block and machined smooth, with a Zenith carburetter bolted to the back end. The crankcase, too, was aluminium and carried the crankshaft in three roller main bearings. The crankshaft was in two parts, bolted and keyed together. In fact, everything about the engine seems to have been as difficult as possible. The transmission was no less unusual, incorporating hydraulically operated front brakes. Two-thirds of the semi-elliptic rear springs were in front of the axle and the rear shackles were attached to swinging levers, pivoted on



The greatest of the modern V12s—Lagonda

THE V12 IN PRODUCTION

—continued

the side of the rear dumb-irons and with the other end connected to horizontal coil springs. One feels instinctively that the machine must have bristled with snags!

In 1921 came a 6.8-litre, 85×100-mm., V12 Fiat, which was notable for its exceptional cleanness of outline. The starter and dynamo were concealed inside the V and the induction manifolds were cast integral with the water outlet pipes and fed by a single carburetter. The cylinder heads were detachable and the overhead valves push-rod operated. The three-speed gearbox had a silent second speed and was in unit with the engine, which gave off 100 b.h.p. Four-wheel brakes were again a feature.

Probably none of the above four cars was produced in any numbers.

The next V12 of any importance seems to have been the Double Six Daimler, which first appeared with double sleeve valves in 1926. It had a seven-bearing crankshaft, and 81.5×114-mm. cylinders gave a capacity of 7,136 c.c. With a final ratio of 4.37 to 1 it had a top gear performance of 2–82 m.p.h. Daimler's continued to produce V12s with various modifications for several years, and the Royal Family had a number. In 1935 the V12 Daimler had an 81.5×104-mm. motor (6,511 c.c.), developing 142 b.h.p. at 3,400 r.p.m., but they were eventually dropped from the range. Next comes another sleeve-valve Voisin of 1929. This had a much smaller engine, of only 3,860 c.c. (64×100 mm.) and it had two cast-iron sleeves per cylinder. The sleeves were driven from a central "camshaft" and there was a safety device to prevent them from falling into the works in case of a seizure. The hollow crankshaft had the record diameter of 4" and the engine developed 115 b.h.p. at 3,900 r.p.m. Some performance particulars would be interesting, but I have not been able to discover any. Later, M. Voisin excelled himself, in 1936, by producing a twelve-cylinder *in line*! At least, he threatened to do so, but whether it ever materialised is not entirely clear.

Although not a twelve-cylinder, it is worthy to record that in 1930 Cadillacs produced a V16 of 7-litre capacity (77×102 mm.). In order to get even torque it is necessary that a V16 should be disposed at either of the rather inconvenient angles of 45° or 135°. Cadillacs chose the narrower angle and were, therefore, almost obliged to use overhead valves. There were two carburetters, on the outer sides of the blocks. This machine displayed very fine workmanship and the chassis price was £1,500. In 1938 Cadillacs changed to the 135° engine, with side valves on the inside of the V. Marmons also produced a V16.

In 1931 a truly remarkable 8-litre V12 was marketed by the Mayback Company, at a chassis price of £1,900. It had a maximum speed of 105–110 m.p.h. and a five-speed gearbox, later increased to six. The gears were in constant mesh and engaged by dog clutches. The operation, however, was pre-selective, the actual engaging of the dogs being vacuum operated, while another vacuum control synchronised the engine speed before the dogs could be engaged. The ratios in six-speed form were 14, 10.4, 5.7, 4.2, 3.2 and 2.5 to 1, but in an engine which, of all others, should be best able to do with a minimum of ratios, the complication seems rather overdone.

Also in 1931 came what may perhaps be regarded as the king of production cars, the V12 Hispano Suiza. This was a square engine, 100 mm. both ways, giving a capacity of 9,424 c.c. and an R.A.C. rating of 75 h.p. The cylinder blocks were aluminium castings with screwed-in, nitralloy steel liners. Unlike the famous 37.2 six-cylinder model, which had an overhead camshaft, the V12 had push-rod operated valves, worked by a single camshaft in the centre of the V. The banks were, as usual, offset to each other and the rods were tubular with heavily finned big-end caps. The crankshaft was carried in seven main bearings and transmitted the drive *via* a multi-plate clutch to a unit three-speed synchro-mesh gearbox, the final ratios being the remarkable ones of 2.72, 4.10 and 5.44 to 1. The maxima in the gears were 50, 80 and 100 m.p.h., from which it appears that nothing like peak revs. could be attained in top gear. Maximum revs. are not known to me, but were presumably around 3,300 per minute. The model was described as the 54–220 h.p., and, assuming the engine peaked at 3,000 r.p.m., it was certainly an efficient unit, as this would indicate a b.m.e.p. of 100 lb. per sq. in. at a piston speed of only 2,000 f.p.m. To some extent these figures must be conjectural, but they cannot be far out. Despite the high axle ratio, the model tested by *The Autocar* in 1934 accelerated from 10–30 m.p.h. in top gear in 6⅘ secs., while the acceleration through the gears to 50 m.p.h. took 9⅘ secs., to 60 m.p.h. 12 secs., and to 70 m.p.h. 15 secs. This car (which, incidentally, was surely one of the most handsome ever made) weighed 39 cwt. and cost £3,500, the chassis price being £2,750; 100 m.p.h. could be exceeded under favourable circumstances, but an indication of the cruising speed is given by a Brooklands lap at 95 m.p.h. The brakes were quite up to the performance and stopped the car from 30 m.p.h. in 26 ft.—a remarkable feat for any machine, but quite staggering for a 2-ton motor-car. In the matter of brakes, Hispano's were very much pioneers, and as early as 1919 their cars were fitted with a very efficient servo-assisted outfit, operating on all four wheels.

It is surprising to find that Lincoln's did not produce a V12 until 1932. The price of the complete car was £1,895, and it was certainly a very fine machine. When first produced the engine had a capacity of 7,238 c.c. (82×114 mm.) and the maximum speed was 95.74 m.p.h. on the highest of the alternative final ratios, which was 4.23 to 1; second gear, 7.56 to 1, was good for 54 m.p.h. The cruising speed was up to 80 m.p.h. Later, the engine was reduced to 79.38×114.3 mm., giving a capacity of 6,900 c.c., and in 1935 this unit gave 150 b.h.p. at 3,400 r.p.m. In the same year that very excellent car, the Lincoln Zephyr, was produced at a price of £550. This had a 70×95-mm., 4,378-c.c. engine developing 110 b.h.p. at 3,900 r.p.m., which gave a maximum speed of 90 m.p.h. on the 4.44 to 1 top gear, while acceleration from 0–50 m.p.h. through the gears took 10.3 secs.

Of the several other American V12s which have appeared on the market from time to time the Auburn was probably the most prominent after the Packard and Lincoln.

The year 1935 saw the introduction of two very important English V12s, by Rolls Royce and Lagonda.

The "Phantom III" Rolls Royce, marketed at a chassis price of £1,850, had a 7,340-c.c., 82.5×114-mm. engine of light construction, with aluminium cylinder blocks. It would carry an enormous 2½-ton motor-car at over 90 m.p.h. and accelerate from 0–50 m.p.h. in 12.6 secs. The final ratios were 4.25, 5.59, 8.45 and 12.71 to 1, giving a maximum in third gear of 73 m.p.h. This indicates a top speed of around 4,000 r.p.m., and as the engine speed, in production form, is probably limited by the weight of the hydraulic tappet valve gear, one wonders whether a "Phantom III" engine slightly bored out (for which there is room) and suitably developed might not become an exceedingly potent unit.

Also very remarkable was the V12 Lagonda of 4,480-c.c. capacity and cylinders measuring 75×85 mm. With a 2-ton saloon body this machine comfortably exceeds 100 m.p.h., while, owing to the short stroke and exceptional smoothness of the engine, it will hold the magic three figures for considerable periods without any sign of stress. The staggering smoothness and silence with which the engine climbs to 5,500 r.p.m. can lead an unaccustomed driver into quite nasty situations if he does not keep an eye on the speedometer; but as against that it must be confessed that the torque below 3,000 r.p.m. is disappointing by comparison. For this reason, the Lagonda seems to be a car which should have carried a Cotal gearbox, as this would have eased the strain of driving tremendously. The valve operation on the Lagonda is interesting, consisting, to all intents and purposes, of a side-valve layout put upside down on top of the engine and operated by an overhead camshaft! With the improved four-carburetter layout, which was about to be produced when the war started, there is little doubt that the low speed torque would have been much improved. The power output in touring form was some 170 h.p., but in Le Mans form it went up to the excellent figure of 220 b.h.p. at 6,000 r.p.m.

Delahayes raced an unblown 4½-litre V12 under the 1937 G.P. formula, though its only success was at the Pau Grand Prix in 1938. The cylinder dimensions were 75×84.7 mm., and there were two plugs and two push-rod operated valves per cylinder. The power output was upwards of 250 h.p. at less than 5,000 r.p.m. Delahaye later marketed a variety of this machine and performance figures would be most interesting. Probably the total number sold was very small, but at least one came to this country.

Last of all came a V12 4.3-litre unblown Alfa-Romeo. It had two o.h.c. per bank and three down-draught carburetters in the V. A maximum speed of 140 m.p.h. was mentioned. The car appeared at Liège in 1939 and ran in practice, but the actual race was cancelled on the eve of the outbreak of war. Whether it was intended to market this car is not entirely clear, but it carried quite a production-looking 2-seater body at Liège and must be a very high-powered motor-car.

THE MAN WHO COULD HAVE MADE A CAR

We quite expect to receive complaints for daring to publish an article on bicycles between the chaste covers of MOTOR SPORT. However, this is a period of good will amongst men and it is also a petrol-less age, so that many motoring sportsmen look with less disfavour than was once the case on the humble pedal cycle. Consequently, although we do not ride a bicycle ourselves, we have decided to publish this article by Graham C. Dix, himself a keen motorist with refreshing ideas of what constitutes a good car. His reminiscences of the veteran Dursley Pedersen bicycle may start those car enthusiasts who must now cycle searching for such machines; only recently we met someone at a well-known aeroplane company who used a Dursley up to some eighteen months ago, while we believe that a ladies' model is still to be seen in use in the Twickenham district. Certainly many parallels with motoring are to be found in Mr. Dix's story of the construction and development of this unusual bicycle. But we promise nothing more of this sort until the next Christmas issue.—Ed.

LET me start by saying that this article is not about cars in any shape or form, but deals exclusively with that common pest, the pedal bicycle. My only excuse is that many basicless ones, like myself, after examining the possibilities of the solo horse, the horse and trailer, and the human foot, eventually decided that the pedal cycle is the least of all the evils. A preliminary investigation of the market showed that certain other people had also discovered the near-suitability of the machine, with the result that the few new machines left were commanding absurdly high prices out of all proportion to the inferior workmanship employed. On one machine which I inspected the bottom bracket was so designed that the ordinary rotary motion of the pedal tended to unscrew the race housing, with dire results to efficiency. I therefore decided to build up a "Special" out of the odd bits and pieces which are always awaiting the diligent searcher. The purpose of this article is not to give a lengthy dissertation on the art of making "owt out of nowt," but the above does provide an explanation of how I came to interest myself in the subject of bicycle design. Anyone who has ever constructed or reconstructed a bicycle will have realised how very poor are the designs which are generally employed. It is worth recording in passing, however, that I now possess an excellent three-speed machine for the total sum of five guineas, while to have bought the like new would to-day involve some eleven or twelve pounds.

"The man who could have made a car" was a Dane, the son of a farmer. He forsook the land for engineering and eventually started a factory at Dursley in the Cotswolds, late in the last century. His name was Pedersen. Some of the older readers of MOTOR SPORT may well recall the machine he made, named the "Dursley Pedersen." I must ask them to forgive any details with which they are already familiar. Pressure of other duties has not allowed me to delve as fully in the subject as I should have liked, and if others are able to correct or supplement my notes I shall be grateful. Pedersen realised very clearly what the essential principles of cycle design should be; he also realised that the accepted trend of marketed designs was the exact opposite, so he started *ab novo*. His requirements were few, but not easy of achievement. He argued that a bicycle, like a suit, would not fit properly unless it was made to measure. While this would to some extent improve the comfort, there was still vast room for improvement in saddle comfort and springing generally. Lastly, as the whole had to be propelled by human effort, it should be made really light. I will now try to describe briefly how he brought about these requirements. The whole machine was built upon the cantilever principle and was, in a manner of speaking, doubly triangulated. That is to say, it appeared as a series of triangles whether viewed from the side or from either end. Radiating from the bottom bracket, tubes formed the rear forks and the saddle pillar, and extended forwards and upwards to the top of the steering column and, lastly, to meet the bottom thereof. These tubes, as was the case throughout the machine, were in duplicate, starting from each side of the bottom bracket, and (except in the case of the rear forks) they tapered until they met, forming the apex for a triangle when the machine was viewed head-on. With the exception of the bottom bracket, which was a bronze casting, the frame and forks were built of steel tubes, all of $\frac{1}{2}$" diameter, except for the rear forks, which were $\frac{5}{8}$".

The back ends of the rear forks were joined by two tubes to the top of the steering column, the angles being so calculated that this pair of tubes just cleared the outside of those forming the saddle pillar. The steering column, which connected the ends of the tubes projecting forwards, was a part of the front forks, which formed a unit in themselves. In front two long straight tubes went from the axle to meet at the top of the steering column, each forming the base of a shallow scalene triangle, rather like certain motor-cycle forks, with the apexes trailing. A skeleton spacing plate joined the apexes to the bases and also formed the bottom bearing for the steering column. Thus, each side of the fork formed a triangle, and the two sides, tapering together at the top and assuming the axle as a base, formed another when viewed end-on. The handlebars were of similar tubing, passing between the converging tubes of the front forks rather high up, so that no space was left. If you have been able to follow this straggling description so far you will have realised that the whole frame is now connected up into triangles, with the exception of the saddle pillar. Pedersen's saddle was so constructed that it formed a basic part of the machine. The seat itself was made of woven string or cord, like a hammock, and was bound at the back to a light steel spreader, the latter being hooked up to the saddle pillar by a series of small, horizontal coil springs. The front of the hammock was bunched together to form a loop, through which was passed a leather thong connected to the top of the steering column. With the rider in position, the connection between the top of the steering column and the rear axle was in tension, so this was simply connected by a sort of elongated motor-cycle spoke to complete triangulation. This spoke was fitted with a screw nipple so that the tension could be varied according to the weight of the rider; this was the only provision for adjustment on the early machines.

The bottom bearing, housed in the bronze casting, was of standard practice; it was adjusted by a saw cut through the casting, being tightened by a nut and bolt through a pair of lugs. Sprockets varied in size according to the wishes of the various owners, but a considerable number were made with a relatively large number of teeth, amounting to 56, whereas the ordinary cycle of to-day has about 48. These wheels were cut away to the last thou. behind the teeth, yet even on cycles that have been in use for many years I have not heard of one breaking. Throughout the machine solder was employed for fastening purposes, instead of the more normal brazing. Pedersen realised that surface-for-surface soldering was much less strong, so he broadened out the surface at every join to ensure that the strength was made up by increased area. Besides being quicker and more simple to operate, this method, because of the relatively low temperatures employed, did not affect the delicate tubes.

I have taken a few weights for various portions of Pedersen's machine and compared them with similar parts taken from a modern bicycle. The results help to prove that low weight is achieved by attention to detail, because in the major parts of the cycle there is only a small saving:—

	Pedersen	*Average Modern*
Frame alone	4 lb.	6 lb.
Front fork alone ...	2 lb.	2¼ lb.
Gearwheel with cotter, crank and pedal ...	2¼ lb.	2½ lb.

But in the vital accessories there is a substantial decrease in weight. Owing to the difficulty of weighing such things as brake cables, etc., I cannot prove what I say with figures except for the saddle, which, you must remember, in the Pedersen acted as the crossbar as well. Mr. Pedersen's saddle weighed 9/16 lb.

THE MAN WHO COULD HAVE MADE A CAR—continued

as against 2¾ lb. for a modern one. Brakes were of his own design and a combination of rod and cable, the former to give a straight pull on the blocks and the latter to allow for the bends and movement in the handlebars. As an example of simplicity combined with low weight, the brake lever was in the form of a wishbone, the fork thereof going each side of the handlebar tube and swivelling on a pin driven though it. On the first machines a further saving was effected by using a plain bearing for the steering head, through a screw with a taper thread. On later models Pedersen bowed a little to convention by introducing a normal ball-race, but even then it is interesting to see just how thin he would allow the track for the balls to be.

