The Jowett Javelin and Jupiter

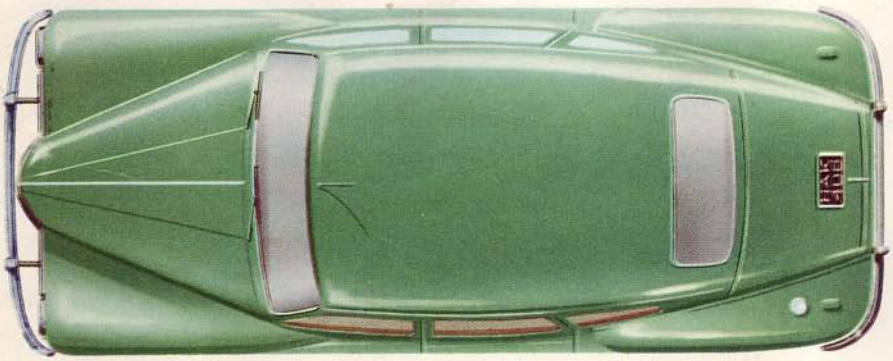
NUMBER 16

TWO SHILLINGS

PROFILE PUBLICATIONS

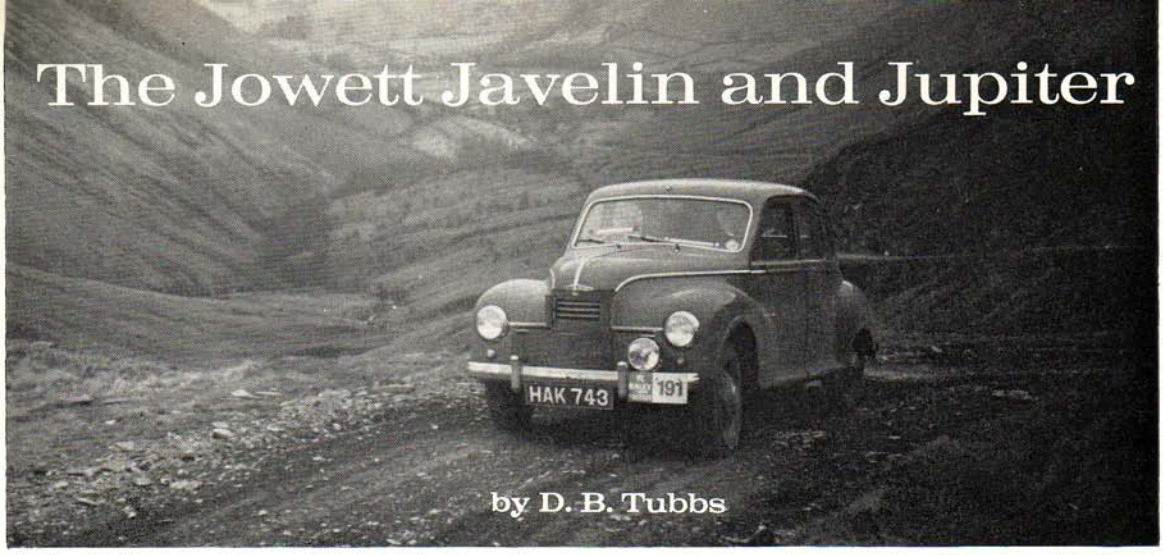
THE T. H. WISDOM/ANTHONY HUME JAVELIN which won the 1½-litre Class in 1949 Spa 24-hours Race, covering 1,700 miles at an average speed of 65·5 m.p.h.

1950 MONTE CARLO RALLY JOWETT JAVELIN TEAM CAR.



1953 STANDARD PRODUCTION JAVELIN.

The Jowett Javelin and Jupiter



by D. B. Tubbs

Another chief designer who was not afraid to drive his cars in competition was Roy Lunn, who came to Jowett from Aston Martin. He is here seen in the Javelin that he shared with Marcel Becquart in the 1951 *R.A.C. British Rally. They won the class for closed cars. The car is seen climbing that famous Welsh pass, Bwlch-y-Groes.* (Photo: Mr. Charles Dunn)

There is something very J. B. Priestley about the Jowett tale of a staid cloth-capped Yorkshire firm making penny-a-mile motors that suddenly decides in late middle age to go in for export drives and a racing programme. Their fling brings them fun, and some fame, but it takes them out of their class, and the story ends in disaster. One cannot call it failure except in the commercial sense. Jowetts made an enormous number of friends and their designs were always of great technical interest; and when the firm disappeared in 1954 it was one of the oldest in the Industry.

Ben Jowett and his brother Willy, of Idle, near Bradford, designed their first engine in 1900, a 6 h.p. Vee Twin, as a British—indeed Yorkshire—replacement for the 6 h.p. De Dion and 6½ h.p. Aster. They then leaped into unorthodoxy with a straight-three air-cooled engine with o.h.v. and a five-bearing crankshaft. In 1905–06 they announced what they called 'the world's first light car'. This was a neat two-seater designed to give motoring at a penny a mile. Apart from the tiller steering it might well, from its looks, have been made during the 1920s. It weighed only 6 cwt. (a Mini Cooper 'S' weighs 13 cwt.), had a water-cooled side-valve horizontally-opposed twin engine in unit with the three-speed gearbox, central gear-change and a worm-drive back axle. Production started in earnest by 1910 and twin-cylinder Jowetts, now with saloon bodywork and spiral-bevel axle, were still being sold in 1939, making this almost certainly the longest run of any model in history.

By 1936 the 7 h.p. car had been joined by a four-cylinder 10 h.p. (the Jason) which mainly for the sake of tradition and goodwill was also horizontally-opposed. This model was dropped on the outbreak of war, but the twin was made in large quantities as a stationary engine for generators. Jowett also made capstan lathes and aircraft components, so the factory was very well equipped. The brothers Jowett had now retired and the Company was directed by Calcott Reilly.