At one point in each pair of tubes a small cross-section of tubing was introduced as a brace, and the ends of the tubes, where they tapered to meet, were flattened out to envelope a piece of flat steel cut to the necessary shape; the whole was then filled with solder. The entire weight of the ordinary production "Dursley Pedersen," complete with carrier (over the front wheel) and bell, was 21 lb. To-day one has to buy a lightweight sports model to get inside twice that figure, yet the reader must not forget that I am comparing a machine that went out of production in 1916 and was designed and first made at a time when automobile engineering was in its infancy and when the use of light alloys was completely unknown. These machines were not made in large quantities, yet they sold for £15–£20 at a time when the ordinary "Dreadnoughts" were costing £10–£15 and were turned out in enormous quantities. Does it not go to prove that the oft-vaunted axiom "Lightness Costs Money" need not be true provided that one builds lightness into the vehicle, instead of simply trying to pare down weight by the use of costly alloys alone? It is worthy of note that a contemporary magazine recorded that an American manufacturer set out to make the lightest machine he could, regardless of expense or durability; it weighed 18 lb.

Some people, had they achieved Pedersen's wonderful design, would have been content to rest on their laurels as so many car manufacturers have done, but Pedersen was constantly improving his machine. There were complaints that the second-hand market was restricted because the machine could not be adjusted for riders of varying heights, so he first made an adjustable saddle. Weight was then further reduced by the use of hollow, tubular pedal cranks. He discontinued the upturned handlebars because between them rose the point made by the convergence of the front fork tubes, which possibly caused the rider some anxiety should he be thrown forward. In their place came the down-turned bars suspended from this apex, and at the same time the ball-bearing steering. I am not sure whether Pedersen was the first to market a three-speed, but anyway it was available on his machine from 1902. Needless to say, his design was again unorthodox and had certain advantages over the usual epicyclic type. His gear was built in the hub, but operated like a car box, even to a layshaft. This caused a hump on one side of the hub casing, but at the low r.p.m. of the road wheel did not cause instability. The freewheel mechanism was housed within this casing and so was entirely free from dirt. The gears were straight toothed and strongly made, every one running in ball-bearings. The whole of the casing over the layshaft was hinged so that it was very easy in case of breakdown to expose the whole unit. The gear weighed the same as the modern epicyclic, viz. 3 lb., but I consider it to be vastly superior in accessibility and to cause much less friction in use. Apart from building his production machines, Pedersen may have had an eye on the basicless future(!) when he also designed tandems and built one machine for four riders. Be that as it may, he was certainly 40 years ahead of his time when he offered to produce a folding bicycle for the British Army, to be used by the ordinary soldier as and when possible, and to be carried at other times. The complete weight was to be 11 lb. Needless to say, the Army turned it down because they did not consider it had any practical value. Thirty years later his idea has been taken up for use by paratroops, but even now I doubt whether his inclusive weight has been reduced in spite of the advances in metallurgy.

It should not be thought that Pedersen devoted the whole of his time and energy to the manufacture of the bicycle. He was equally successful in the field of agricultural machinery. He also constructed a motor-cycle weighing only 60 lb. and made a multi-speed gearbox for a car; he could not raise much enthusiasm for these two latter, however, and never made them marketable propositions. He designed and made a quick-firing gun, which he submitted to the War Office, and he had an answer to all their questions and was able to disprove all their objections, so they finally turned it down with the excuse that, although it was, in itself, suitable, they would not be able to supply ammunition quickly enough for it! So, in the early days of the century, the cycling cognoscenti were able to enjoy the same advantages over their brethren as the owner of the sports car has to-day over the family saloon, but while the owner of the "Dursley Pedersen" could be confident that his machine was 30 or more years in advance of other cycles, thanks to the conservatism of the British car manufacturers we now have to do our best with chassis that were out of date by the world's standards 10 years ago. The comfort of the hammock saddle was only to be believed when experienced, luxurious riding being provided by the coil springs, aided by just the right amount of whip in the frame itself. The light weight, coupled with the high gear, provided endless effortless cruising, so one could ride a Pedersen much further than the average machine, with greater speed and without becoming so tired. As evidence of this, Pedersen (no longer a young man), with his Shavian beard, was often to be seen cycling into Gloucester and back after he had closed the factory for the night—no mean feat, for the distance was 30 miles and the roads were in even worse condition than they are to-day. The reader will now be wondering why he has not seen many of these excellent machines in use, and whether Mr. Pedersen is hiding the light of his genius behind a thoroughly merited title. But to make a profit on cycle manufacture, as on anything else, it is necessary to have a large market, and this Pedersen could not command. He was an engineer, not a business man. (He was once known to spend six weeks on end personally lightening a cycle by reducing the thickness of the tubes, except near the joins.) And who can explain the whims of the all-powerful British public? Among enthusiasts his machines achieved a certain popularity until the outbreak of the 1914 war, but then, with difficulties of all types piling up, he was forced to sell his designs and patents to another company, in whose hands they soon became extinct. Pedersen was for a time Professor of Engineering at Stockholm University, then he returned to his native Denmark, soon to die in comparative poverty. People bought bicycles then as they buy motor-cars to-day, not because they are the best or most suitable for their needs, but because they are the cheapest, because they look like Mr. Jones's next door, because they are sufficiently gullible to believe what they are told, however obviously it may be a departure from truth and fact. For the things that really matter they care naught, and so another genius was shunned, another masterpiece was thrown away, as things of no account. Now, in his workshop a few miles from the original factory, a friend who is an engineer because he loves engineering, a man after Mr. Pedersen's own heart, is rebuilding a "Dursley Pedersen" from original parts found on local scrap heaps, as a tribute to one of the few men who could have made a car, and the only man who has ever made a bicycle.

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BOOK REVIEWS

—*continued from page* 259

craft exist for those seeking great detail or pure technicalities. We certainly hope that C. G. Grey will continue his instruction of the public in air affairs—we cannot imagine that he will write a book on civil transport or sporting flying while the war is happening, but there is still plenty for him to recall, describe, explain and comment upon in connection with military aviation, in spite of this additional, very welcome 256 pages. The latest book is well illustrated, although the photographs are not so well arranged as they are in the sister volumes.

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LETTERS FROM READERS

—*continued from page* 263

Finally, I crave your courtesy to make two corrections in my last article on "The Evolution of the Racing Car." On page 224 the figure for the Fiat h.p. should be 90 (and not 60 as written), and in the table on page 226 the r.p.m. for this car should be 5,000 and not 5,500 as written.

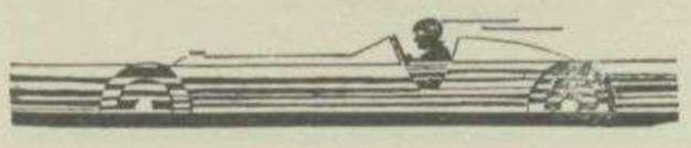
I am, Yours etc.,

London, E.C.1. LAURENCE POMEROY.

[We believe Seaman's Delage reached 150 m.p.h. (*vide The Motor*) on something like 170 b.h.p.—Ed.]

CARS I HAVE OWNED

This series of articles has been about the most popular we have published. In the following contribution Geoffrey Robson, the Lancia " Lambda " enthusiast, in describing his cars, tells how he came to acquire his interest in real motoring and how he had a quite inexpensive Continental holiday by grace of a very vintage Lancia " Lambda."—Ed.



HAVING read a number of articles on this subject I conclude that it is customary to start one's motoring career with " the inevitable Morris Cowley," " the inevitable Austin Seven," or possibly " the inevitable Model-T Ford." However, with my astonishing flair for originality, I successfully avoided the inevitable by buying, at the age of 17, a 1927 Austin 12/4 tourer. A travelling scholarship, which was intended to enable me to study mediæval domestic architecture in the Midlands, provided the £15 required to buy the car, but I have no idea how I managed to find the money to run it. The old Austin Twelve is practically foolproof and unbreakable—both characteristics being essential under the circumstances—and taught me a lot about gear changing and avoiding cars with superior brakes. The clutch was lubricated freely from the rear main bearing, the engine used a quart of oil in about 40 miles, and the brakes, in the fine old Austin tradition, were more or less negligible (apart from the transmission brake which was a great aid in rear-wheel sliding); but otherwise it was quite sound and very considerately remained in one piece until a week or so after I sold it, when the engine disintegrated and became a total loss.

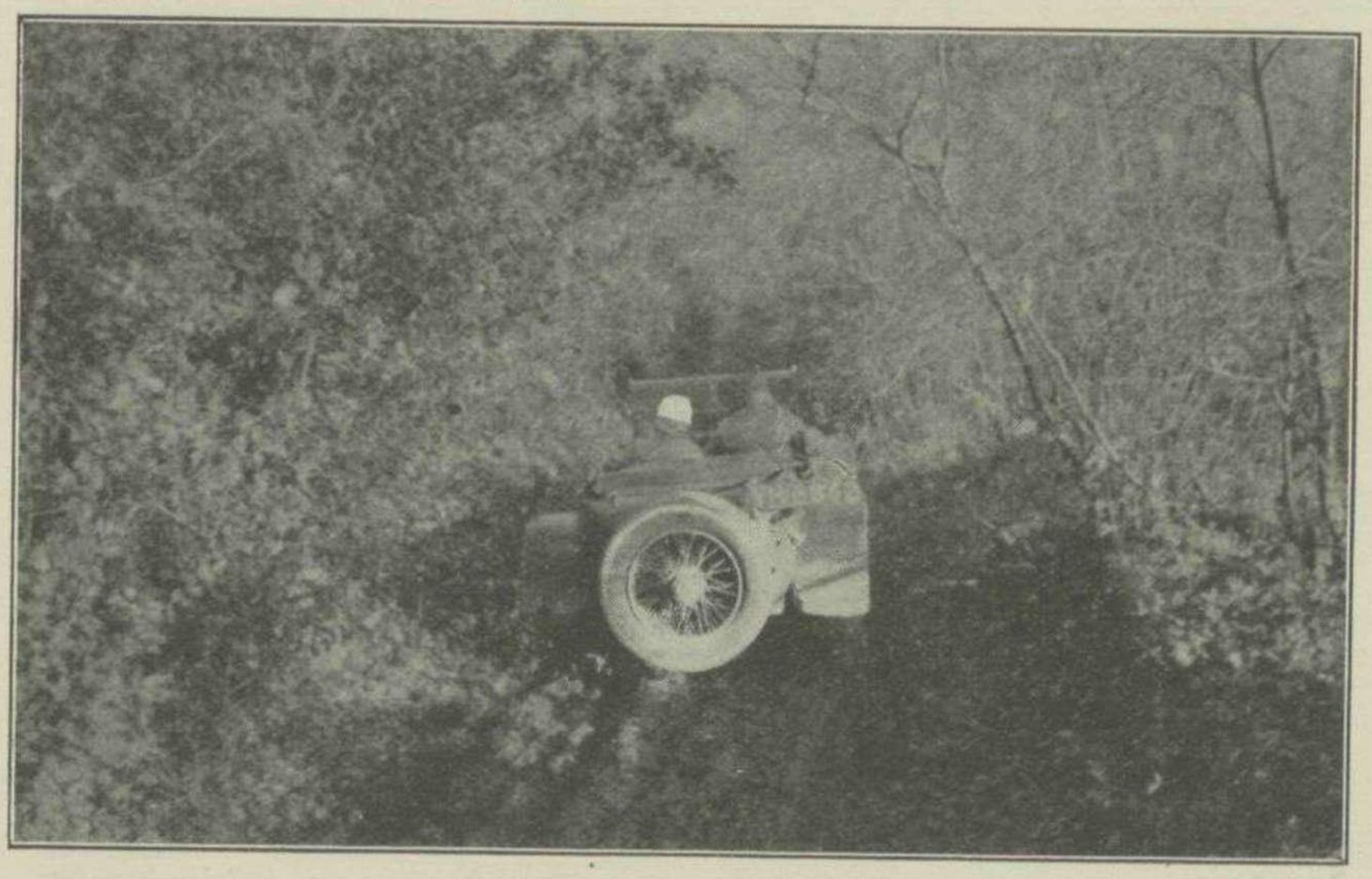
The next year, 1937, having even less money, I bought another Austin Twelve tourer—1928 this time. It will be apparent by now to the observant reader that in those days I was not concerned with performance, the car merely being a rather more convenient and pleasant means of transport than the railway, which can hardly be considered to set an impossibly high standard. It was essential that it should be cheap to buy, economical to run, reliable and capable of carrying seven or eight passengers; its other characteristics did not concern me. My second car had been used as a baker's van and was some feet deep in breadcrumbs; it cost me £15, with nine months' licence thrown in, and motored very well for many thousands of miles. Practically its only fault was an almost completely choked radiator; the water, having nowhere else to go, used to disappear rapidly down the overflow pipe, until one day the overflow became choked and the radiator exploded in a spectacular manner outside a lunatic asylum in Essex. My routine maintenance schedule was amazingly simple: if the bearings rattled when I took a corner fast, I put some oil in; if the pistons seized, I filled up with water; when the tyres showed more than two layers of canvas, I painted them black or wrapped them with insulating tape. Two points which should be watched are the transmission shaft fabric coupling, which wears fairly quickly and sets up appalling vibration if it is not renewed, and the fact that if the rear springs are flattened by fatigue or overloading, the " pot " type universal joint in the transmission may become dislocated, owing to the axle moving too far back. This happened to me once, and I cured it (by the roadside) by removing the back axle, putting the joint together again and packing out the front coupling with about 18 washers; this never gave any more trouble, and I believe the old car is still being used, by the farmer to whom I sold it at the end of 1937, for carrying vegetables and livestock to Evesham market.

During the winter of 1937–8 I had my first opportunity of driving some good cars and I began to realise how much I had been missing. I drove an " 18/85 " Talbot quite extensively and was tremendously impressed (as I still am) by the feeling of tense liveliness throughout the engine and chassis, of having plenty of power in reserve, by the superb gearbox (it was a pre-Wilson box Talbot) and the excellent road-holding and brakes. I tried several other cars at the time, including a twin-cam 3-litre Sunbeam, a three-carburetter " Silver Eagle " and a Weymann saloon-bodied long chassis Seventh " Lambda," and having decided that these were all too expensive to run, I inconsistently bought a 1930 " 14/45 " Talbot with a fine touring body. These cars had a very low second-hand value by then, and mine cost me £10 in incredibly good condition; apart from its sleek and impressive appearance, it had accurate steering and fine road-holding, a very smooth and quiet engine, which always started at the first touch of the starter, tremendously powerful brakes and the beautiful gearbox common to all the Talbots of this period. Its great drawback was the weight of the chassis and body and the consequent low axle ratio of about 5.8 to 1; the maximum speed was very little over 60 m.p.h., though the acceleration low down was excellent, and the petrol consumption was phenomenal, averaging about 17 m.p.g. on a long run and 14 m.p.g. in London. The springing was too stiff at the back and only gave good results with about six passengers in the car, when it really began to feel comfortable. I think that given a reasonably light chassis and an axle ratio of around 4.6 to 1, the engine and gearbox could have performed outstandingly well, as it is still an extremely efficient unit even by comparison with present-day engines of the same capacity. However, in addition to the running expenses, the spidery wire wheels were constantly breaking spokes and cracking round the hub under the stress of rapid cornering, the linings were loose on the clutch centre plate, and I felt I was not really getting my money's worth. I had an excellent holiday in North Devon in the car, and climbed Beggars' Roost and Station Hill on the day after the Land's End, and then started to look around for something with more speed, reliability and a much smaller thirst for petrol. I must admit that for anyone in these circumstances, the " 12/50 " Alvis is the only really suitable car (Austin Sevens, Amilcars, Salmsons, etc., being too small for my purpose), and I think that its incredible reliability with good performance, handling qualities, economy and length of life make it just about the finest car in its class ever made, but for some reason, probably because I was fascinated by its appearance and unorthodox design, I was determined to buy a Lancia " Lambda." Eventually I found a very decrepit fifth series car with the Italian torpedo body and high-pressure beaded-edge tyres, and was so delighted by its slim, coffin-like appearance that I borrowed £20 and bought it on the spot, and although this was far too much to pay for the car I have never for a moment regretted it.