THE JAVELIN DESIGN

Quite early in the war Calcott Reilly realised that post-war Britain would depend on exports. Plans were laid for an exportable motor-car, and in 1942 Gerald Palmer joined the company from M.G.s, where he had been a draughtsman for six years. It was a shrewd choice. Palmer was a young man with sound engineering training, he was an enthusiast who had built a most interesting 'special', and he had been educated in Southern Rhodesia where life was rugged and roads were very 'colonial'. His brief was a 'universal' car, which must appeal both to home and overseas markets. It had also to be made as far as possible within the Jowett works.

The Jowett company at Idle was far away from the Birmingham/Coventry centres of production and the factories that keep the industry supplied; it was also quite small for a motor manufactory, with only 500–800 people. In these circumstances they could not compete with Morris and Vauxhall on price; Gerald Palmer aimed at the Citroen Twelve price bracket, the front-wheel drive *traction* which had sold for £238 (the 'luxury saloon') in 1939. It was this model he had in mind, not the Lancia Aprilia as people have said; but a would-be 'colonial' model needed more ground-clearance of course, and it was desirable to use a flat-four engine—not only for political and publicity reasons, but also, Palmer realised, because it left more room for inhabitants. The diagram shows how little room a flat four takes up. It is evident that a flat engine and high ground-clearance between them bring some at least of the advantages of front-wheel drive, namely a flat floor and much passenger-space within the wheelbase. The aim was really comfortable riding for four to six people in a small compact car.

It would of course have been possible, with a flat engine, to reduce the height of the sills and use a 'plunging deckline' as Fiat and Peugeot were doing by 1938. Palmer felt that this was ahead of demand; he preferred a tall commanding prow, a higher waistline and what is now called a 'fast' back. The resulting prototype looked very like a car that he much admired: the V-12 Lincoln Zephyr. Road tests were to confirm Palmer's choice of lines, for the Javelin, as the new Jowett was called, went fast on the power it had and was quite light on petrol.

The car as first conceived was to be made in and around the factory. Jowett had strong local connections and it was hoped to get castings from a small foundry in Huddersfield. This was the first engine that Palmer had designed. The original plan was for a single-piece cast-iron crankcase with two-bearing crankshaft, and wet cylinder liners, driving to the gearbox of the pre-war Ten. Prototypes also used that model's back axle. This engine ran well but the one-piece iron casting proved noisy and the bearings did not last very long. A light-alloy block was then made, using the same patterns, but this, too, proved too resonant and the block was accordingly split down the middle. This opened the way to die-casting, a technique that still makes news. The Javelin had the first light-alloy (gravity) die-castings in this country. They were ultimately produced by Renfrew Foundries Ltd.

When the prototype was laid down there was no thought of mass production of the body or chassis on press tools. Palmer believed that motorcars should have a frame under them (he still does, along with many other chassis engineers). Jowetts, being a small company, put as much money as possible into the external panels needing dies (compare current Rover 2000). The prototype was designed so that all internal work on the chassis should be done by folding, using simple tools; the frame members, for example, were home-made box longerons, and the roof was clinched over a flange on the cantrail. The curvature on the panels was kept very simple and on the first prototype the four doors were all interchangeable.

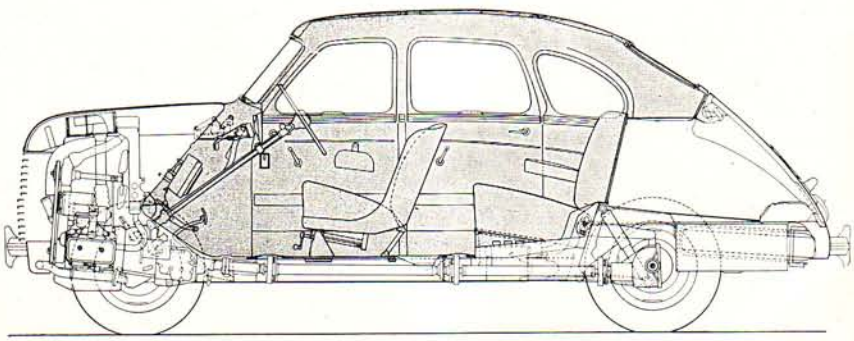
The front suspension was by unequal-length wishbones with torsion bars running fore and aft; at the rear a beam axle (now semi-floating, with hypoid bevel gearing) was suspended by transverse torsion bars mounted one above the other, and located laterally by a Panhard rod. Weight was saved by using torsion bars, and the use of simple hexagonal ends instead of splines saved cost and complication. It is significant that hexagon-ended torsion-bars are now used by Chrysler. One of the Javelin prototypes was sold to Chrysler during a U.S. sales tour.

At first it was intended to make two sizes of engine: 1,200 c.c. for the home market and 1,500 c.c. for overseas. The former was dropped; Javelin dimensions became 72·5 by 90 mm bore and stroke, 1,486 c.c. A three-bearing crank had been developed, and the expansion of the light-alloy crankcase had led to the adoption of Zero-lash hydraulic tappets for the pushrod overhead valves. On a compression ratio of 7·2 to 1 (as high as Pool petrol would allow) early production engines were giving 50 b.h.p. at 4,100 r.p.m.

Much testing took place on Yorkshire test hills, including Sutton Bank. This is the second prototype with its designer at the wheel; it will be noted that the four doors are no longer interchangeable (as they had been on the first prototype) but all panels are very flat, for fabrication by simple methods. Bonnet and grille were changed before the car went into production, and at this stage a flat two-piece Vee windscreen was used.
(Photo: Mr. Gerald Palmer)

Designers are sometimes blamed for lack of personal experience with their creations. This was certainly not true of Palmer, who was one of the crew in the Javelin's first Monte Carlo Rally in 1949, shortly before he left the Company. He is standing on the right; on the left are T. C. (Cuth) Harrison and T. C. (Tommy) Wise. They won the 1½-litre class; another Javelin was third. Compare the grille on this car with that of the prototype.
(Photo: Mr. Gerald Palmer)

Between 1942 and May 1947 when the Javelin was unveiled to the public, new men and new money made themselves felt. The prototypes had proved so promising that production plans were changed. The car need no longer be made at home; the lines were not altered, but production methods were. Briggs Bodies obtained the contract to make pressed-steel coachwork for the Javelin along conventional industrial lines, and built a factory at Doncaster for the purpose.