I was completely unaccustomed to the low-revving high-geared type of car, and to make things worse the main spring loaded timing gear wheel was broken and the ignition about 30° too far retarded; and although it would on occasion reach 70 m.p.h., it would sometimes refuse to do more than about 20 m.p.h., and was extremely susceptible to changes of weather. Fortunately, I made the acquaintance of West and Chittenden, who found out the snags and gave me a tremendous amount of useful information and advice about the " Lambda." As I had only run the car for a few weeks the engine was still in reasonable condition, so I turned my attention to the matter of steering and tyres. The steering was so heavy that one almost needed a crowbar to turn the small rigid steering wheel; this was attributed by the enthusiastic Italian dealer to the fact that the suspension had been entirely rebuilt and had not yet " bedded down." I attributed it to the car having hit some heavy object at high speed and having been rebuilt by a blacksmith with an 18″ Stilson. However, it worked, and cornering was amazingly fast and steady, although one side appeared to be completely unsprung and the other had about 2″ vertical movement—but, after all, Bentleys, Frazer-Nashes and " 30/98s " seem to get along quite well without much springing at either end. After a few weeks of enthusiastic motoring the antiquated tyres, which had started with a coat of paint and three layers of canvas, were reduced to one layer of canvas and began to explode violently on the least provocation. I stuffed them with straw and carried a small spare haystack in the back of the car, but as this was considered rather unconventional by the authorities I threw away the old tyres and wheels and fitted balloon tyres and wheels from a sixth series " Lambda." These were also beaded edge and I remember motoring noisily round Berkeley Square one sunny Sunday morning whilst a rear tyre bowled merrily away into a taxi-rank. Fortunately, this did not often happen and, in any case, the car was so stable that it made very little difference.

During the summer of 1938 I won a scholarship for foreign travel and reluctantly decided to sell the Lancia in order to raise some more money. Fortunately, my prospective customer was frightened out of buying it by his local garage, so I decided to take the car abroad, just to show how much I trusted it. I gathered an intrepid crew of two and, amid rude laughter and ignorant remarks about big-ends (to which the common

CARS I HAVE OWNED—continued



people attribute the sinister rattling noise caused by the valve gear), we crossed the Channel and promptly broke a rear spring whilst motoring violently over the Belgian *pave*. Undeterred, if somewhat lopsided, we drove from Brussels to Paris at an average of about 46 m.p.h., carrying a vast American hitch-hiker on the spare wheels, and in Paris had a new spring leaf made for a few francs. Leaving Paris, we drove south, casting off minor details of equipment, such as the windscreen wiper, the battery box and, finally, the silencer. We spent the nights in the open, rolled up in rugs and overcoats, wherever we happened to be when it became dark, generally woke very early in the morning and motored anything up to 80 miles before breakfast. After driving some 250 miles without a silencer, passing like a battery of machine guns through the so-called "Zones de Silence" of the Riviera (through which 20-ton Diesel lorries perpetually howl their way at lethal speeds), we stayed for some days with friends near Mentone whilst the silencer was welded up. We crossed into Italy by Ponte St. Luigi and toured through Genoa, Pisa, Florence and Bologna to meet a friend in Padua. Driving hard over atrocious roads (and, incidentally, being passed right and left by Aprilias and "1,500" Fiats) one of the tubular members of the battered "trapezoidal" front frame broke, and we arrived in Padua with the front end holding together purely by force of habit. The moment we stopped a mechanic came up to the car and took us round to a back street garage, where they welded the frame extremely well in less than half an hour *in the street*, and charged us the equivalent of about 2/6; I find it difficult to imagine this happening in England. Incidentally, our friend, who should have been waiting for us in Padua in a respectable modern Ford V8, was not present, his differential having liquefied in a very dull provincial town in the middle of France, where he spent a week waiting for spares to arrive. From Padua we went to Venice, and on the great causeway-autostrada across the marshes held a steady 70 m.p.h. for some miles. Going north again we crossed the Simplon and ran down to the Rhone Valley; then, running short of money, we ended by driving 370 miles overnight to Paris and, as a result of too much speed and too little water, blew the head gasket over two cylinders. We were unable to obtain a spare, so having pumped the water out *via* plugholes and compression taps, with water dripping from the exhaust pipe and exhaust puffing from the radiator filler, we steamed impressively out of Paris, followed by derisive cries of "Steemeeng!" "Railway!" "Bateau à Vapeur!" and "Ha Ha! G.B.!" However, we reached London literally under our own steam; we even picked up two English schoolboys and their bicycles and took them to Dieppe. In spite of all the odd bits of trouble the total bill for repairs—welding the battery box, silencer and front frame, making a spring leaf and buying a second-hand tyre in Belgium—came to about 39/- when translated, and my share of the expenses for a motoring holiday of nearly five weeks, covering 3,500 miles, came to about £22, including all the necessary documents and the expense of getting the car across the Channel.

The "anti-vintage" motorist will no doubt see in this an example of the stupidity of people like myself and the unreliability of even the expensive cars of the early twenties. When I consider my complete ignorance of the machinery, the derelict state of the chassis, the fact that it was always cruised at 55 to 60 m.p.h. and taken over any country, roads or no roads, and carried on occasion anything up to 14 people, I consider it a staggering feat of endurance and reliability.

On returning to England I made the acquaintance of George Foxlee, who although better known for his trials driving in various "12/50" Alvises was, and still is, a great enthusiast for the "Lambda" and has owned quite a number at various times. At the time he was living in a farmhouse in North Hertfordshire, surrounded by barns full of vintage motors, belonging to himself and to various other enthusiastic friends; apart from week-end visitors there were at least three "12/50" Alvises, a "Silver Eagle," three or four "Lambdas," a 3-litre Lagonda chassis, a 2-litre O.M., a side-valve Aston-Martin and dozens of engines, gearboxes and bits and pieces generally. I arrived late one night, slept in one of the fields and, waking early, entered the farmhouse and demanded breakfast and bits of Lancia from a somewhat surprised Foxlee. Introductions having, so to speak, been effected, the Lancia settled down as another guest for the winter.

As I required some sort of a car for immediate use, a friend of his sold me an elderly Morris Cowley 2-seater for 24/-, which had recently been stolen and run without water until the engine had assumed an odd shape internally and refused to work. After some time I persuaded it to motor after a fashion, and set off for Cornwall with my mother and brother. Apart from clutch trouble, which necessitated a lot of pushing by my brother in order to get us up the hill at Lyme Regis, a burnt-out dynamotor, an electrical fire behind the dash and a complete absence of lights, we went to Cornwall and back without any trouble and I ran the car for several hundred more miles before the clutch, which I had taken up until there was no adjustment left, finally ceased to transmit any power at all, and the old car was allowed to run gently downhill into a scrap yard, where she fetched £1.

During the winter I spent most of my week-ends at George's farm dismantling the engine and the front suspension of the Lancia and finding out how it all worked. I shall never forget some of the sunny winter's mornings there, frost on the ground and the smell of "rich mixture" and Castrol "R" in the keen air as cars warmed up with a burble or a sharp crackle of exhaust in the yard behind the white farmhouse, or fast runs in a 1924 boat-tailed "12/50" Alvis, the quiet exhaust note becoming instantly crisp when one opened the throttle, the engine turning effortlessly and smoothly and yet with a feeling of toughness and solidity, which practically nothing built these days seems to give, however powerful and however smooth. George was busy rebuilding his trials "12/50" Alvis, spending weeks fitting the bearings, and the place was full of activities, from amateur trials in the surrounding fields to dancing on the excellent "home-made" floor above one of the barns, and visiting cars ranged from ancient Austin Sevens to palatial modern "4.3" Alvises. A friend of mine who came up one week-end to help me was captivated by the old s.v. Aston-Martin, and we spent some time fitting a new back axle supplied by Lambert, as one of the original half shafts had become unaccountably bent; we had some fine runs with that car, but it never had sufficient work put into it to bring the condition of the chassis up to the standard of the engine. I should very much like to get hold of one of these cars myself, as they are undoubtedly one of the most beautifully made cars ever produced and one of the pleasantest to drive, but unfortunately they are very scarce, only about 180 having been made altogether.

To return to the Lancia. I removed the complete front suspension assembly and replaced it by a good one from

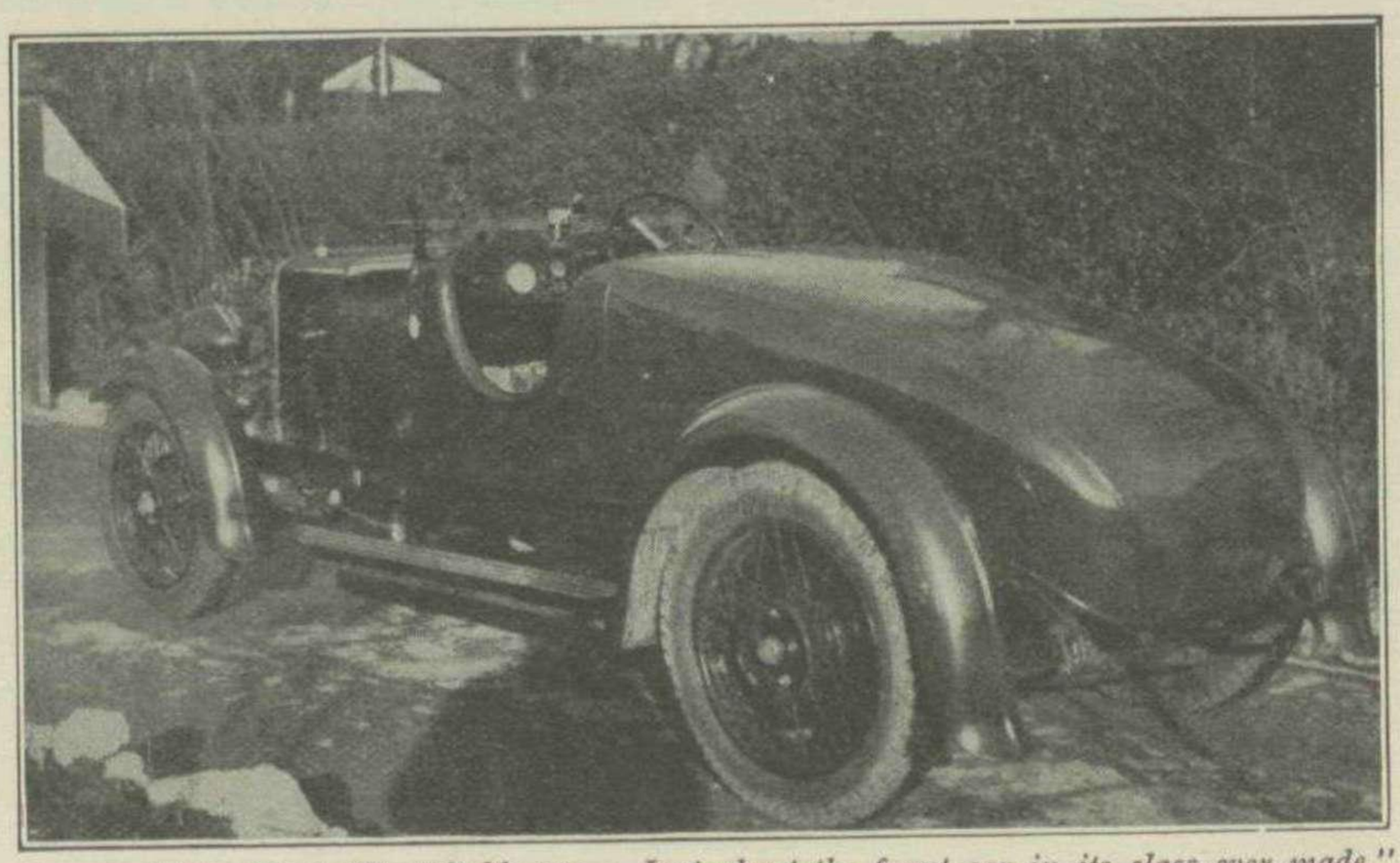
CARS I HAVE OWNED—continued

another fifth series car; the flywheel was removed and taken to West and Chittenden's, who machined off the whole of the flange, the gasket was made to stay in after some strong-arm work, the brakes were relined and finally, with my little hack-saw, several pieces of wire and a couple of straps, I made a comic fold-flat screen out of the inverted top half of the old three-piece screen. In the following March the car was on the road again and it really did motor extremely well; the exertions of the previous year and my own lack of knowledge of the machinery had loosened the main bearings badly, but I could not afford to do anything about it. The maximum, with lightened flywheel and lower windscreen, was up to 74 m.p.h., which I reached several times, and as maximum safe revolutions represented about 70 m.p.h. in top gear it is not surprising that after a couple of months or so a rod broke and knocked off a large piece of cylinder liner, incidentally bending both valves. After thisoccurrence, the engine being somewhat unbalanced, I drove gently into a country garage nearby and informed the mechanic that I had broken a connecting rod. To this he made no reply, but switched on the ignition and started the engine; after watching it leaping up and down for a little while, he assumed an expression of deep wisdom, solemnly removed one of the plugs, cleaned it and told me that the engine was missing on one cylinder. I felt that this was, if anything, an understatement, and as I had just discovered that I had only 1/8 in my pocket, which was not enough to pay my 'bus fare, I started up and motored home, nearly 40 miles, at a gentle 10 m.p.h., fortunately doing no more damage, as the piston and most of the rod had jammed at the top of the cylinder just clear of the valves and the remains of the big-end were lying in the sump.

I took it down the next day and a very depressing sight it was: the crankshaft journal was rather rough and a large piece of the cast-iron liner was broken away at the bottom, but the piston was undamaged except for two slight dents where it had hit the valves. Fortunately, I had a spare rod, which I had re-metalled and fitted after cleaning up the journal with emery paper, fitting two new valves and the original piston, minus bottom ring. Astonishingly enough this lasted very well, partly because I had by then really learned my lesson about engine speeds, and I ran the car for the rest of the summer and had two very strenuous holidays in it, in North Devon and Dorset, without having to touch the machinery at all. After a very "trials" holiday in Dorset I went over to France with several friends in a brand new 1,750-c.c. S.S. drophead coupé and an open, Series "E," Morris Eight. The S.S. had the usual troubles with pinking and auto-ignition and had insufficient ground clearance even for second-class roads, let alone fields and trials country. However, the engine and gearbox were quite pleasant and the road-holding was fairly reasonable with only two people aboard; with four up and luggage it was hopeless, in spite of André shock absorbers fore and aft. The Morris was quite a good little chassis, though the engine felt rather anæmic, and could be slid round corners quite nicely, but like most modern English cars succeeded in being too heavy without being correspondingly tough, a contrast to the most successful baby car, the early Austin Seven, which was amazingly light and yet stood up to any sort of treatment one could give it. The holiday was cut short by the imminence of war and we returned *via* Dieppe, the cars following some 10 days later by cargo steamer. Everyone was streaming north from the Riviera, and we met one unfortunate gentleman who had been in such a hurry that all the bearing metal had disappeared from the big-ends of his 3½-litre Rolls-Bentley, leaving him to get it back to England as best he might.

Shortly after this I had a trip across Wales and did three 250-mile runs in a week, and on the last of these (incidentally, on the day petrol rationing started), being pressed for time, I cast aside my prudent resolution not to exceed a 50 m.p.h. cruising speed and had been cruising at 60 m.p.h. for about 80 miles when, opening the throttle to pass a car in a hurry, and doing between 65 and 70 m.p.h., a rod broke and carried away a large portion of the block into the Warwickshire countryside. Seeing that the damage was quite irreparable and feeling that anyhow I should have to give up motoring for a long time, I removed the remains of the rod and piston through the hole, started up again and drove gently along for about three miles to the next garage, where I sold the remains, with a good battery and a full tank, for £2 10s. 0d. I have never ceased to regret this, but at the time it seemed to be the only thing I could do.

However, it is generally acknowledged that in the spring a young man's fancy lightly turns to thoughts of Grand Prix Bugattis and supercharged Alfa-Romeos, and in February, 1940, feeling very lonely without a Lancia, I found a long chassis eighth series drophead coupé lying dismantled on a Hertfordshire farm. This car had not been run since 1937 and had been bought very cheaply owing to the fact that it had too much water in the sump and too little in the radiator. As nobody seemed to know why, the farmer's son had lost enthusiasm and it seemed likely to remain in pieces indefinitely. The fabric bodywork was deplorable, but apart from the engine the chassis seemed in excellent condition, and having come to an agreement with the owner to pay him £8 10s. 0d. and a bill of 30/- for having the valve seatings recut, I set to work on reassembly and tracing the leaks. The gasket had not blown, the head was apparently not cracked, and the leakage was found to be due to the head being warped between the lines of studs, and also to the water pump, which needed packing. I bought a spare head from Breen, which was warped in exactly the same way, had it machined flat, which cost me 15/-, repacked the water pump, and that was the end of all the troubles. The rings had rusted badly and as a result the engine used a lot of oil, but it has given no trouble whatsoever in two and a half years, during which time it has never failed to start easily and has on one occasion reached 78 m.p.h. on the clock. The body was incredibly decayed, as it has now lived in the open for nearly five years, but is extremely useful, holding five people inside and two in the dickey. The steering is beautifully light and accurate, having about ¼" free movement, measured on the circumference of the steering wheel. It has always been cruised at 60 m.p.h. or a bit over and at this speed gives 20 m.p.g. with the now standard horizontal V-type Zenith. In 1940 I drove it up to Scotland when I took up a job with an aircraft firm in Ayrshire; I ran it quite a lot and during over two weeks in the winter of 1940 ran it 100 miles a day on business, doing a 49-mile run over twisty roads regularly in an hour, or an hour and five minutes under icy conditions; and at Christmas I did a 210-mile run in just over 4½ hours, in pouring rain. The only mechanical trouble I have had with it has been the disintegration of a ball bearing in the back axle, which cost me 25/- to replace. During the summer of 1941 I was careless enough to have an accident, which bent one side of the tubular front frame. I fitted a new frame



". . . . The only really suitable car. Just about the finest car in its class ever made."
The author pays tribute to the "12/50" Alvis

CARS I HAVE OWNED—continued

and rebuilt the original spring and stub axle assemblies with great care, and the steering is now lighter and more accurate than it was before, no ill effects of the smash being apparent. At the end of last year it returned from Scotland towing an extremely ancient, high and heavy Eccles caravan, in which I have lived for the past two years, the only difficulty being a tendency to tow the caravan too fast, the car being so stable that the extra weight and swing of the caravan passed almost unnoticed; incidentally, it averaged nearly 17 m.p.g. over the whole run. At the beginning of this year the fabric body was almost reduced to a skeleton, large sheets of covering flying away quite frequently; as I was unable to obtain fabric, I re-covered the frame with canvas-backed roofing felt, and the old car looks almost respectable once more! In spite of its rough life, every bit of equipment and every instrument worked perfectly when I acquired the car, and I have no intention of disposing of it. At the moment it sits outside the caravan, adding interest to an otherwise dull field and waiting for better days.

During the first summer I was in Scotland I shared George Foxlee's very special "12/50" Alvis. This car has the big port head with ports polished and opened out as far as the casting allows, dural rods with fully floating gudgeon pins and a special manifold with down-draught Zenith Stromberg carburetter. There were some fine hills in the district and we had a lot of fun with the car until George left again for the South in an excellent 1931 "12/50" Alvis 2-seater which he bought locally to tow his caravan.

About this time I felt the need for a small car and very foolishly bought an incredibly bad o.h.c. Morris Minor for £6. I ran this for some weeks very gently, without any brakes at all; in an emergency I changed into bottom gear and switched off the ignition. On one occasion the little wretch, having been left on a slight slope with the hand brake on and bottom gear engaged, started to roll away before a strong wind, and on another occasion I went halfway up a flight of steps in order to avoid a cyclist who didn't quite realise the danger he was in. After a few weeks the big-ends started to go, and eventually I took the rods out (and a more unpleasant-looking bit of blacksmith's work it would be difficult to find) and replaced them by remetalled rods at 6/- a time. These, being standard size, would not look at the crankshaft, which appeared to have about ½" ovality and a surface like a coarse file. Thoroughly peeved by this time, I fitted them with the aid of emery paper, a file and a hub clouter, and replaced most of the valve gear with bits taken from scrap cars (most of which were in better condition than my own). Surprisingly enough, after this crude repair, the engine started up immediately and showed an oil pressure of 80 lb./sq. in.; this lasted for some weeks, the engine being very smooth and silent and quite energetic. After this the pressure slowly began to drop, and as I was on the point of leaving Scotland I raffled it round the works for 1/- tickets and made no less than £12 10s. 0d.; after which I decamped hurriedly in the Lancia.

One would expect to find a considerable number of people in any branch of engineering with some knowledge of and interest in cars, but in three years in the aircraft industry I have met singularly few; practically the only person I met in Scotland with any enthusiasm for motoring was one Bertie Gilmore, and at the time I made his acquaintance he was running an extremely horrible straight eight Terraplane, with an open 4-seater aluminium body. This car would accelerate from 0 to 30 m.p.h. in approximately no time at all and refused to answer to the tiller at any speed, cornering being more a matter of will power than anything else. One day when we were floating along a road, fortunately quite gently, Bertie applied the self-energising brakes, and one particularly energetic brake took it into its head to lock solid; when the noise of tearing tinware and breaking glass had subsided it became apparent that the axle had slipped back on one front spring, causing the car to bank steeply and irresistibly to starboard and dive into a 7′ ditch at unabated speed. Apart from a few cuts and bruises we were unhurt, and when a passing tractor had removed the remains from the ditch (in which it was standing almost vertically on its nose) I was delighted to see that the front end was quite nicely written off. Shortly after this, Bertie, completely converted from semi-dirigible motor-cars, went South with all his available money and, after sampling a rather spent "E" type "30/98" Vauxhall, returned with a Series I Lancia "Astura." This is a really superb car and a great advance on the "Lambda" in many ways. The engine, an extremely short-stroke V8 of slightly greater capacity than the eighth series "Lambda," produces 75 b.h.p. extremely smoothly and silently, giving quite startling acceleration, even with the rather heavy coachbuilt saloon body it had at the time. The gearbox is an absolute joy and quicker than anything else I have ever come across, except the "Augusta" and "Aprilia" boxes, which are similar, but lighter, in action; when the oil is cold it is almost impossible to move the lever quickly enough to catch upward changes. Top speed is not much over 75 m.p.h., the engine feeling rather undergeared and "busy," but owing to the short stroke (about 84 mm.) it can be cruised at nearly 70 m.p.h. and is quite silent and effortless at 50 m.p.h. in third gear. The under-bonnet appearance is superb, everything being neatly and accessibly laid out, and the engine is really beautifully finished and as good to look at as any of the best "vintage" sports engines and far tidier than most. The body, being too heavy, was recently removed single-handed, by the simple expedient of driving the car up an artificial ramp under a tree, unbolting the body, attaching it to a strong branch and driving away again. The car in chassis form, I understand, goes like a bomb and, in spite of the lack of weight at the back, the cornering is better than ever.

In addition to this we had a 1931 Austin Seven, which Bertie acquired after the fabric saloon body had been trodden on by a stampeding horse. When the rest of the body had been removed it performed extremely well, and was the only cheap Austin Seven we ever came across with a sound rear main bearing. We both tried hard, but found it quite unbreakable, and it served as an admirable little runabout for quite a long time. Owing to its size and extreme lightness one could always lift it out of awkward positions, hide it in long grass or park it in cycle racks if necessary, but nobody took it very seriously and ill-disposed people were always crossing the ignition leads, putting sugar in the tank or turning it upside down in car parks. Eventually the engine was fitted into a pointed tail aluminium-bodied 2-seater, which I ran very reliably and economically for the first six months of this year. Having made the brakes work slightly and straightened out numerous bits of chassis, it worked very well and cruised happily at 40 m.p.h. on the clock, though oddly enough I frequently averaged 36 to 38 m.p.h. on a long run without ever exceeding an indicated 40 m.p.h. Driven reasonably it frequently gave over 50 m.p.g. and I was very sorry to have to sell it in June this year.

During the same month I heard reports of a short chassis eighth series "Lambda" tourer through George Foxlee, but as neither of us had seen the car we fully expected it to turn out to be a decrepit fifth series car or something similar. However, after a lot of negotiations by George, the car was presented for our inspection and turned out to be the "real thing"—a 1929 car in excellent condition. I bought it very cheaply, complete with good tyres and a new battery, and during the short time I was able to run the car it exceeded all my expectations. The speedometer shows 38,000 miles, a small mileage for a car of this type, and is obviously correct judging from the condition of the engine and transmission. The engine is exceedingly quiet for a "Lambda," having very little wear in timing gears or valve gear, the gearbox is perfect, the transmission has no noticeable backlash, the pistons are tight in the bores—in fact, the machinery is practically "as new." I have made no attempt to see what the maximum speed is, but it has reached 75 m.p.h. very rapidly and will obviously do a genuine 80 m.p.h. on the level. It cruised smoothly and without any apparent effort at 60 to 65 m.p.h., and on the only two runs of any distance I have done has averaged over 45 m.p.h. The rear shock absorbers are missing and I am fitting a pair of standard triple Hartfords at the moment, but apart from that everything (except a broken rev.-counter and petrol gauge pump, which I have replaced) is complete and in working order. In short, a perfect investment for post-war motoring, and I hope that some time in the near future it will be the nucleus of a small "stable" composed of cars suitable for all kinds of work, more or less as follows: The short eighth series tourer for general motoring, holidays and Continental(?) touring; the old coupé, suitably rejuvenated, for comfortable motoring in the depths of winter; a small hack, possibly a dealt-with Austin Seven, a Riley Nine, or even a "12/50" Alvis; and a sports and trials car based on a short eighth series Lancia "Lambda" chassis, with a more potent engine. (Incidentally, I bought one of these

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"JUST COLLECT MY CAR . . ."

Holland-Birkett, well-known member of the 750 Club and an Austin Seven exponent, contributes something in lighter vein, for is this not a time of Christmas issues?—Ed.

"JUST collect my car, old boy!" And yet how often this simple operation develops into an undertaking of the greatest complexity. I remember—since reminiscence is now the order of the day—the time when we collected my friend Frank's Lagonda. Let me tell you about it from the beginning.

Frank had been building what was to be the last word in unblown 2-litres. The excitement of its maiden trip quite dwarfed another event on the same day, the declaration of war. Being a "Special," the motor-car, of course, had certain teething troubles, and of these three were quite outstanding. First, the big-end bearings, in spite of a liberal oil-pressure reading, were seriously starved of lubricant. Secondly, the third gear, for some reason yet unknown, caused so much drag that the car gradually came to a standstill when it was engaged and it had to be missed out altogether. Thirdly, the clutch; never shall I forget it! Although unobtrusive enough when fully in or out, when taken up the drive it emitted a sound such that the British public, clasping its gas mask to its bosom, leaped for the nearest deep shelter every time Frank moved away in traffic. Otherwise, the motor-car was very fine; I liked it.

Now Frank became very busy finding a job, and to this end motored off in the direction of Birmingham. He arrived back by train with a naked con.-rod in his pocket—and a job in London, funnily enough. Would I take the rod to a "certain firm" to be remetalled, post it to Shipston-on-Stour, and, when it was fitted, just collect his car, as he was starting work immediately? Yes, I would!

I sprang into my "Ulster" Austin with the rod and practically outside the premises of the certain firm I, too, ran a big-end. This, incidentally, was due to fragments of a felt sleeve entering the crankshaft oilways. So, depositing his rod, I suffered a 'bus back home and borrowed a Singer "Le Mans" ("just this once") from one "Dicer" Dismore, with whom I shared a workshop. With it we got the "Ulster" home.

While the Lagonda rod was being metalled, posted and fitted, I busied myself by installing a standard engine into the "Ulster," as being more suitable for wartime use than the temperamental and rather more thirsty original. Unhappily, one of the small-end locking bolts sheared on assembly, and in the annoyance of drilling out the stub I forgot to retrieve the head from within the crankcase. This later proved to be a Bad Thing.

The day selected for the trip was the last before petrol rationing was due to begin, so the "Ulster" had acquired a greatly enhanced fuel tank capacity in the course of its overhaul. We set off early in order to get back for lunch and to miss the evening rush for petrol, the idea being to keep the tanks topped up throughout the trip. However, the first fly in the ointment soon reared its ugly head, because two or three times every minute a horrid rattle occurred from the depths of the engine, as if some small hard object were being flung about by the crankshaft, as indeed it was. In Uxbridge a sudden and much horrider noise precluded all further progression, and the sump was removed forthwith. The bolt head had lodged between the crankcase top and a piston skirt, and the con.-rod had "failed in torsion and bending." Half a gallon of petrol was bought and squeezed in, the car garaged, and we endured another 'bus home. I hate 'buses!

To ask for the Singer again so soon required more courage than I could muster, especially as its owner was asleep, being a night worker. So we took pity on the poor fellow and refrained from waking him. Although I affect to look down on the "Le Mans" Singer as being rather a promenade motor-car, I must confess that the trip up to Shipston was very pleasant indeed, 5,000 indicated r.p.m. being achieved from time to time on the indirects and the substantial weight giving a type of road-holding in marked contrast to that of the "Ulster."

The Lagonda, by a miracle, was ready, and having filled it up with petrol, rendered financial adjustment and started the engine, I arranged myself, for the first time let me emphasise, in the driving seat. I carefully depressed the clutch pedal, engaged what I thought at the time to be bottom gear and gently lifted my left foot while slightly increasing engine speed in the best text-book style. As the first blood-curdling notes rang forth the inevitable crowd gathered from nowhere (there being no shelters presumably) and settled solidly down to observe the giant black racer dash off at 60 m.p.h. The discerning reader will have guessed that far from being in bottom gear I was in third, which, as already revealed, acted as a middling efficient transmission brake. This, of course, prevented me from silencing the clutch by fully engaging it, and I was in such an agony of self-consciousness that, apart from a few feeble gropings with the left hand—this being my first experience of a right-hand gear lever—I was unable to make any serious attempt to sort out the ratio question until the town was left behind.

This done, progress became more nearly reasonable until the Oxford By-pass, when, coincident with a heavy shower of rain, the big-end melted again. Bearing in mind the condition of both the "Ulster's" engines and "Dicer" Dismore's habit of going to work by car every few days, it was one of Motoring's Blackest Moments. Dismore, I might mention, is a gentleman with a forceful personality. . . .

However, there was nothing for it, the Singer would have to tow the Lagonda, and like it. Which it did, until the Chiltern Hills, when it ceased to fulfil the second of these requirements, and it became evident that the one remaining functioning motor-car would be unlikely to continue as such if called upon to pull the Lagonda up that gradient. There was that hot smell, you know. This problem was readily solved by the timely appearance of that most helpful of all road users, Bert, the lorry driver. As if by magic the Lagonda was transferred to the other side of the hill and 5/- had changed hands.

But darkness was now falling, and at that time, it will be recalled, the blackout was still a novelty and thousands of War Reserve police, enthusiastic to a point of exuberance, were abroad looking for Germans and motorists. We felt that in these conditions the presence of a Lagonda on the end of a much-knotted and shortened wire hawser might prove something of a liability, so it was reluctantly garaged in High Wycombe.

The Singer, relieved of its encumbrance, purred sweetly through the dusk to Uxbridge, obviously none the worse for its over-loading. We found the garage where we had left the "Ulster" besieged by long queues of cars hoping to fill their tanks, and after wasting a great deal of time in this way, and being allowed but one gallon, we learned that rationing had been postponed for another week!

Then we towed the "Ulster" home, promising each successive W.R. that we were only going as far as the next garage, really, officer. And the now deeply respected promenade motor-car was safely returned to its sorrowing owner.

Permission to retrieve the Lagonda next day by means of the Singer being withheld, we had to find some suitable vehicle for the job, and this time Stuart Wilton came to the rescue with his 3-litre Bentley. He is one of the people by whom it is quite an experience to be towed, particularly in an unfamiliar car, as he assumes the towee to be his equal in driving skill. I am afraid that as a result of this ordeal the Lagonda brake linings reached unprecedented temperatures and lost most of their coefficient of friction, and I once rammed the Bentley heartily in the rear, luckily without damage. Thus was Frank's masterpiece delivered back to him, four cars having been used, two of which finished in a state of advanced deterioration. Since then he has seen the Light, taken the Lagonda to pieces and bought an "Ulster" Austin Seven.

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CARS I HAVE OWNED

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chassis from Breen two years ago with this idea in mind and it has recently been broken up in my absence by some unscrupulous person or persons unknown—however, the bare chassis frame remains and may be usable—some time). And then I might possibly acquire a veteran for a different kind of amusement; and possibly a Bugatti, if only for the pleasure of looking at the radiator and polishing the steering connections; and possibly . . . well, quite possibly we won't have any cars at all, but—what a prospect!