Designed by Gerald Palmer in 1942, the Jowett Javelin worked on the modern principle of 'being quite small outside, but very large inside'. All the shaded area is passenger space. High 'Colonial' ground clearance permits a flat floor, and the compact flat-four engine takes up little room for'ard. A 'commanding' prow was chosen in preference to a falling bonnet à la pre-war Fiat 1100, the general lines of the car being modelled on those of the V-12 Lincoln Zephyr. It will be noted that all passengers are seated within the wheelbase. The back seat ride, especially, was excellent. (Jowett Cars Ltd.)

Encouraged by the Monte Carlo results the Jowett Company entered an early production Javelin in the 1949 24 *Hours Race at Spa, an event that is every bit as testing as Le Mans. Tommy Wisdom and Tony Hume were the drivers, and this exceedingly normal* 1,500 *c.c. saloon won the* 2*-litre Touring Car class after an untroubled run, covering* 1,700 *miles at an average of* 65.5 *m.p.h.* (Photos: Mr. Louis Klemantaski)

Gestation was slow, bedevilled by wartime and post-war shortages; but the last prototype took part in the 'Motoring Cavalcade' round London in 1946, and during the next couple of years production cars began to emerge. Most of them were exported, for quite a large dealer network had been built up.

THE JAVELIN PERFORMS

In January 1949 the Works entered a car for the Monte Carlo Rally. The crew consisted of T. C. (Tommy) Wise and T. C. (Cuth) Harrison, both well-known Yorkshire trials and rally men, and Gerald Palmer, the car's designer. It is not true that designers never experience their cars. The Javelin won the 1½-litre class and a similar car (R. Smith) was third. Later in the year a Javelin went racing: T. H. Wisdom and Anthony Hume drove a single works car in the Belgian 24-hours race at Spa. They had a trouble-free run, covering 1,700 miles in the time, to win their class at 65·5 m.p.h., the fastest touring car on the circuit.

The motoring papers liked the car very much. *The Motor* (20th July 1949) recorded a top speed of 77·6 m.p.h., 0–50 m.p.h. in 15·3 secs., a standing quarter-mile in 22·7 secs. (almost the same as the 0–60 figure) and 25·6 m.p.g. over a long fast Continental mileage, adding that a tame Javelin on the Staff regularly gave 30 m.p.g. in England. They praised the headroom and legroom, were greatly impressed by the ride ('rode bad *pavé* with complete absence of shock and a remarkable absence of pitch, no doubt [owing to] the large proportion of weight carried between the front wheels'); they called the steering-column gear-change 'a model of its kind', admired the cornering but thought the brakes rather small. They also found the 7·31 third gear rather low.

Other Javelin successes that year included the Austrian Touring Club's Winter Trial (2-litre class; driver: Wohrer), and a hill-climb Rheineck-Walzenhausen (1½-litre class, touring; driver: Vogelsang). The model being now firmly established, Gerald Palmer returned south to M.G./Riley at Abingdon. He is now with Vauxhall.

Palmer's place as chief designer was taken by Roy C. Lunn, who came from Aston Martin and is currently with the Ford Motor Company in America on racing and advanced developments. One of his first tasks was the development of a new front suspension for the Javelin in conjunction with Metalastik Ltd., which was probably the first all-rubber-mounted suspension in production. The designs were also begun for a two-seater sports car based on the Javelin and using the same engine. But before looking at that machine

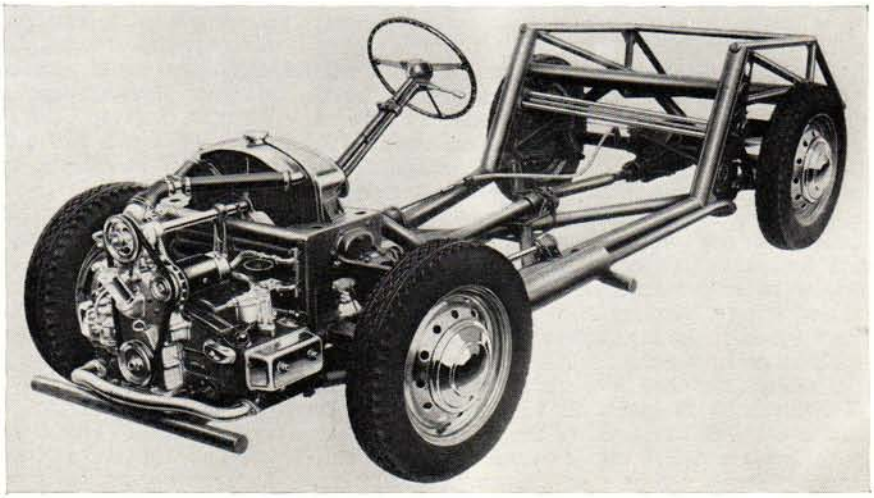
The inside story of how Professor Robert Eberan von Eberhorst (designer of the 1938-39 3-litre Auto Union G.P. racing cars) came to design the Jupiter is told in the text. Here is Professor Eberan with one of the six prototypes built in the E.R.A. works at Dunstable. (Photo: Mr. Laurence Pomeroy)

it may be interesting to see how the saloon progressed over the years. On 8th April 1953 *The Motor* tested a later Javelin, this time over 2,500 miles in England, Belgium and Germany, and found it a faster and much improved car. The engine now gave 52·5 b.h.p. at 4,500 r.p.m. and top speed was 82·4 m.p.h. with a best run of 84·1; top-gear acceleration above 40 m.p.h. had slowed slightly, but third was now higher (6·7 to 1, 61 m.p.h.) and the standing quarter-mile was now 20·9 sec. The testers (the present writer was one of them) found the engine smoother than before; they said the back-seat ride was better than one got in many chauffeur-driven cars. The overall petrol consumption came out at 29·1 m.p.g., and this included some fast motorway running, e.g. 27 miles of busy Belgium *autoroute* without the speed ever falling below a corrected 75 m.p.h. In spite of terrible frost-rutted roads in Hanover and much high-speed running nothing whatever came loose or gave trouble. It was very impressive for a $1\frac{1}{2}$-litre saloon, but one driver at least came away slightly disappointed. One expects unorthodox design to produce 'personality'—but the Javelin, for all its flat four and torsion bars, seemed oddly anonymous. Perhaps this was no bad thing for an internationally marketed saloon.