DELAGE II

Some Notes on an ex-Brooklands car which has recently changed hands

THE fact that this Delage has recently changed hands, having been bought by Miss Bunty Romer, is, perhaps, no excuse for writing it up, because its new owner is unlikely to be able to move the car from its present stable for some time, while even more time is likely to elapse before she can use it. However, the 5.1-litre Delage which Clive Windsor Richards has had in his garage for some years is of sufficient technical and historical interest to justify the following description of it, gleaned during a recent visit to the garage at Bentley in Hampshire where it at present reposes. It was constructed by the Delage Company in 1922 and was the first racing car to be built by them after the 1914–18 unpleasantness. It was by no means a first-line car, being intended for sprints and hill-climbs, but it seems probable that drivers of the calibre of Divo and Rene Thomas handled it at Continental meetings. In appearance it was very similar to the better-known V12 10½-litre Delage now owned by Cecil Clutton, with much the same chassis and single-seater carriage work, but there the similarity ends, although both cars were built at about the same time and for the same initial purpose. It was constructed largely of existing parts, suitably strengthened for the purpose. There seems little doubt that the chassis was materially that of the production Delage Twenty-Five with the engine bored out 5 mm. This was a car ranking with the world's outstanding luxury cars of that time, the chassis costing £1,800 in 1919. The engine had a bore and stroke of 85×150 mm., giving a capacity of 5,107 c.c., and as then raced on straight petrol, the compression ratio was 6 to 1. In 1928 Capt. Alastair Miller, who brought so many and varied cars to the Brooklands outer circuit, bought this, and a similar 6-litre car, from the Delage Company. He introduced them to Brooklands, the bigger car being known as Delage I. It would seem probable that Delage I had an engine based on that of the Type GL Delage, which was in production until 1927. At all events, the engine size of 95×140 mm. (5,952 c.c.) is the same. Both cars—in appearance they were identical—were raced quite extensively, gained a number of successes and suffered a certain amount of temperament. The compression ratio of Delage II was raised to 8.2 to 1, and to overcome valve gear trouble it was given a very elaborate system of forced-feed lubrication to the valve rockers by Thomson and Taylor. Delage II ultimately lapped at 121.47 m.p.h., whereas Delage I was only about 2½ m.p.h. faster in spite of its extra capacity of over three-quarters of a litre, its best race lap being timed at 123.89 m.p.h. Delage I went to Ireland in 1931 and is believed to have been burnt out in the 1934 Phœnix Park Race. Delage II, considerably modified from its Track form, still exists at Windsor Richards's garage, where we were recently able to examine it. Its first Brooklands race appears to have been the Founder's Gold Vase Handicap at the 1928 Whitsun Meeting, when "J. Taylor" won by 150 yards at 108.9 m.p.h. At the same meeting "Taylor" was second in the Lightning Short Handicap. At the August Meeting he retired in the 100-m.p.h. Short Handicap, which Miller won with Delage I at 109.61 m.p.h., but it came into its own again at the Autumn Meeting. "Taylor" had presented a special cup for a One Lap Sprint Handicap and ran himself with the Delage, dead-heating for first place with Bouts's 2-litre G.P. Sunbeam, at 101.84 m.p.h. This gives an excellent idea of the acceleration of the Delage, which started 8 secs. after the supercharged Sunbeam; it seems possible, too, that the average quoted is that of the Sunbeam and that the Delage went even faster. The best standing race lap of that time stood at 110.19 m.p.h., by Parry Thomas with the Leyland-Thomas. "Taylor" also won a five-lap handicap at one of the B.A.R.C. Evening Meetings, at the excellent speed, from scratch, of 114.75 m.p.h.

J. P. Turner drove the car at the 1929 Easter Meeting, and was third in the Founder's Gold Cup Race behind Froy in Delage I. Turner then won the 100 m.p.h. Long Handicap at 113.75 m.p.h. very easily, and finished second in the Lightning Long Handicap, starting 10 secs. behind Dunfee's Sunbeam and being 60 yards away at the finish, after Dunfee had pulled out 111.6 m.p.h. Leonard Headlam now bought Delage II from Turner, but was unfortunately killed while driving in another car to Brooklands to practise, and so it was a non-starter at the opening meeting of 1930. E. Fronteras then acquired the car and Turner returned to racing to drive it for him, while Fronteras himself and Ramponi all took turns to drive it in different races at the Easter Meeting of 1930, without success. It was even in for a Mountain race, but did not start.

Noel Gardiner acquired it next, but its racing days were over. The new owner getting married and finding a single-seater Track car of little use to him, the single-seater body was removed and a close-coupled two-door saloon body by Jensen's was fitted. In 1934, in this guise, this once 120-m.p.h. Delage came on the market, at £385. In February, 1936, John Lawson bought the car and thoroughly overhauled it, fitting new clutch, gearbox, propeller shaft and brake details. The compression ratio was lowered and an ugly 2-seater body was mated up to the scuttle, which had evidently been widened to accommodate the saloon body. Windsor Richards drove the car at Prescott and at Lewes and, with the engine virtually run-in and using very restrained throttle openings, he clocked 23.3 secs. at the latter venue. In 1938 the car was for sale at £210 and Windsor Richards bought it. Now it has been sold to Miss Romer.

The engine, unlike that of the V12, has its cylinders in one block. The valves are overhead, set vertically and transversely side by side, operation being by push-rods on the near side of the block. The valve rockers form a fairly wide V one to another, the shorter ones actuating the exhaust valves. The rockers are pivoted in elaborate bronze housings, each held to the head by three studs. The tappets are exposed at the base of the push-rods, and the rockers bear direct on both valves and push-rods. Possibly this is what gave rise to the afore-mentioned valve trouble, and very imposing lubrication arrangements were incorporated to feed oil to these points of contact and to the rocker pivot bearings. A galley pipe running along the offside has twelve off-take pipes for this purpose. The valves have double springs. A black cover of considerable dimensions, held down by three knurled nuts, encloses the valve mechanism. An interesting feature is that the sparking plugs, entering the head vertically on the inlet side, are well buried and require plug terminals like those one associates with a sleeve-valve engine. Moreover, before a plug can be changed, it is necessary to remove the valve cover, which, in turn, entails releasing and raising one end of the radiator tie-rod. This would obviously rule out the car for long-distance racing and, as Delage I actually ran in the 1930 500 Mile Race, until its special long-range fuel tank collapsed and fired the car, it would be interesting to know if it enjoyed the same plug location. According to Windsor Richards, in spite of the heat and the oil, the plugs gave no particular trouble in Delage II when he ran it. The crankshaft has extended balance webs and 2.2″ diameter big-end journals, and runs in four plain bearings. The connecting rods also have plain big- and little-end bearings. They constitute the weak feature of the engine, being of an I section inadequate to the power output and long stroke, albeit very light. They measure rather more than 12½″ in length and are unsafe above 3,600 r.p.m., and at Lewes one of them broke when this speed was exceeded. It will be recalled that the V12 Delage has tubular rods unsuited to high crankshaft speeds, and the 1925 2-litre V12 cars also experienced connecting rod troubles, which were not present in the 1½-litre G.P. Delage cars designed by M. Lory. At the front of the engine a cross-shaft drives a Bosch magneto on the off side and a water pump on the near side; there is provision for a belt-driven fan. On the off side are three Zenith Triple Diffuser carburetters fed by three electric pumps on the bulkhead, from three fuel tanks, one at the rear and two amidships in the chassis. There is a ½″ diameter balance pipe between the carburetters. Lubrication is on the dry sump system, with large bore external pipes set very low beneath the crankcase, taking lubricant to and from a 5-gallon oil tank neatly slung between the front dumb-irons, its sides recessed to clear the front shock absorbers. Two heavily ribbed plated oil coolers are mounted on the tank. We imagine that this tank was fitted by the person who turned the car into a saloon, but we incline to the view that the rocker feeds were put in earlier, for racing. The radiator is typically Delage, very massive, and with stone guard and quick-action filler cap. The chassis is No. 8392 and has Perrot-type front wheel brakes with somewhat unusual universals. Operation is by cable, *via* twin vacuum servos, which were fitted when the car

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POWER-WEIGHT

Some Observations on a Possible Future Development

HIGH speed performance and economy means streamlining, and streamlining means more weight, and more weight means less low speed performance and economy ; it is all very difficult.

The weight question can be met by light alloys and plastics, and there is no doubt that the war will have brought the commercial utility of both much nearer to the mass-production market ; but, even allowing for that, there will remain a sufficient number of problems to make it unlikely that we shall see much of either for some little time after the breakdown of hostile relationships.

The merits of lightness are the obvious ones of better acceleration and/or economy. The objections to plastics have so far been no more than the lack of development, and the war has overcome that. The necessary dies are, however, likely to put the extended use of plastics beyond the financial reach of any but mass-production manufactures for some considerable time. On the other hand, the remarkable development of certain rather secret, extra tough plastics may make it possible to use them for numerous stressed parts where metal has hitherto been considered essential.

The difficulties attendant upon light alloys are more numerous. Not the least lies in their expense, and while their widespread utilisation for belligerent purposes will doubtless reduce their cost, they will still inevitably be more expensive than iron and ordinary steel. Qualified authorities suggest an extra 10% as the likely financial penalty for building a car as much as possible of light alloys.

Aluminium alloys do not readily take to being put in a fire and straightened, should they be so unfortunate as to take a biff. It is therefore essential that any widely used alloy should not lose its tensile strength when heated and strengthened. Nickel-chrome steel and chrome-molybdenum are suitable for chassis and similarly stressed parts, but they are very expensive.

Noise conductivity is another serious drawback to the use of light alloys in motor-cars, though it is not, of course, a consideration in instruments of war. This increased conductivity can be met by careful insulation of the body from the chassis and engine, but this, again, all adds to the expense.

It will therefore be seen that the employment of light alloys in motor-cars is not " quite as easy as all that."

It is also remarkable how little practical data there is to go upon. Efforts to lighten the power unit go back to 1902, when the 1,000-kg. racing formula brought forth engines of immense size and lightness, though the actual power-weight ratio was poor. The modern use of aluminium in engines probably dates back to 1916, when the Marmon Company of America produced a car whose engine had an aluminium cylinder block and cast-iron liners. Pioneers in this country were Napier and A.C., while the last word lies with the Cross rotary engine, which has no liners at all, the special flexible type of piston ring keeping the pistons entirely out of contact with the alloy bores.

But of all light construction the only serious practical examples have been the German racing cars of 1934–9 and the dozen or so all-aluminium motor-cars made in America, to designs by Mr. Pomeroy, senior, during the early 1920's.

The design, as a whole, both of the German and Pomeroy cars was dealt with, from the light alloy angle, by Mr. Pomeroy, junior, in the *Motor* of September 3rd, 1941, so that there is no point in enlarging on either of them here.

What is interesting, however, is that the final Pomeroy machine, having a six-cylinder 4-litre engine and an 11′ 3″ wheelbase, was in all important respects what he himself described as " an aluminised and improved Packard Six." It is therefore possible to see by direct comparison what saving in weight was effected in different parts of the machine, and the data provided by the following, hitherto unpublished, table is an exceptionally interesting pointer to future possibilities.

	Aluminium Car	*Packard*
	lb.	lb.
Cylinder head ...	19	46
Cylinder block & liners	48	112
Pistons	6	9
Connecting rods ...	9	16
Frame...	102	220
Front axle & brakes...	140	200 (approx.)
	cwt.	cwt.
Complete chassis ...	16	23

The actual performance of the Pomeroy car was a good deal better than the normal Packard, partly because of its lightness and partly because of the additional power resulting from lighter reciprocating parts. But it had an unnecessarily heavy cast-aluminium body, bringing the overall weight to some 27½ cwt., and the power output was only 80 b.h.p., so that figures are not very illuminating, though it is creditable that the petrol consumption averaged 19 m.p.g. It is also noteworthy that all the cars—the six-cylinder ones in particular—covered mileages in excess of 50,000 in normal use, without exhibiting any signs of structural weakness.

The chassis weight figures do, however, suggest that it would be perfectly practicable to make a 2-litre, 9′ 3″ wheelbase, light-alloy-cum-plastic streamlined saloon motor-car with an overall weight of 17 or 18 cwt., as compared with the 24–25 cwt. which is now considered quite good. And even if the engine developed only 80 b.h.p. that would do to make it go quite some.

As to whether this saving will bring about the widespread use of light alloys and plastics in early post-war automobile manufacture anyone can have his own guess ; but it will certainly be interesting to see what happens.

DELAGE II—continued from page 254

was converted for road use. The front axle is of I section and the springs are half elliptic all round, shackled at the rear, those at the back being absolutely flat-set. There are two pairs of friction shock absorbers for the front axle, those ahead of the axle being slightly the smaller. The drive passes to a four-speed close-ratio gearbox and spiral bevel rear axle. Brake and gear levers are central and both have knobs, as anyone who knows the marque would expect, while the accelerator is right-hand. Big dial rev.-counter and speedometer grace the facia, reading to 4,000 r.p.m. and 120 m.p.h. respectively, and there is a thermometer and an oil gauge going to 100 lb./sq. in. The exhaust system is a beautiful piece of work, comprising six separate plated pipes with square flanges external beside the near side bonnet panel, merging into one large pipe. The tyres are 6.00″ × 21″ Dunlops on Rudge well-base wheels, with, we believe, two larger ones available for special conditions. There are also available six different final drive ratios, of which the present one gives about 30 m.p.h. per 1,000 r.p.m. in top gear, or a maximum of 105 m.p.h. at maximum safe engine speed. Two big Autoroche headlamps and two Lucas spotlights add to the frontal appearance of this stark 2-seater ; the starting handle is detachable. It is estimated that the power output was about 200 b.h.p. with the 8.2 to 1 compression ratio, or about 40 b.h.p. per litre. The weight is quoted as 23 cwt., which seems a fairly conservative estimate, although bonnet and body are notably light. Windsor Richards considers that, if new connecting rods were designed and if the compression ratio were raised to 10 to 1, which the piston and cylinder head layout permits, some 150 m.p.h. would be possible on the highest axle ratio. As the car must have done around 130 m.p.h. at Brooklands this seems a reasonable estimate, and Miss Romer should have some tough motoring to come, whether or not she carries out these modifications. Certainly, it is hard to believe that Delage II is 20 years old. Many spares, including a 3-litre cylinder block, are stored with the car. Windsor Richards's fabric-bodied " 30/98 " Vauxhall, which he told us about in his " Cars I Have Owned " article in October, stood beside the Delage, its two S.U. carburetters cunningly mounted on a cut-down and re-welded 4½-litre Bentley inlet manifold, and huge suction pipes running to twin Dewandre vacuum servo units, which, by means of a two-way tap in the cockpit, enabled powerful four- or rear-wheel braking to be enjoyed at will. Plenty of " 30/98 " spares were in evidence, too, including two almost complete O.E. type cars. Finally, Clive's blue 4-seater Morgan 4/4 ran very smoothly, steadily and with admirable urge in the course of the brief run we took in it.

RUMBLINGS

A Remarkable Tricycle

Several times recently we have referred to Holland Birkett's Raleigh-cum-Austin Seven tricycle, and having now covered a considerable mileage in its passenger's seat we have come to the conclusion that it is a quite outstanding contrivance. Although it naturally used its supply of basic petrol up to the end of October, to obtain this extra ration was not its constructor-owner's main intention. He had, in fact, several aims in mind when he started work. In the first place, he rather objected to paying £20 a year away in taxation just to run two of almost the smallest vehicles available for business use. Secondly, he has great faith in anything Austin Seven, but knew full well that to get decent performance from this little engine demands very lightweight construction of the remaining components. Thirdly, he wanted to be able to tow a trailer or a broken-down car with his utility vehicle. And so the plot of mating Raleigh and Austin Seven was devised. A contemporary has referred to him as a genius in connection therewith, and when we reflect that he built the car in ten weeks or thereabouts from the word "go," in what spare time he had away from his veterinary surgeon's practice, without recourse to his own lathe or welding plant, we have no desire to contradict this verdict. We will not go into the technicalities of this £5 tax, 60-m.p.h., 50-m.p.g., 8-cwt. car here, as we hope shortly to publish something about it written by Birkett himself. But we will mention that it has been a success from the start and remarkably free from teething troubles. It is really stable, both on fast main-road bends and corners and when flung about in cambered, rutted lanes or on mud and slime. It will carry four at a pinch and three in reasonable comfort, and rides most comfortably—far more so than many four-wheelers we wot of over appalling unevennesses, such as the Sunningdale level-crossing. The Austin engine is a four-speed unit, with Whatmough alloy head and high-lift camshaft, which has made light work of towing a 22½-cwt. car, plus two persons, at 20–30 m.p.h. with one plug oiled up. The body is a triumph of amateur construction; a low c.g. is obtained by using a rear fuel tank with autovac feed from a Lancia "Lambda," and all three brakes are coupled. Steering rake, brake and gear levers and exhaust system all conform to sports car standards, and there is a neat hood and tonneau cover. One cannot but feel sound satisfaction at the results achieved, and come to the conclusion that here is the basis for an after-the-war utility-car design. Not that Birkett contemplates going into production. But he will probably give the four-wheeler fraternity eager battle in future trials.

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A Czechoslovakian

Readers of the weekly motoring Press have raised recently the problem of what sort of a car is the Aero, so details of this Czechoslovakian production would seem to be called for. Recently we were able to inspect a Type 50 Aero and to study the makers' handbook covering both this and the smaller Type 30, all of which enables us to write intelligently of this interesting front-drive car, built at Prague and notable for the use of a quite large two-stroke engine. The Type 50 has, in fact, a four-cylinder two-stroke engine of 85×88 mm. (1,996 c.c.), rated at 18 h.p. in this country and said to develop 45 b.h.p. at 3,200 r.p.m. The cylinder head is of aluminium alloy, ignition is by twin coils, and a rather spidery fan layout and a pump look after cooling, the fan being boxed-in to the radiator. Indeed, cooling is altogether rather thorough, the radiator holding 9¾ litres of water and the engine 8¼ litres, while the plumbing is quite remarkable. The three-speed gearbox has umbrella-handle control and the front suspension comprises a transverse leaf spring carrying the front drive connections. Rear suspension consists of side-by-side transverse leaf springs, all wheels thus being sprung independently. A cylindrical fuel tank under the bonnet has a capacity of 4.6 litres, with 5 litres in reserve, and two exhaust pipes on the near side are disposed as a V, converging on a single exhaust pipe. Artillery wheels carry Bata 5.75″×16″ tyres and there is a 6-volt 60-a.h. battery beside the engine on the near side, so located that, while it is nicely accessible for topping up, the front wheel has to be removed before it can be drawn out *via* an opening in the wing valance. The catalogue gives the weight of the chassis as 780 kg. and that of the 2-seater and "limousine" as 950 kg. and 1,050 kg., respectively. It likewise quotes a maximum speed of 68 to 75 m.p.h. and a fuel consumption of around 20 m.p.g. Two-stroke enthusiasts should, we feel, regard this car with interest. As far as could be ascertained, the engine uses crankcase compression, with deflector top pistons. The car we inspected had a drophead coupé body constructed in typically Continental style. The instrument panel is quite simply arranged, with an oil gauge and combined ammeter, clock and speedometer before the driver, the drive being left hand. This particular car escaped during the invasion, was licensed in this country and was in regular use up to about a year ago; its lady owner, incidentally, would, we understand, accept for it a sum in the region of £150—letters of enquiry can be forwarded. From the instruction book we deduced that the Type 30 is a two-cylinder two-stroke of half the size of the Type 50, *i.e.*, 998.7 c.c. It is said to give 25½ b.h.p. at 3,200 r.p.m. and, with 5.25″×16″ tyres, the chassis weight is given as 630 kg. The speed is quoted as just over 62 m.p.h. and the consumption of essence as approximately 28 m.p.g. That, then, is the Czechoslovakian Aero, and it is rather interesting.

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A Rare Mercedes

Shortly before inspecting the Aero we were able to obtain details of another rare car about which not much is generally known, albeit one in a very different category. The car in question is none other than that 2-litre supercharged straight-eight Mercédès racing car on which the Hon. Dorothy Paget once spent a tidy sum of money with no better reward than that the car languished for ten years at T. and T.'s, until purchased by the present owner. Actually, it is rather more interesting than that, for Raymond Mays drove the car at Brooklands in 1927 and lapped at

116.91 m.p.h., covering the half mile at nearly 130 m.p.h., and Sir Henry Birkin took it round the Mountain. Why, then, did it languish in disuse from 1931, when Lady Dorothy Paget acquired it (MOTOR SPORT, March, 1931), until the war? The reason is that it was an extremely dangerous piece of machinery. It seems that three of these cars were built to Dr. Porsche's designs, and that two of them were destroyed when they crashed, killing their drivers in each case. Mays has reported finding the car he drove all but unmanageable on Brooklands, and the only thing he achieved with it was second place in a 100-m.p.h. Long Handicap at the Autumn B.A.R.C. Meeting of 1927, when Eyston's 1½-litre G.P. Bugatti, starting with it, beat it by 250 yards. Why did Dr. Porsche make such an undriveable car? Only recently has the explanation come to light. It seems that these cars were built in 1924 for sprint events, in which the suspension could be locked up almost solid. Indeed, the rear suspension hardly works at all, and Mays has remarked on the hard springing, which caused the car to leap all over the track. The front suspension is actually very reasonably flexible, but, unfortunately, axle movement alters the steering castor and, due to bad layout of the steering connections, sets up immense movement on the steering wheel. In a long race, either the suspension required to be so tightened up that the car would not steer or else it gradually slackened off until the unfortunate driver was suddenly confronted with steering reactions he was quite unable to control. This apparently happened when the cars ran in the French and Spanish Grand Prix races of 1924, as recounted by Laurence Pomeroy in his "Evolution of the Racing Car" article published in last month's issue, and later led to the unhappy accidents aforementioned, Zborowski being killed at Monza. Apart from this chassis weakness, this Mercédès is a very outstanding car. If it could achieve 130 m.p.h. at Brooklands with such rigid springing that wheel grip must have been at a premium, it obviously has an extremely exciting potential performance. Pomeroy quotes its output as 170 b.h.p. at 7,000 r.p.m., with an absolutely straight power "curve" from 3,000 r.p.m. upwards. Mays seems to have found the pick-up poor from low speeds, but doubtless the present large S.U. carburetter has altered all that. The weight has been quoted recently as 19 cwt., but we have it on good authority that, as a chassis, there is actually 650 lb. on the front wheels and 550 lb. on the back wheels, or under 11 cwt. The engine obviously owes something to Mercédès aero-engine design of the last war, and it is set noticeably well back in the frame, the front dumb-irons being very long. It has twin o.h. camshafts and a beautifully constructed, fully balanced crankshaft. Main, big-end and little-end bearings are all of split-roller type, similar to those on recent G.P. Mercédès-Benz cars. The supercharger is a large four-lobe Roots blower at the rear of the engine, protruding into the cockpit and very reminiscent of the Zoller-E.R.A. The carburetter is on the near side and the long delivery pipe on the opposite side. A Bosch magneto mounted above the blower supplies single plugs per cylinder, set vertically in the heads between the flat-topped camshaft covers—Mays oiled plugs on the line in his first race with the car. The crankcase and separate cylinders suggest the aero-engine influence and the sump is a box-like construction beneath. The excellent detail work does Stuttgart great credit—such matters, for instance, as a rib in the flange of the crankcase to accommodate a pipe running to an oil cooler that was fitted at one time, and the ingenious screw-pattern advance and retard control. Reverting to the chassis, and remembering that the vintage of the car is 1924, it is interesting to find the side members boxed-in, along the front dumb-irons in the region of the radiator and by the gearbox. At the rear the side members sweep sharply upwards and the track is quite wide. The front brake assembly and axle pivots are typically Mercédès, and the steering box is mounted on the off side side member. The radiator carries the Mercédès star badges and is just slightly pointed, but it is of unusual shape, nevertheless, and set very far back. The gearbox is, we believe, three-speed and is controlled by a central lever, while the hand brake comprises a long lever, with normal clasp ratchet control, outside the chassis side member. Some attempt was apparently made by T. and T.'s to cure the car's dangerous habits, for a T.N.T. steering damper had been fitted, together with outsize front shock absorbers. The new owner intends to do the job thoroughly by using properly laid out radius arms to keep the steering pivots upright for the full travel of the axle, and he would dearly like to know why the obvious cause of all the trouble apparently escaped not only Ken Taylor, but Dr. Porsche himself. The engine was filled with inhibitor when the car was first stored, and this was drained out and a short run undertaken quite recently. It is the owner's intention to strip the engine and blower down after the war and to rebuild the car carefully for what racing is then to be had—when modern as well as vintage machinery may well learn to fear and respect this 1924 Mercédès. Please note that this particular car is *not* for sale!

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Assistance Wanted!

The war is getting a move on in a truly satisfactory manner., But it will not finish to-morrow. We sincerely hope that it will be possible to continue to publish MOTOR SPORT in its present form until peace returns. But the prospect is no rosy one. The Editor is increasingly busy on M.A.P. duties and the stock of stand-by MSS. is rapidly diminishing. Therefore, may we appeal for voluntary contributions to help maintain the size of this paper and enthusiasm for the Sport during the trying times which still remain to be faced? Articles on any relevant subject are welcome and we can cope with matter in longhand on both sides of the paper. Further "Cars I Have Owned" accounts, descriptions of "specials," of veterans, of rebuilt sports cars, considerations of future trials and racing policy, reminiscences of notable drives, experiences and competition successes, etc., all are welcome. MSS. not acceptable will be promptly returned; any that is retained will be used as soon as space is available. On that note we will conclude, thanking the many who have enabled us to keep MOTOR SPORT going so successfully since war engulfed us, and wishing all our readers—at Home and Overseas, in the Services or on the Home Front—a very seasonable Christmas and a more prosperous New Year.

Club News

WE HEAR . . . .

Robert Waddy was in fine form last month and full of ideas for another special and for hydro-pneumatic suspension after the war. Dick Caesar still has a 3-litre Invicta tourer for sale. His special 6½-litre Bentley and Edwardian Belsize are stored for the duration and he motors in two "12/60" Alvis cars, a 4-seater and a saloon. His scheme, propounded in this paper some time ago, for the manufacture of a sound sports car by a group of enthusiasts after the war is by no means shelved. Incidentally, he also has a "special," consisting of an "Aero" Morgan with B.S.A. rear end, but the Freikaiserwagen, Kaiserwagen and Alfi-Capa were sold before the war.

Robin Jackson is now engaged on important aero-engine work in America, and Fl/Lt. Robin Hanson has been awarded the D.F.C. for successful attacks on enemy submarines with Cata-Hurricanes. The Anzani-engined G.N. Special "Red Biddy" is rumoured to be for sale in Bristol, but we do not know where. Bertie Gilmore has laid up his Lancia "Astura" in Scotland and goes about by grace of a D.K.W. when not toiling for A.T.A. L. T. Ellis would like to hear of a Frazer-Nash for sale, not earlier than 1931, to use on official journeys and sound enough to "see this war out." Back in 1926 he owned, at the same time, a Gwynne Eight and an "8/18" Talbot, and adds words of praise for both these early small cars. Denis MacLagen, who, incidentally, has sold his Morgan, reminds us that H.M.V. market a very entertaining gramophone record of "Motor-Car Noises" (H.M.V. No. E 574), so if anyone wants to recapture the aural joys of racing cars leaving the line, there it is. Pratley has re-acquired his 1928 "Chummy" Austin Seven, and his o.h.v. J.A.P. "Aero" Morgan is, or was, for disposal at £15. News comes in that R. Johnson Ferguson, who used to motor his immaculate s.v. Aston-Martin down from Scotland to Brooklands to compete in M.C.C. and J.C.C. High-Speed Trials, is now a Captain in the Royal Artillery and was in Tobruk during the siege. H. L. Biggs is recovering but slowly from a severe illness, but is able to drive his "500" Fiat, which still gives 45 m.p.g. He is contemplating putting the compression ratio up to 8 to 1, fitting 14-mm. plugs and using a 26-mm. S.U. carburetter on a new manifold, just to see what will happen. Motor-cycling goes on apace. Sydney Allard rides a 250-c.c. O.K. Supreme, Reg Canham, who often went with him on trials, a 98-c.c. Villiers-engined Coventry Eagle, while Leslie Allard has a 1939 600-c.c. Ariel side-valve sidecar outfit. Someone in the West Country wants to exchange a Riley "Kestrel" pre-selector saloon for an open sports Riley, and Grosscurth would be glad to hear of any interesting vintage sports cars for sale, particularly 3-litre Sunbeams. The Editor hopes to save a 1910 16-h.p. Brasier from the breaker's hammer; do any others of the marque still exist in this country? There is an early "12/50" Alvis coupé going for around £15, in London, if anyone wants to save one of these well-esteemed vintage motor-cars; it has had a rebore and is decently shod, but seems to have the old propeller shaft. Writing of Alvis reminds us that George Foxlee uses a 1931 coil-ignition "12/50" very sober-looking 2-seater as a hack on considerable journeys of no less considerable national moment. This carriage is very happy at 50 m.p.h., slides corners very effectively, has a really quiet engine, goes 29 miles to a gallon of puddle and thrives on caravan towing. George also has his very special "12/50" 2-seater in storage under a protective layer of dust and, as he intends to do some more work on it and as it is now quite indecently fast for a vintage 1½-litre, we may expect it to well uphold vintage traditions in the peace. Foxlee also has various Alvis spares and an H.R.D. motor-bicycle. "The Spinner," organ of the Scuderia Chemvamo, is amongst the club publications to suffer at the hands of the new paper-saving order, but MacLagen hopes to send out a series of news-letters to members of this Scuderia. The 1910 26-h.p. Leon-Bollée which we described in the March, 1942, issue travelled very silently and successfully from Stockport to Hayfield, a distance of 14 miles, before being laid up for the duration. The Editor of MOTOR SPORT wrote an article on petrol-engined model racing cars for the November issue of *The Aero Modeller*. D. A. Russell of that paper has completed a one-fifth scale model of his own S.S., measuring 26" in length and powered with a 10-c.c. engine, which he hopes will achieve 60 m.p.h. Peter Hooker, Ltd., makers of the engines used in certain cars which had Parry Thomas's blessing, appear to have gone out of business.

J.C.C.

The Junior Car Club continues to issue its "Gazette" quarterly and thus manages to keep in touch with its extensive membership. It also holds regular Council luncheons, with a view to keeping close contact with those who will be essential to the organising side of the Sport after the war. Recent guests at these meetings have included Major S. C. H. Davis, Lieut.-Col. A. T. G. Gardiner, Capt. the Hon. Freddie Clifford, Laurence Pomeroy, Dudley Noble, W. E. Humphries, J. A. Masters, A. G. Reynolds and Major Bale. The war-time subscription is £1 per annum, or 5/- for those wishing to receive the "Gazette" but not running a car. The September "Gazette" contains an account of the origin of the famous J.C.C. "Double Twelve." Hon. Sec.: H. J. Morgan, 14, Lime Grove, Ruislip, Middlesex (Pinner 3693).

★

750 CLUB

The go-ahead 750 Club was not, after all, able to hold a Zoo gathering on November 1st, but S. H. Capon hopes to organise further meetings in the near future. The Club also intends to continue with its "Bulletin," being unaffected by the new paper-saving order. H. Birkett will act as editor.

★

ENTHUSIASTS' CAR CLUB

Regular meetings on the first Sunday in each month are still a feature of the Enthusiasts' Car Club and are announced in the weekly motoring Press. At a recent Sunday gathering that favourite topic of discussion, "Vintage *versus* Modern," was debated. It is proposed to appoint a Southern representative to commence action in the Southern counties, and the issue of membership cards and buttonhole badges is under review, although the Club is, of course, run as a

The Anzani-G.N. "Red Biddy" is reputed to be for sale in the West. It is here seen at Lewes, conveniently placed for attention to some transmission vagaries

STAMFORD BRIDGE CLUB'S "AU REVOIR" TRAINING SCRAMBLE

BAGSHOT HEATH was the scene of much activity on October 18th, when the Stamford Bridge Motor Cycle Club staged their "Au Revoir" Scramble around the usual Red Road Course. With an entry of just on 60, the event proved how keen the Army, H.G., A.F.S. and C.D. (to whom the racing was restricted) were to be "trained" in the gentle art of rapid cross-country motoring.

There were three main events, for 250-c.c., 350-c.c. and "Unlimited" classes—the latter two being divided into "Expert" and "Novice" groups, with a separate event for each.

Graham Berry, the Army expert, walked away with the first race on his "250" Matchless, the eight laps being covered in 29 minutes. Second came Ted Wilmot (New Imperial) and third R. J. A. Petty (Triumph). Robertson, whose riding looked promising at the outset, retired with a seized engine.

Next came the 350-c.c. Novice event, a rather dull affair, notable only for the polished performance of R. E. Hankins on an Archer-tuned Velocette. The second man home was C. E. May and B. L. Matterson secured third place, close behind.