THE JUPITER DESIGN

When Lunn took over in 1949 the cry, quite rightly, was still 'export or perish'. Steel was rationed and larger allocations went only to firms who could show their determination to export. M.G. were already selling well in the U.S.A. with their cart-sprung TC Midget, virtually a pre-war design, and had created an American market for sports cars. Obviously the Jowett ploy was to market a sports car too, thus earning dollars and incidentally getting more steel. A tentative start was made at Idle, under the stimulus of that very keen racing and rally driver, Anthony Hume. But before these plans got very far the programme was suddenly and somewhat catalytically changed, the catalyst being the late Laurence Pomeroy, then technical editor of *The Motor*. It so happened that Pomeroy had a number of friends all interested in the development of a sports car: Leslie Johnson, the racing driver, had just acquired E.R.A. Ltd., Dunstable; Robert Eberan von Eberhorst, designer of the 1939 Auto Union racing cars, was in Italy with Cisitalia and hating it; and George Wansbrough, who had been put in by Lazard Bros. as joint managing director at Idle. The name 'Jupiter' was an alliterative natural, also provided by Pomeroy. Anthony Hume, who had been put in charge of the sports car project, fetched Professor Eberan from the Continent, and E.R.A. Ltd. were charged with producing a Jupiter sports car at Dunstable, using Javelin engine, transmission and suspension units. The bodies were designed by Mr. Korner, of Jowetts.

Professor Eberan got smartly to work, evolving a chassis that was far more sophisticated than anything a mass-producer could have attempted, so that the Jupiter started with a big advantage in road holding, which all road testers commented upon. As will be seen, the car's limitation was the engine, which had been designed many years before, with no thought of racing in mind. The semi-space frame comprised a pair of tubular longerons roughly below the seats, stoutly braced by a St Andrew's cross; a triangulated structure of tubes carried the front i.f.s., and another, more elongated, rose to upper rim height just behind the seats and continued aft in the manner of dumb-irons. Sturdy cross tubes tied it all together. Certain components were specially made, including a rack-and-pinion steering. Technical liaison between Idle and Dunstable does not seem to have been either happy or complete, and, following a change of policy soon after the 1949 Motor Show, when the Jupiter was very well received, development became the responsibility of the factory. Early cars were hardly stiff enough amidships (doors used to stick) and E.R.A. engineers thought that the height and weight of the Jowett bodywork rather spoiled both



The Jupiter chassis designed by Prof. Eberan employed tubes for lightness and strength. This picture clearly shows the main tubes, cruciform bracing and triangulated structure at the rear, where the transverse torsion bars and Panhard rod can also be seen. One front torsion-bar anchorage can be seen behind the front wheel; Note also the divided propeller-shaft and steering-column gear change. Later cars derived extra torsional rigidity from a pressed steel dashboard bulkhead welded to the main longerons. (Photo: Telegraph & Argus, Bradford)

Jupiter development team. Six cars were built at Dunstable under the original E.R.A. contract; subsequent development took place in the Jowett works at Idle, near Bradford. From left to right: Messrs, Horace Grimley, experimental engineer, Roy C. Lunn, chief designer, and Charles Grandfield, chief engineer, with the 1950 *Le Mans car.* (Photo: Telegraph & Argus, Bradford)

performance and handling which, to quote David Hodkin, technical assistant to Prof. Eberan 'had been developed during the early part of 1950 to very competitive standards for those days'.

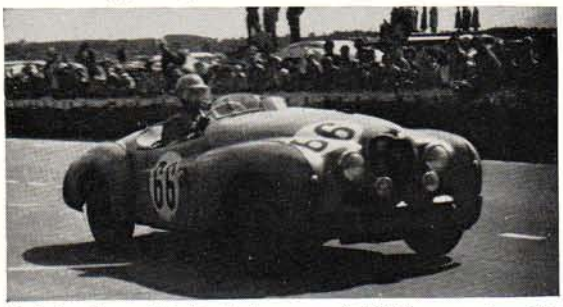
Everyone must have worked very hard indeed. Restarting from scratch in May, Eberan and a drawing office which gradually increased in numbers from one to four had their chassis ready in time for a complete car to appear at the Motor Show the same October. The body had a bench seat to take advantage of the steering-column gear-lever inherited from the Javelin and seems in retrospect to have been rather high in the scuttle for a flat-four design, and unnecessarily tapering behind, which made luggage accommodation very small. The glass industry was not yet making curved screens in quantity, so the Jupiter, like the prototype Javelins, had a two-piece vee screen. It also had glass quarter-lights adjoining the screen and winding glass windows, so that with hood up it was more 'convertible' than two-seater.

Most courageously a car was entered for the 1950 Le Mans, with a single bucket seat and an aero screen. After a lot of hard work it was able to weigh-in at 15½ cwt., complete with tankage for 30 gallons. The drivers were Tommy Wisdom and Tommy Wise, who had both wrought valiantly in Javelins the previous year. They not only had a trouble-free run but set a new 1½-litre record for the race, won their class and averaged 75·84 m.p.h. for the 24 hours. A very fine effort indeed for a new model running in its first race.