The Experts provided much better fare and, after a little jostling for the lead, Berry was seen to be drawing ahead nicely. Wilmot, troubled with a slipping clutch, was far behind, but as the race progressed so did his clutch complaint diminish, and he crossed the finishing line a bare 10 yards astern of Berry's Triumph. Third was G. F. Robertson, this time on a Triumph, but again suffering from impending seizure.

The "Unlimited" Novice Race followed, and H. Brown evidently decided that he wasn't coming all the way up from Bristol for anything less than first place—and sure enough his Tiger "100" crossed the line well ahead of Major M. W. Head's "350" B.S.A. H. Talbot collected third place, and the rest of the field was virtually nowhere.

Finally, the Experts lined up for their 10 laps, and S. H. Ford jumped ahead at the fall of the flag. Berry was soon in the lead, however, but was somewhat shaken to see Wilmot's "350" A.J.S. slip by at the end of the second lap. Berry's Triumph handled beautifully over the bumps and he repassed Wilmot almost at once—only to be passed again half a mile later. A fine scrap seemed inevitable, but Berry suddenly found his steering damper inoperative and decided to come in at the end of the third lap. This let Wilmot go ahead to gain an easy victory, the second and third places being taken by Herbert Addie ("500" Rudge) and S. H. Ford ("350" Triumph).

And so ended the last of a long and famous line of Bagshot Scrambles. Red Road will probably witness neither fun nor games for quite a while.

R. G. V. V.

CLUB NEWS—continued from page 258

spare-time occupation by persons already fully engaged in finishing the war quickly. Members are asked to send the secretary a postcard outlining where their interests lie, and it is hoped to hold film shows and lectures at future gatherings. The "Bulletin" will presumably continue at intervals. The subscription is 5/- per annum. Hon. Sec.: D. L. Gandhi, 134, Heaton Moor Road, Stockport, Cheshire.

★

I.A.E.

The Institution of Automobile Engineers continues to hold meetings at which papers are read at various centres and to issue its "Journal" in "utility" guise.

★

OBITUARY

It is with deep regret that we learn of the passing of Mrs. L. Goold within a few days of undergoing a serious operation. Mrs. Goold was Secretary of the Women's Automobile and Sports Association and worked extremely hard to put competition motoring on the sportswoman's map. Trials competitors will remember W.A.S.A. events with more than usual pleasure and will be the first to admit that these events of feminine conception were by no means any less severe than those organised by other clubs. Nor were cars handled in invitation events by members of the W.A.S.A. to be in any way underrated. The success of the Association and of its events was very largely due to sheer hard labour on Mrs. Goold's part. We can only hope that in the days to come someone else will carry on equally successfully and, incidentally, thereby do much to convince the public that women who drive cars in competitions are no less respectable than those who compete on a level with men in other healthy pastimes.

★ *Book Reviews*

Elements of Automobile Engineering. By MAURICE PLATT. (Pitman's.) 5/-.

Described on its title page as "a general introduction to automobile engineering for students," this little book must certainly be classed as one of the best of its kind.

To many readers its great merit will lie in the fact that it is not entirely an introduction; rather does it assume a reasonable knowledge of the general principles of the subject, the result being that the essential matter is not hopelessly buried amidst masses of elementary theory. In particular, it is one of the few books on the subject which does *not* devote valuable space to explanation of the four-stroke cycle.

Despite its assumption that the reader has some knowledge of the fundamentals of automobile engineering, the book is unusually comprehensive in scope.

Dealing with first things first, the author considers just what the basic requirements of a car are, in terms of space required for driver and passengers. An important matter, which is apt to be overlooked: streamlining would be far easier if all drivers were as tolerant in regard to driving positions as John Bolster seems to be!

The framework of the car is studied in some detail, modern stressed-body layouts receiving their full share of attention, then the necessary means for propelling and stopping the car. Finally, modern ideas on the refinements of steering and suspension, using these terms in their broadest senses, are summarised.

The book is generously illustrated, and, like the text, the illustrations are up to date. They deal in virtually every case with cars which were on the market at the outbreak of war and are fully representative of popular British practice.

In conclusion, I may say that, having borrowed the review copy, I read it from cover to cover at one sitting and have now ordered a copy to keep for myself.

J. L.

Sea Fliers. By C. G. GREY. (Faber and Faber.) 7/6.

If all history books could be as interesting and easy to read as the one which Charles Grey, until recently Editor of *The Aeroplane*, has written and which Faber and Faber have just published, we would seriously contemplate going back to school when our war work is completed. Grey has given us those two most absorbing and instructive books "British Fighter Planes" and "Bombers," and now he has written a similar work on the history and material of the Naval Air Service, Coastal Command and the Fleet Air Arm, as they developed from the old Royal Naval Air Service founded just before the last war. This book is rather more of a history and less of a text-book than the sister works, but there are plenty of technicalities for all that and data on our own sea-flying craft and those of America. Airship matters are also dealt with comprehensively and personalities are sketched fully and accurately as only C.G.G. can do it. Indeed, it is the C.G.G. approach and handling which makes "Sea Fliers" so entertaining to read. It is treated by the publishers rather as any other history book for the people, with frequent heading references and indexed chapters, but perhaps Faber and Faber are right, for at the end the author states that the purpose of the book is to tell people what they ought to know, so that they may have a solid background for their knowledge of, and interest in, air affairs. After all, bound volumes of *The Aeroplane* and *All the World's Air-*

Continued on page 248

Letters from Readers

Sir,

Intrigued by the glowing (? ? ?) press notice on page 186 for September, 1942, I deliberately went out of my way to see the epic "Blonde Comet." I have a few criticisms to make on the aforesaid press notice.

E.S.T. says "It is very short." The version I saw took over one hour.

E.S.T. correctly describes the film as starting with "newspaper headlines," but omits to mention some quite good shots of Mercédès, Auto-Unions and G.P. Alfas performing at Monaco, Tripoli (Grandstand Straight and Mellaha Corner), Donington (Maclean's Corner, Fred Craner's Corner, Melbourne Hairpin, "the straight," and the famous "leap" just at the crest of the hill before the pits), and on a circuit which from the pinewoods I assume to be the Nurburg Ring. I admit that these are interspersed with comic announcers and so on, but are clearly recognisable as the "real thing."

This first five minutes is worth the entrance money.

Then E.S.T. says that the 100 mile event at Ascot "changes to 500 miles." He must have seen a very much "cut" version, as in the one I saw the heroine wins the Ascot "100" (although you don't find out until later on in the film), and then they go to the Oakland "500," which the hero wins (making them "one each").

I agree with the rest of E.S.T.'s report, except that some of the newsreel crashes must have been expurgated since he saw the film, as I only saw five. (The radio commentator thinks Indianapolis is one lap to the mile!!!)

It is quite clear that the film has been composed of "bits and pieces," but the general atmosphere reminds one strongly of pre-war racing days, and the first few minutes are the goods.

Congratulations on the way MOTOR SPORT is keeping up to scratch.

I am, Yours etc.,

Bradford. LESLIE MEE.

* * *

Sir,

I received a few days ago MOTOR SPORT for April, and was particularly interested in a small paragraph in "Rumblings," entitled "Headlines, Mr. Printer!" You say Capt. Crickmay, R.A.S.C., won the 1929 75-m.p.h. Easter Short Handicap in an R.L.B. Aston-Martin-engined Special at 77.66 m.p.h.

It seems possible that this may be my car, which I have stored away at the present time, and, if so, I would like any particulars you may know about it, or any of Capt. Crickmay's experiences.

My car has R.B. (not R.L.B.) on the radiator and camshaft cover, and in my log book it states: "Aston-Martin Engine No. 1, Chassis No. 1, Type No. 1," and is actually the first o.h.c. Aston-Martin to be made.

Certain Enfield Allday parts were used, as Mr. Bertelli, of Aston-Martin's, had worked there. The following parts are of Enfield Allday manufacture: crankshaft, gearbox, back axle and chassis. The bore and stroke are the same as the 10-h.p. Enfield Allday (63.5×117.5 mm., 1,488 c.c., R.A.C. rating 10 h.p.). The head, valve gear, block, cooling system and front axle are Aston-Martin design. The registration number is O.N.6638.

The car was first licensed by Renwick and Bertelli ("The R.B.") on May 13th, 1926, and was sold to a Mr. R. J. Sully, of Caversham, on July 25th, 1930, but was not relicensed after 1926 until 1932, when it was owned by a Mr. J. B. Plant, of Guildford.

LETTERS FROM READERS

—continued

I have been unable to trace its history between when Bertelli used it until Mr. Sully bought it in 1930, and so I hoped that Capt. Crickmay might be able to complete its long and interesting history for me.

I bought the car a year before the war and spent a great deal of time working on it. I cured nearly all its troubles except the carburation. I wonder if Capt. Crickmay could give me any particulars of the kind of carburetter it had when he used it. It is now fitted with an S.U.

If this is Capt. Crickmay's car I should be very pleased if you would send this letter on to him and would like to hear about any of his experiences with it, and any mechanical points of interest; also if he knows of any spares? And any performance figures he may have.

In a country where there is no good motoring, I appreciate MOTOR SPORT still more than I did in England.

I am, Yours etc.,
I. M. ADAMS, Spr., R.E.

By Air Mail from M.E.F.

[Perhaps Capt. Crickmay or Mr. Sully, who used to race an H.E. in the early 1920's, can give some additional information. Certainly this would seem to be the first Bertelli-Aston.—Ed.]

* * *

Sir,

My congratulations on maintaining the excellence of this paper despite steadily increasing difficulties. I think the October issue is one of the most interesting I have ever seen, and I am looking forward to the continuation of Mr. Pomeroy's article.

I see that Mr. Clutton refers to the 1920 400-c.c. A.B.C. in his article. There is a 1920 or 1921 model of this type, in apparently good condition, under cover in a local scrap dealer's store; I don't know whether anyone is interested.

I still run my Type 40 Bugatti on duty and have used a 1924 350-c.c. Royal Enfield on leave. This machine has a J.A.P. engine, complete with petrol cock and valve caps, also acetylene lighting, and causes considerable mirth amongst the passers-by, but goes quite well. The snags are appalling vibration, which sometimes stops my shake-proof watch, and an undamped front fork, which necessitates considerable determination not to get thrown off on rough roads.

Fishenden's International-type Aston-Martin (the one which you reported some while ago as being "found" in a field at Swanage) is still running well, but has left the district. In fact, there seems a great shortage of enthusiasts round here now.

I am, Yours etc.,
R.E. J. DE WAELE, Capt.

* * *

Sir,

My brother has been a regular subscriber to MOTOR SPORT for years and I always read it with interest. My own view is that its interest has increased a hundredfold since the war; long may it continue to brighten our lives.

Like many others, I had to cease motoring on four wheels last June when a very good Riley was put into storage. Two wheels kept me on the road until now, but that, too, has come to an end. My previous experience of motor-cycles was confined to a 172-c.c. Francis-Barnett in 1929 and to W.D. models since 1939. In July last I bought a 1932 557-c.c. model S.B. Ariel from a careful owner, who had had it for nine years. It is in magnificent order and is modern in appearance. From the performance point of view it is not fast, but its charm lies in the ease with which it performs; it is now carefully stored. I have very recently bought a 1919 Rudge Multi, which has not been licensed since September, 1925, and is in good order. Everything works, but I confess I am a bit ignorant about it. Has anyone had experience of the model? I should be most grateful for the gift, sale or loan of an instruction book, if such a thing exists. The Rudge has joined the others in storage.

Incidentally, the "Cars I Have Owned" series is most interesting. There is one thing which irritates me about most of the owners, and that is the callous way in which they drive their cars. They find a well-preserved touring motor-car, buy it and proceed to cane it until it falls to pieces or blows up. Surely a good car should be driven with respect not abandon.

There are exceptions, of course, and we owe a lot to them. But far too many good cars find an early grave because they had the misfortune to be found by some so-called enthusiast. The type should, in my opinion, be confined to racing cars and V8's with bodies that have reached the "rough" stage. No one finds a greater enjoyment in motoring than I do, and have done during the last 13 years, but I have yet to run a big-end or have a motor blow up; if that happened to me I should blame myself as a bad driver. I will further confess that I like cruising at 30–40 m.p.h. and insist on spit and polish in my cars and (now) motor-cycles.

To avoid the missiles and cries of "Blimp," I will say no more, except long live MOTOR SPORT.

I am, Yours etc.,
J. M. B. DOVE, Major.
109 Field Regiment, R.A.

* * *

Sir,

Many thanks for the July issue, which I have just received. I must congratulate you on keeping up such a high standard, and can assure you that my copy always receives quite a wide distribution. You may be interested to know that I have seen the following lately and all were in good health: Peter Whitehead; Alexander, who drove an S.S.; and Doc Taylor, of C.A.P.A.; also Paul Bird, of the E.R.A. Club.

Best wishes for the future.

I am, Yours etc.,
K. J. WALLACE, Capt.

By airgraph from the
Middle East.

* * *

Sir,

It is with very great interest that I have read of the "Specials" and cars that have been built or reconstructed by enthusiasts in MOTOR SPORT. Perhaps some of your readers would like particulars of a "Special" I built some three years ago. I have in the past stripped and rebuilt several cars, and after much thought and preparation I decided to build a car that would incorporate features which standard cars

READERS' SALES AND WANTS

To meet the repeated demands for something on the lines of the old Spare Parts Announcements, we have instituted a system of inexpensive advertisements. Each announcement must be limited to **twelve** words, plus the advertiser's sufficient postal address, and the charge will be 1s. 6d. per announcement, payable at time of posting. The system will be governed by the following rules:—

(1) Each announcement to cost 1s. 6d. and be limited to twelve words and the advertiser's address. Box Numbers cannot be used.

(2) The publishers accept no responsibility for loss of advertisements, non-publication, late publication, or incorrect wording, but will endeavour to insert announcements in the next issue, if posted within eight days of the publication of the previous issue.

(3) No advertiser may submit more than **two** announcements per issue and each must apply to a separate article. Only spares for sale, spares or cars wanted, or **really cheap** cars for sale, should be announced. Prices should normally be quoted.

(4) The proprietors of MOTOR SPORT offer this scheme for the mutual benefit of enthusiasts and can take no responsibility of any sort whatsoever. All transactions must be made to the published addresses and no correspondence can be entered into in respect of announcements, transactions or any other matters arising from the scheme.

(5) Announcements should be sent within eight days of the publication of the current issue of MOTOR SPORT, accompanied by stamps or crossed postal orders to the required amount. Cheques or coin cannot be accepted.

FOR SALE

MORGAN Aero, 1,100 o.h.v. Summit engine. Taxed, delivered within 100 miles. £15. Lowrey, 44, Canterbury Road, Farnborough, Hants.

MORGAN J.A.P. s.v. engine, clutch, magneto, carburetter. £5. Exchange air-cooled tricycle. Lowrey, 44, Canterbury Road, Farnborough, Hants.

TYPE 40 Bugatti engine, dismantled, rods and camshaft poor, rest good. 70/-. Salmon, 177a, High Street, Beckenham.

TYPE 40 Radiator and gearbox, first and second poor, bearings good. 30/-. Salmon, 177a, High Street, Beckenham.

Spares Section,

MOTOR SPORT,
21, CITY ROAD,
LONDON, E.C.1

LETTERS FROM READERS

—continued

lacked. This new "Special" was the second attempt I had made—the first was a rear-engined car, powered by an Austin Seven engine and gearbox. The lack of funds for a suitable body prevented this car from running on the road, and the second "Special" was the next venture. This new design was to provide economical and sporting motoring; a low horse-power, and chassis to take a fair-sized open 2-seater body, with provision for an occasional extra passenger.

For years I have been a twin-cylinder enthusiast and I came to the conclusion that the Jowett horizontally opposed engine was the ideal unit for such a car. Therefore, after a little searching, I bought a 1933 Jowett oversize van. The body I scrapped—the whole chassis was then dismantled and from the chassis frame the new car began. On dismantling the engine the cylinders were found to be in very good condition, but had been re-bored 60 thou. oversize. The crank I had reground and big-ends and mains re-metalled. Oversize gudgeon pins and Wellworthy Simplex and rings were fitted, new valve guides, valves and springs, etc.; the dynamo and starter were reconditioned and new distributor gears fitted. The clutch was relined; the gearbox was found to need no attention or renewal. Next came the chassis. Each spring was taken to pieces and cleaned and lubricant put between each leaf, new Silentbloc bushes and shackles were then fitted, larger Luvax shock absorbers took the place of the previous smaller ones, the front axle received a complete rebuild, including wheel bearings; the rear axle was stripped and another crown wheel and pinion (giving a higher ratio) installed. Wire wheels from an earlier Jowett were put on instead of the artillery type, and Austin 12-h.p. wheel nuts were found to fit the Jowett studs.

After the chassis was completed came the question: What body, what type and of what make? Here indeed was a problem. The Jowett chassis had not been shortened and for a 7-h.p. car was of considerable size—wheelbase 8′ 6½″. From memories of a previous car I had owned, I thought that a body from a Rover Nine or Ten would fit, and this type of body was the one I had in mind, shaped rather like a boat and very sleek and advanced for its time, whilst the absence of wheel arches made it very adaptable to give clearance for the rear wheels.

I wrote to Messrs. Avon bodies for further particulars, but unfortunately the business had changed ownership and previous records were not available. Advertising for such a body or complete car brought no results, and many were the letters that passed between a well-known dealer in bodies and myself in the quest for a suitable type.

Readers can no doubt imagine my feelings when I heard of a complete Rover lying in a yard at Bilston; there I rushed, armed with rule and tapes and chassis drawings, and began measuring up. This car was a 1927 Rover 9-h.p. and fitted with the type of body I have previously described and made of aluminium. The whole car was in exceptional condition and in running order, and £5 soon changed hands and the "find" was towed home. The body was soon removed and placed on the Jowett chassis; this brought some remarkable details to light. Although there was six years difference in the ages of the two cars both were identical in wheelbase; wheels and tyres, too, were interchangeable, width of chassis frames at the scuttle was also the same, even the Jowett exhaust pipe over the rear axle was identical to the mark underneath the body made by the Rover exhaust. By putting the body forward 6″ the tail cleared the rear wheels, giving them 3″ clearance. The radiator block of the Rover was scrapped and a new block made incorporating Jowett connections, also a tunnel for the starting handle. A new chassis cross member, 6″ in front of the Jowett member that previously carried the radiator, now carried the Rover radiator and cowl; the bonnet top panels were retained and I made new side panels. To clear the horizontal cylinders I fitted to the bonnet pressings from a Jowett van—these pressings were like "wind bulges" and were originally made to cover the Jowett hydraulic engine mountings. Austin 10-h.p. bonnet clips fastened the bonnet side panels and Ford 24-h.p. bonnet fasteners bolted down to the valances made the bonnet secure. Mud wings came next and these I had rolled out cycle shape by Messrs. Wasdells, of Birmingham—the rear ends slightly turned out, whilst the fronts were fitted with valances, B.S.A. three-wheeler style. The running boards I made of wood and covered with fluted rubber and aluminium-angle strip; the valances between running boards and chassis I also fashioned, these being of sheet metal.

LETTERS FROM READERS

—continued

A new front apron covered the dumb-irons and the spare wheel and rear chassis cross members were partly covered by a rear apron that caused me no little trouble. The Rover accelerator, fastened to the body, came just right and in line with Jowett brake and clutch pedals, whilst the Jowett steering column had to be altered to clear the Rover petrol tank underneath the scuttle and off side cylinder. To do this the steering box was lifted up 3½" and moved 1" towards the off side and the drag link lengthened by 1" to compensate this change of position.

A polished mahogany, single-piece facia board carried the instruments, grouped on the Jowett oval panel. This was chromed, as were the headlamps and other fittings. Messrs. Smiths (M.A.) built me a speedometer and supplied a 4' 6" speedometer cable, this special speedometer because the Jowett speedometer drive in the gearbox was not in relation to the final drive. Messrs. Lucas converted Morris 14-h.p. Biflex headlamps to 6-volt dippers and torpedo sidelamps were fitted to the cycle-type wings.

The headlamps were mounted on fabricated supports between radiator and wing valances. A new hood and side curtains were made and the original Rover upholstery recoloured and Austin 12-h.p. seat springs fitted. I had the whole car recellulosed: light blue body and darker blue wings and wheels, similar to the M.G. duo-blue colour scheme.

A chrome and enamel badge with the initials "H.P.S" I had made and mounted on the radiator.

This car gave me about 10,000 miles of really trouble-free and economical motoring, speed being nearly 60 m.p.h. and petrol consumption 43–45 m.p.g. Oil consumption was negligible. At hill climbing it was undoubtedly at its best, and many enthusiasts remarked how the old "Rover" romped away.

With reluctance I parted with this car and my latest interest in twins is two D.K.W. cars, one a 584-c.c. 2-seater and the other a 684-c.c. Master Cabriolet.

One day soon I hope to be building a "Special" again, and perhaps readers would like a brief specification as I foresee it. Rear engine; de Dion-type rear axle; semi-elliptic rear springing; independent front suspension with unequal links; twin-cylinder engine; cabriolet-type body.

Such a vehicle could, I think, be built on D.K.W. lines. Many readers will disagree with my choice, but I think in a few years we may look back and say, "Why, we used to drive cars backwards!"

I am, Yours etc.,
H. P. SMALLBONE.

Selly Oak,
Birmingham.

* * *

Sir,

I have an Aston-Martin (YD 2059) which has been fitted with a "12/50" Alvis engine. It has a separate gearbox (very noisy) on which is stamped "B M 1969." I ran it for a few weeks before my petrol ration was stopped, but was unable to assess the performance. The log book gives the year of registration as 1932, but I rather think that this is incorrect and so would be pleased if any of your readers could give me any details of this car.

I am, Yours etc.,
C. B. SEELHOFF.

148, Broad Lane,
Coventry.

* * *

Sir,

I spin out my MOTOR SPORT as long as possible and saved up "Cars I Have Owned" in the October number till lately. I was disappointed to receive no confirmation of a belief I have cherished for about 20 years that there was a standard "30/98" Vauxhall with a guaranteed maximum of 100 m.p.h.

On the other hand, a "38/250" Mercédès is mentioned as doing 100 m.p.h. on third gear and 130 m.p.h. on top gear. The open 4-seater "38/250" Mercédès-Benz, with a 2.76 to 1 top gear ratio, tested by *The Motor* in 1931, is only credited with a maximum of 103 m.p.h. It was said, however, that this was against a slight wind and that the car had only done 2,000 miles and was not fully run in.

Let me add my appreciation of the way MOTOR SPORT carries on.

I am, Yours etc.,
W. STUART BEST.

Godmanston,
Dorset.

[We believe that in its hey-day the O.E. "30/98" Vauxhall was guaranteed to do 85 m.p.h. in touring trim and 100 m.p.h. stripped and streamlined. Examples in the latter category, raced by E. L. Meeson, Major Ropner and Major Coe, have lapped Brooklands at 108.74, 102.9 and 106.19 m.p.h., respectively. We believe that the last two had E-type side-valve cars, while Meeson used a 4-seater body. So the standard O.E. "30/98" Vauxhall may be classed as a 100 m.p.h. car.—Ed.]

* * *

Sir,

I have read the contributions of Mr. J. Lowrey in your recent issues with great interest. I should like to comment on the summary he made of the paper written by M. Lory, the Delage designer. I think that the latter gentleman's calculations regarding the maximum speed of a racing car of a little over 400 h.p. are highly optimistic, and it is difficult to see on what formula he could base his assertions. He should have known from his experiences with Grand Prix cars in the 1925–27 era that 200-h.p. cars gave a road speed of approximately 140 m.p.h. This being so, it is elementary mathematics to demonstrate that with equal frontal area 400 h.p. is not likely to raise the speed above 176 m.p.h., and although the streamlining of the 1939 cars undoubtedly showed an improvement, this was offset by the much larger and totally unstreamlined tyres. Is not the explanation of the 17-mm. crank mystery that this refers not to the diameter, but to the width of the crankpin? This would give a big-end width with two rods side by side of a little under 8 mm., whereas the rollers on the 1½-litre Delage big-ends are 11 mm. long.

Continued on page 248

RECENT MOTOR SPORT ROAD-TESTS

IN the issue of May, 1937, we published an Index of all the road tests conducted by this paper since it was founded, as *The Brooklands Gazette*, in 1924. From this Index we have been publishing extracts, but these did not embrace the tests published during the last five years. In order to make good this omission, we give below a new Index, of tests published from May, 1937, to the present issue. Read in conjunction with the Index in the May, 1937, issue it provides a reference to all the MOTOR SPORT tests—251 in all. Readers' accounts of their cars and technical descriptions of new models, moreover, are not included in this Index. Many of the issues concerned can still be supplied, at the prices given below. Please quote date of issue when ordering.

Make of Car	Issue
A.B.C. 11 h.p. 2-cyl. 2-seater	Feb. 1926
A.C. 2-litre, short-chassis, 15.7 h.p. 2-seater	July 1936
A.C. 2-litre, 16/40 h.p. 3-seater	Oct. 1927
A.C. 2-litre, 16/66 h.p. 4-seater	June 1934
A.C. "Ace" 16/80 h.p. 2-seater	July 1937
Alfa-Romeo, 1½-litre supercharged 6-cyl. Charles 2-seater (1929)	March 1934
Alfa-Romeo 1½-litre supercharged 8-cyl. "Zagato" 2-seater (1932)	July 1934
Alfa-Romeo 2.3-litre supercharged 8-cyl. "Zagato" 2-seater (1933)	Aug. 1936
Alfa-Romeo 2900B, Type 8C supercharged 2-seater (1937)	Jan. 1942
Alvis 6-cyl., "Silver Eagle" 4-seater coupé (1929)	Aug. 1931
Alvis 3½-litre saloon	Feb. 1936
Alvis Speed Twenty 4-seater	June 1932
Ansaldo 2-litre, 4-cyl., o.h.c. 4-seater	Sept. 1924
Aston-Martin Mark II, 11.9 h.p. 2-4-seater	Jan. 1935
Aston-Martin Ulster 11.9 h.p., T.T. 2-seater	Oct. 1935
Aston-Martin 11.9 h.p. 2-seater	Jan. 1930
Aston-Martin 1½-litre Ulster racing 2-seater	Aug. 1937
Aston-Martin 2-litre Speed Model 2-seater	May 1938
Aston-Martin 1½-litre Mark II, long-chassis 4-seater (1934)	Aug. 1940
Aston-Martin 2-litre streamline saloon	June 1942
Atalanta V12 saloon	March 1939
Auburn 30 h.p., 8 cyl. supercharged 2-seater	June 1935
Austin Seven Boyd Carpenter 2-str.	Sept. 1930
Austin Seven "65" 2-seater	Jan. 1934
BENTLEY 4¼-litre, 6-cyl., Park Ward saloon	June 1936
Bentley 8-litre "Special" 2-seater (1931)	April 1938 & Dec. 1940
Bentley 4½-litre drophead coupé	Aug. 1938
Bentley 4¼-litre Mark V saloon	Feb. 1941
Bentley 3-litre "Blue Label" "Special" 2-seater (1928–9)	Feb. 1939
Bentley 4½-litre "Le Mans" 4-seater (1928)	Jan. 1942
Bugatt 2.3-litre 8-cyl., Type 43, supercharged 4-seater	May 1930
Bugatti 3.3-litre 8-cyl., Type 57 saloon	May 1934
Bugatti 3.3-litre Type 57 saloon	May 1939 & June 1939
Bugatti 3.3-litre Type 57C supercharged saloon	June 1939
Bugatti 3.3-litre Type 57 SC supercharged coupe	Aug. 1942
Bugatti 5-litre Type 46 saloon (1929)	April 1942
CROSSLEY 20/70 h.p., 4-cyl., s.v. 4-seater	Nov. 1925
Crossley Ten, 1,122 c.c. 4-seater	April 1932
Crouch Anzani 12/30 h.p. 2-seater	Aug. 1924
DAIMLER 2½-litre 18 h.p. saloon	June 1940 & Nov. 1941
Darracq 12/32 h.p., Weymann saloon	Sept. 1924
Delage 8-cyl., sports saloon	April 1930
Delage D8/180 drophead coupé	May 1938
Delahaye 3.5-litre "Coupé des Alps" drophead coupé	Aug. 1936
D.K.W. "Special" saloon	Feb. 1938
Dodge 25.3 h.p. "Custom Six" saloon	May 1938
EXCELSIOR 5¼-litre, 6-cyl., super-sports test chassis	Sept. 1927
FIAT "Balilla" saloon	May 1934
Fiat "Balilla" 10 h.p. 2-seater	Jan. 1935
Fiat 6 h.p., Type 500 coupé	March 1937
Fiat "Balilla" 1,100-c.c. saloon	March 1938
Ford Eight "Anglia" saloon	Aug. 1940
Ford V8 "30" Estate car	Oct. 1938
GEORGES-IRAT 2-litre f.w.d. 2-seater	May 1940
HILLMAN Fourteen saloon (1939)	June 1941
Hotchkiss 3½-litre "Grand Sports" saloon	July 1939
H.R.G. 1½-litre, Meadows engined 2-seater	June 1937
H.R.G. 1½-litre Le Mans racing 2-seater	Dec. 1939
INVICTA 4½-litre saloon	Dec. 1929
Invicta 4½-litre Estate car	June 1941
LAGONDA 4½-litre 4-seater	May 1936
Lagonda 4½-litre 4-seater	Jan. 1934
Lagonda 4½-litre, 6-cyl. saloon	Sept. 1939
Lanchester Eighteen saloon	Feb. 1938
Lancia "Aprilia," Type 238 saloon	June 1938
Lea-Francis 1½-litre supercharged T.T. 2-seater (1929)	June 1934
Lea-Francis Fourteen saloon	Dec. 1938
Leyland Eight 2-seater (1927)	Feb. 1938
MERCEDES-BENZ 12/40 h.p., supercharged 2-seater	June 1925
Mercédès-Benz 33/180 h.p., supercharged 4-seater	Aug. 1927
Mercédès-Benz 2.3-litre saloon	April 1938
Mercédès-Benz 1.7-litre, Type 170V 2-seater	Feb. 1939
M.G. Midget "J1," 850 c.c. 2-seater	Sept. 1932
M.G. Midget "T" 2-seater	Jan. 1937
M.G. 14/40 h.p., 4-cyl., super-sports 2-seater	May 1927
O.M. 6-cyl., 2-litre 4-seater	Oct.-Nov. 1928
PEUGEOT "201" 4-cyl., 1,122 c.c. saloon	Sept. 1931
RAILTON 8-cyl. Cobham saloon	Sept. 1938
Riley Nine 4-seater	June 1931
Riley 16 h.p., 4-cyl., "Kestrel" saloon	June 1938
Rover Ten "Special" 2-seater	Aug. 1939
Rolls Royce Twenty, all-weather (1927)	March 1942
Rolls Royce "Phantom I," supercharged	Nov. 1942
SINGER Nine 4-seater	March 1933
Squire 1½-litre, 4-cyl. 2 seater	Aug. 1935
Steyr Type XII, 14/35 h.p., Weymann saloon	Aug. 1928
Stutz "Black Hawk," supercharged 4-seater	Jan. 1930
Stutz 5-litre, 8-cyl. 4-seater	Dec. 1927
Sunbeam 3-litre, 6-cyl. (twin o.h.c.) fabric saloon	Nov. 1927
TALBOT "90," Brooklands-bodied 2-4-seater	April 1931
Talbot "105" sports saloon	April 1934
Talbot 3½-litre saloon	March 1936
Talbot Ten "Rally" 4-seater	Oct.-Nov. 1936
Talbot "105" Vanden Plas 4-seater	Nov. 1932
Talbot Ten tourer	June 1938
Terraplane 29 h.p., 8-cyl. 4-seater	July 1935
Triumph 2-litre "Vitesse Six" saloon	April 1935
Triumph 10 h.p. "Gloria Southern Cross" 2-seater	June 1935
Triumph 10 h.p. "Gloria" saloon	Jan. 1934
Triumph Nine "Southern Cross" 4-seater	June 1932
Triumph Eight "Gnat" 2-seater	Aug. 1931
Triumph Eight, supercharged 2-seater	Dec. 1929
Triumph "Dolomite" 14/60 h.p. saloon	June 1937
VAUXHALL 20/60 h.p. "Hurlingham" 2-seater	Feb. 1930
Vauxhall 17 h.p., 6-cyl., "Cadet" saloon	Sept. 1931
Vauxhall Twenty-five saloon	Aug. 1937
WINDSOR 4-cyl., 11 h.p., "Special" 2-3-seater	Nov. 1926
Wolseley Hornet Swallow 2-seater (1933)	April 1934
Wolseley Hornet (12.08 h.p.) saloon	Sept. 1930

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