Tuning was virtually limited to the modifications listed for the ordinary owner: special gasket and stronger cylinder-head studs raising the compression ratio to 8·5 to 1; stronger inner valve-springs, high-speed distributor, lightened flywheel, racing plugs. A similar car, although this time a fully equipped drop-head and weighing 18½ cwt., was tested by *The Motor* on 22nd November 1950. Speeds on second, third and top were 41, 66 and 86 (with a best run at 88 m.p.h.) standstill to 50 m.p.h. through the gears took 11·7 sec., to 60, 18 sec., to 70, 29·6 sec., and the standing quarter 20·5. Fuel consumption was 25 m.p.g. They praised the top-gear pulling (10–30 in 9·7 sec., 20–40 in 9 sec., 30–50 in 10·7 sec.), the flat cornering and the light steering. 'A minor tendency to over-steer is apparent, but makes itself felt in a mildly progressive manner. . . .' The gear-change was light, quick and easy, although the gears were not very quiet and the body lacked sound-damping; there was not much room for the right foot, because of the way

Class winner. A Jupiter was entered for Le Mans in 1950, *a single car running its first race. It won the* 1½*-litre class, setting a new class record at* 75.8 *m.p.h. The drivers were T. H. Wisdom (seen here) and T. C. Wise. The body, it will be noted, was practically a standard convertible.* (Photo: Mr. Louis Klemantaski)

Some last minute adjustments at Le Mans, 1950. *The racing dash is very neat, a steering-column shift unusual on a competition car. Jowetts were one of the first production cars to have a fully opening front.* (Photo: Mr. Louis Klemantaski)



Both Javelin and Jupiter had a successful 1951 *season in rallies hill-climbs, and races both short and long. Here is the Jupiter of Marcel Becquart and Gordon Wilkins at Le Mans, where Jowett won the 1½-litre class for the second year running. This was the only finisher in the class, other more highly tuned Jupiters having suffered severe engine trouble.* (Photo: Mr. Louis Klemantaski)

the wheel arches encroached on the foot space (as in the Javelin) and the hand-brake was not easy to reach. On the whole they quite liked the Jupiter, which was the fastest 1½-litre car they had tested since the war. This car had mechanically adjusted tappets instead of Zero-Lash (because the U.S. patentees could no longer supply), and later machines were to have hydraulic brakes all round instead of Girling Hydro-Mech, the report said.

IN COMPETITION

Competition work continued keenly in 1951. Jowett again won their class in the Monte Carlo Rally, doing well with both models: the Jupiter of W. H. Robinson and R. Ellison was 1st in the 1½-litre class, and equal-best British competitor; Gordon Wilkins and Raymond Baxter were 2nd in another Jupiter, while L. Odell and R. Marshall took 4th place in their Javelin. Thus Jowett won the Manufacturers' Team prize. A Javelin (Sven Servais) won the Swedish Winter Trial, Joachim Nogueira won the Lisbon Rally (Jupiter), and there were some highly promising race results. A Jupiter (Gurzeler) won the Bremgarten sports car race at Berne, and the same driver again made best time at Rheineck-Walzenhausen; and a much lightened Jupiter, called the R-1, again won its class at Le Mans, driven by Marcel Becquart and Gordon Wilkins, being the only car in its class to finish; a companion, more highly tuned car, blew its head gaskets. In the R.A.C. Ulster Tourist Trophy H. L. Hadley and Tommy Wise took 1st and 2nd places in their class, and it must have been very stimulating to hear that another Jupiter had won the 1½-litre race at Watkins Glen, the most important meeting in the United States, the most important export market. In addition to which, Roy Lunn, the chief designer, co-driving with Marcel Becquart, won the closed car section of the British R.A.C. Rally. The hat-trick was completed the following summer when Becquart and Wilkins again won the 1½-litre class at Le Mans.

Behind this catalogue of victory lay much hard work in getting weight off the cars, stiffening the chassis to improve road-holding, and extracting far higher—and ultimately reliable—power from the engine. The men responsible included Roy Lunn, Charles Grandfield, chief engineer, Horace Grimley, development engineer, and Korner the coachwork man. It is interesting to recall that Horace Grimley had been co-driver with J. J. Hall at Brooklands in 1926 when a Jowett 7 h.p. two-seater, of all unlikely cars, had broken the world's international class record for 12 hours—at 54 m.p.h.

The tremendous technical effort has been described by Mr. C. D. Grandfield, A.M.I.Mech.E., in his paper, 'Development Problems Experienced in Engines of Unorthodox Design', read before the Institution of Mechanical Engineers in 1952. This paper was summarised in *Motor Sport* of March 1953. I am most grateful to Mr Grandfield for lending me his copies of both versions. It is possible unfortunately only to give the barest summary of how the power was increased from 42 b.h.p. on the original 1,500 c.c. prototype to about 68 on the 1952 Le Mans car, which had a 9·25 to 1 c.r. It must be remembered that experiments were greatly hindered during the early post-war years by the British government's obstinacy in refusing to allow high-octane petrols. The company's interest in racing was directly due to the high-speed conditions which they realised would await Javelin and Jupiter cars on modern European motorways. The principal weakness of the engine came from the use of a split crankcase, with long bolts to hold the cylinder-heads down. Prolonged full-throttle work meant blown gaskets and, as power was increased by nearly 50 per cent, broken crankshafts. The position of the sparking-plugs in the Jupiter also caused difficulty, as they were enveloped in spray from the front wheels. This last trouble was cured by using Lucas plug covers evolved for A.J.S. motor cycles.

The original requirement for the Jupiter was 60 b.h.p. at 4,750 r.p.m. on 76–80 octane at 8 to 1 compression ratio. Polishing and streamlining the ports brought this within easy compass, but once 8 to 1 was exceeded crankshaft fatigue set in. The Jupiter in the 1950 R.A.C. T.T. broke its crankshaft. Accordingly the crankcase was stiffened by thicker sections and stiffer webs; the crank itself was modified and so was lubrication. New bearing materials were tried. Much gasket research ended in the cylinder-head gaskets being thrown away and replaced by Wills rings—endless thin steel tubes filled during manufacture with a chemical giving off nitrogen when heated. The rings expanded, filling the joint between head and liner. This settled the head-seal problem and improved water seals were used at the lower end of the liners. Exhaust-valve troubles were solved by making the valves of KE 965, with chromed stems and Stellited tips. There was much experimenting with piston rings; an oil-cooler was fitted.

Jupiters came first and second in their class (1,500 *c.c.*) *in the* 1951 *R.A.C. Tourist Trophy on the Dundrod circuit in Ulster. H. L.* (*Bert*) *Hadley, the pre-war Austin works single-seater driver* (*no.* 45) *was first, at* 68.71 *m.p.h.; second was Tommy Wise.* (Photo: Mr. Louis Klemantaski).

The R-1 Jupiter evolved for the 1951 Le Mans was 1½ cwt. lighter than the standard car, and handled much better at speed, thanks to a strong pressed-steel scuttle bulkhead and a similar member behind the seats welded to the chassis longerons. Its frontal area was smaller, giving a top speed just over the 100 m.p.h.; but the c.r. was up to 9·25 and after four hours' running a cylinder-head stud boss cracked, water leaked into the sump and the bearings ran. But it was also an R-1 that was so successful at Watkins Glen.

Three R-1 Jupiters were entered for the 1952 Le Mans. One, driven by Wilkins and Becquart, won its class as we know, but the others (Bert Hadley and Gatsonides) broke their cranks. The final solution shall be given in Mr Grandfield's words: 'This crankshaft business was now one of some real concern. Within the scantlings and without going to exotic materials, we had done what we could and felt that the series III Javelin was pretty safe. Nevertheless, we liaised with the stress experts at De Havillands, particularly Dr. Kerr Wilson, who had had trouble of this nature, but on 5,000 h.p. flat marine engines.

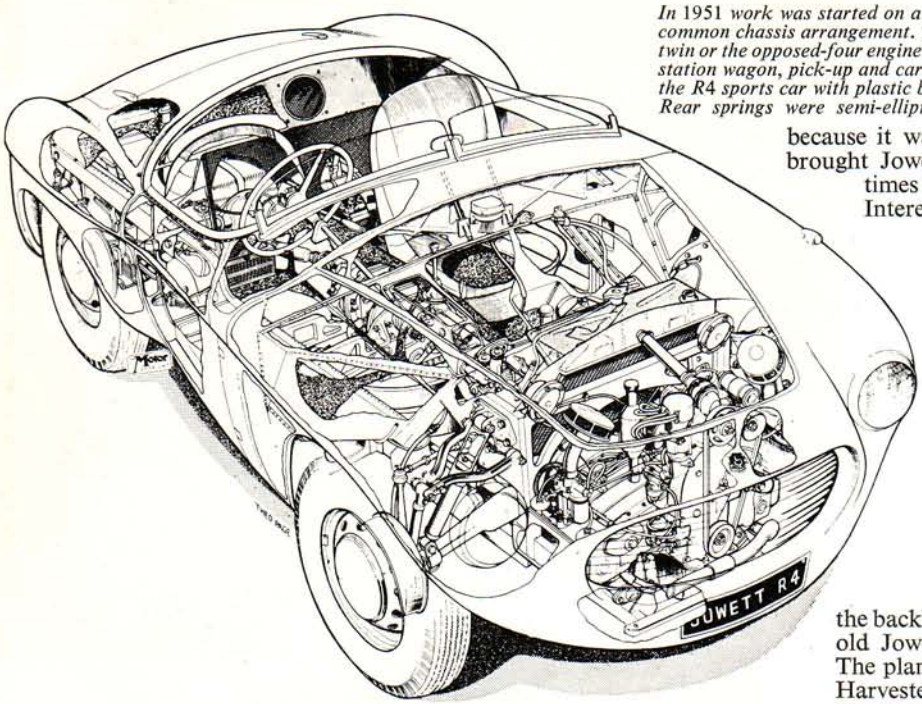
'His investigation was of interest and produced the elliptical web design of shaft . . . ' The elliptical webs and redistributed web thickness provided the answer; the new crank went into production in mid-1953, in what was called the Mark III engine, which powered the Mark III Javelin and later the Jupiters Marks I and IA. The IA had a longer bonnet and a bigger luggage boot, with an outside lid.

Meanwhile some other interesting things were happening at Idle. Production of the Javelin during the early nineteen-fifties was running at about 150 a week. The company were also making about the same number of Bradford vans, which used the famous side-valve horizontally opposed twin that had been developing since 1910.

A NEW RANGE

In 1951 a new range of products was started, based on a common chassis arrangement. This chassis had a wheelbase of 84 in. (9 in. shorter than the Jupiter, 18 in. shorter than the Javelin). The torsion-bar i.f.s. was retained, but the new chassis had semi-elliptics at the rear. Mr Roy Lunn has kindly written about these vehicles from America: 'A new twin-cylinder engine was developed having an overhead inlet with a side exhaust valve. The same chassis would take the opposed-four and was made in van, pickup, station wagon and car forms. It was also a derivative of this same product line from which I derived the R-4 vehicle with the plastic body. Unfortunately these never did reach the production stage, as the company

Hat trick: *Jupiter cars won the* 1½*-litre class three years in succession at Le Mans. Marcel Becquart looks relatively comfortable at the wheel of the victorious* 1952 *R1, but Gordin Wilkins is finding the passenger's seat rather a tight fit. They averaged* 72.85 *m.p.h., finishing* 13*th over all.* (Photo: Mr. Louis Klemantaski)



In 1951 *work was started on a new range of products based on a common chassis arrangement. This would take either a new i.o.e. twin or the opposed-four engine and was to have been made in van, station wagon, pick-up and car forms. It also formed the basis of the R4 sports car with plastic body here displayed by Theo Page. Rear springs were semi-elliptic.* (Drawing: Mr. Theo Page)

was sold out about the time they were announced. . . . We had started designs on an in-line-six overhead cam arrangement as a replacement for the four-cylinder opposed engine, and were planning to maintain a luxury car image with a sporting flavour. . . .'

The R-4 Jupiter evolved by Roy Lunn was a neat little two-seater with laminated plastic body of remarkably clean design; it was rather like the present-day Sprite and Midget to look at, and was to have a four-speed gearbox with overdrive on third and top. It was to weigh only 14 cwt. Some publicity brochures were got out, giving details and speeds on the gears, The latter make interesting reading: on an 8 to 1 c.r. and 4·44 axle ratio the R-4 was to do 27, 44, 70, 82, 100 and 122 m.p.h. on its various gears at 6,000 r.p.m., the peak being given as 5,000 revs. That oval-webbed crank would be coming into its own.

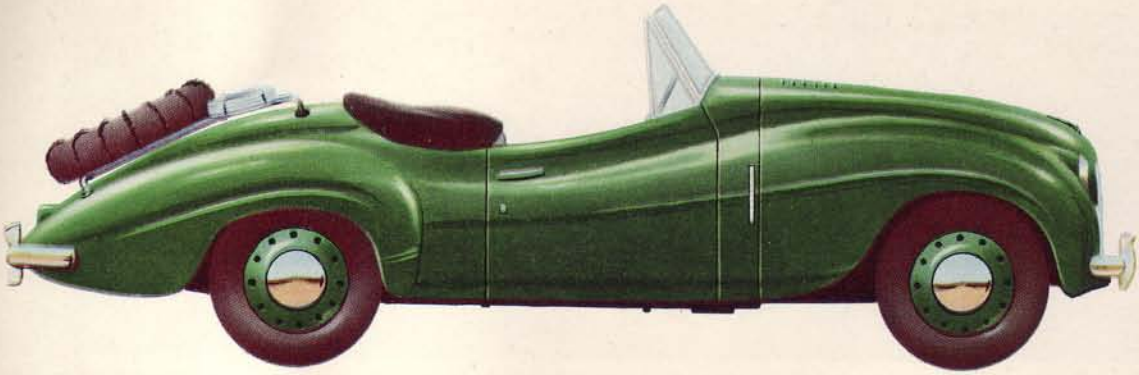
It is appropriate to close on the subject of gears, because it was probably gearboxes that brought Jowetts to an end. One sometimes hears 'ruthless Big Business Interests' blamed for the Jowett demise; but the main cause seems to have been a mistaken decision to manufacture the gearbox at Idle, instead of buying it out from Henry Meadows Ltd. There were, literally, teething troubles. Defective gearboxes clogged the assembly and service departments at Idle and caused a fall-off in sales. As a result, the Briggs plant at Doncaster, which had been built specially for Jowett, found undelivered bodies piling up; and before the backlog could be cleared the poor old Jowett company was in trouble. The plant was sold to International Harvester. The Jowett cars had a considerable following and made many friends. The Javelin's ground clearance paid off, as its designer knew it would; and Gerald Palmer, who goes often to Spain, says that Javelins are still to be seen on the Spanish roads in 1966.

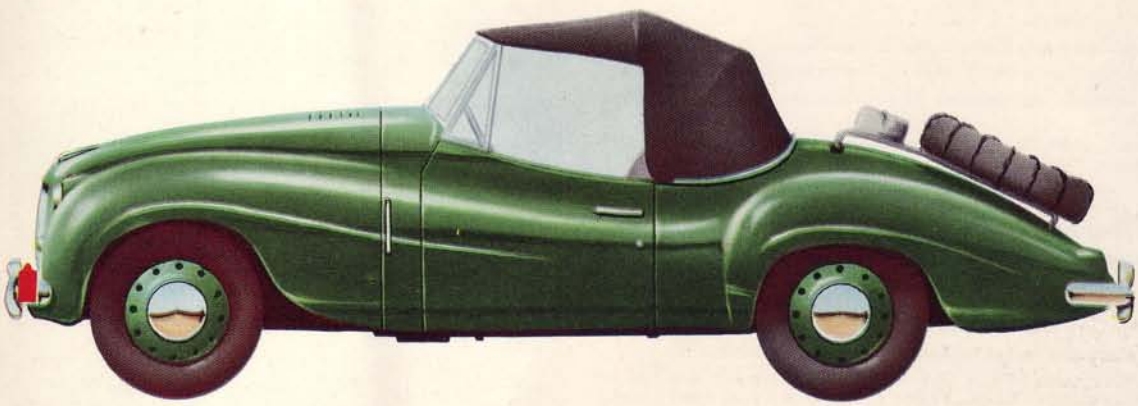
No other motor manufacturer can approach Jowett's record of only five models in more than half a century—Twin, Jason 10 h.p., Bradford van, Javelin, Jupiter. What is more, the Southern Jowett Motor Club is the oldest one-make club in the world. It is a shame those new models never appeared.

* * *

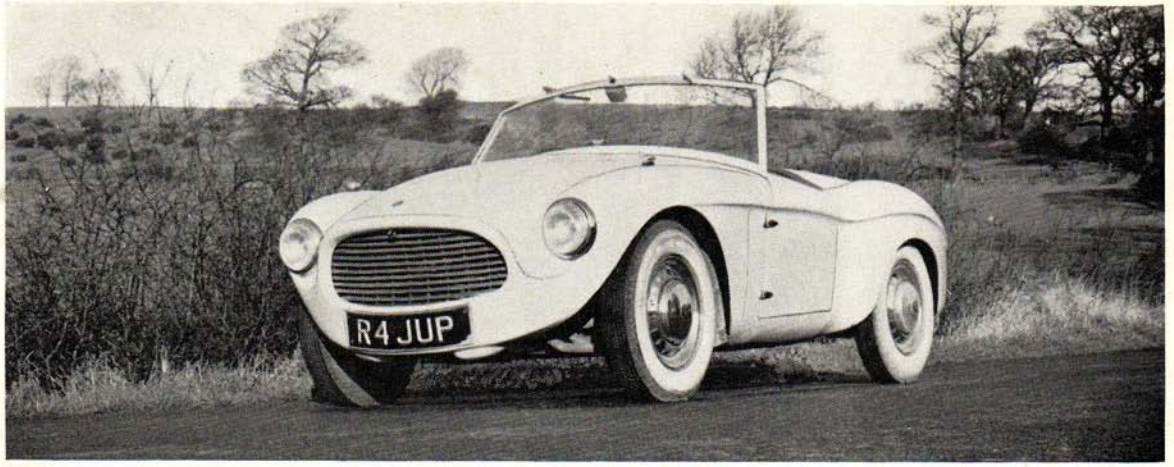
In conclusion I should like to thank all those who have helped in compiling these notes, especially the following ex-Jowett people (in alphabetical order): Messrs John Baldwin, C. D. Grandfield, David Hodkin (ex-E.R.A. Ltd.), Roy C. Lunn and Gerald Palmer, together with my friends the late Laurence Pomeroy and Peter Richley, who has lent much valuable material.

Le Mans 1952*: Marcel Becquart in profile. This picture shows how the racing R1 cars differed from the original convertibles. Note the slimmer lines, and skimpy wings. A great deal of weight has been shed and the engine developed to withstand higher compression ratios.* (Photo: Mr. Louis Klemantaski)





THE 1951 MONTE CARLO RALLY JOWETT JUPITER which won the 1½-litre Class and finished 6th overall. Drivers: W. H. Robinson and R. Ellison.



Designed in 1951, *the R4 Jupiter looked well ahead of its time, the lines foreshadowing those of several current two-seaters. With* 64 *b.h.p. for a kerb weight of* 1,568 *pounds* (14 *cwt.*) *the little car should have performed very well. Unfortunately the Jowett company was wound up before the R4 reached production.* (Photo: Mr. Roy Lunn & C. H. Wood (Bradford) Ltd.)

SPECIFICATION: JOWETT JAVELIN
(1949 Model unless otherwise stated)

Engine: Four-cylinder, horizontally-opposed, overhead valves. 72·5 mm. bore, 90 mm. stroke, 1,486 c.c., 50 b.h.p. at 4,100 r.p.m. Compression ratio 7·2 : 1. Diecast aluminium cylinder block (DTD 133B) with wet cast iron liners. Valves pushrod operated from central cast iron, four-throw, three-bearing crankshaft. Cast iron cylinder heads. Twin Zenith carburettors. Sump capacity 9 pints. Coil ignition. Cooling by water pump and fan thermostatically controlled. Capacity 12 pints. Firing order 1, 4, 2, 3.

Transmission: Four-speed gearbox. Steering column control lever. Ratios: 4·87; 7·31; 11·6; 18·9 to 1. 7¼-in. Borg & Beck clutch. Salisbury hypoid rear axle. Divided prop.-shaft with three 'Layrub' universals. Top gear speed per 1,000 r.p.m.—15·5 m.p.h.

Suspension: Front, independent by unequal length wishbones and longitudinal torsion bars; rear, transverse torsion bars, beam axle. Woodhead Monroe shock absorbers. Pressed steel wheels 16 in. diam., 5·25 × 16 tyres.

Chassis Construction: Integral body and subframe of steel construction.

Dimensions: Wheelbase, 102 in. Track, front, 51 in.; rear, 49 in. Overall height, 60½ in. Overall width, 61 in. Overall length, 168 in. Minimum ground clearance, 7¾ in. Turning circle, 32 ft.

Weight: 1949: 20¾ cwt. *Distribution*: 54/56 front/rear.
1950: 20½ cwt. ,, ,, ,,
1952: 21½ cwt. ,, ,, ,,
1953: 21¼ cwt. ,, ,, ,,

Steering gear: Internal gear and pinion.

Brakes: Hydro-Mech; 1951 Girling hydraulic.

Electrical equipment: 12-volt system with 60 amp-hour battery.

Fuel system: 8 gallons in rear-mounted tank. A.C. mechanical pump.

1952 MODIFICATIONS

Engine: Oil cooler.

Transmission: Indirect gear ratios now 6·6; 10·6; 17·4 to 1.

Suspension: Metalastik joints in i.f.s.

1953 SERIES III MODIFICATIONS

Engine: Mechanical tappets. New oval-web crankshaft.

Performance (1953): 12·5 b.h.p. at 1,000 r.p.m.; 28 b.h.p. at 2,000 r.p.m.; 42 b.h.p. at 3,000 r.p.m.; 51 b.h.p. at 4,000 r.p.m.; Maximum 52·5 b.h.p. at 4,500 r.p.m. Maximum torque 76 lb. ft. at 2,600 r.p.m.

Price (de luxe): 1949: £750 + £209 p.t. = £959.
1950: £735 + £409 p.t. = £1,144.
1952: £810 + £451 p.t. = £1,261.
1953: £775 + £432 p.t. = £1,207.

SPECIFICATION: JOWETT JUPITER
(1952 Model unless otherwise stated)

As for Jowett Javelin with the following differences:

Engine: Compression ratio 7·6 or 8 to 1. Output, 60 b.h.p. at 4,750 r.p.m.

Transmission: Gear ratios: 4·56; 6·30; 9·9; 16·3 to 1. Top gear speed per 1,000 r.p.m.—17 m.p.h. Divided prop. shaft. One 'Layrub' and two Hardy-Spicer universals.

Suspension: Front, independent by unequal length wishbones; rear, two pairs of twin trailing arms and Panhard rod; transverse torsion bars. Pressed steel ventilated disc wheels, 5·50 × 16 tyres.

Chassis Construction: Semi-space frame of tubular welded construction using 3 in. diam. 16 s.w.g. tubes in chrome molybdenum steel for main side members and 18 gauge 2 in. diam. tubes for struts and torsional stiffness members.

Dimensions: Wheelbase, 93 in. Track, front, 52 in.; rear, 50½ in. Overall height, 56 in. Overall width, 62 in. Overall length, 168 in. Minimum ground clearance, 8 in.

Weight: 17 cwt. approx. (1,895 lb.). *Distribution* 55/45 front/rear.

Steering: Rack and pinion.

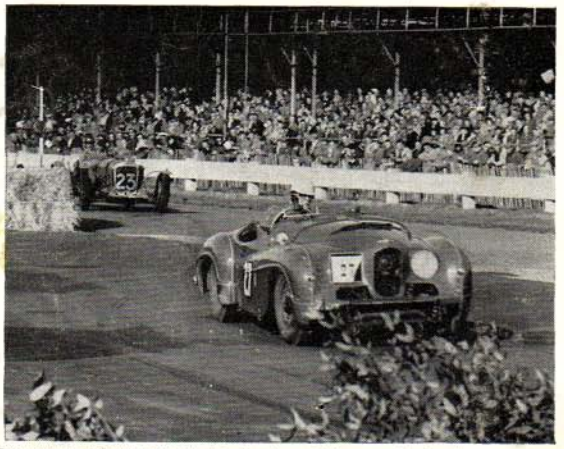
Brakes: Girling hydraulic.

Fuel Capacity: 10 gallons.

Performance: 13·25 b.h.p. at 1,000 r.p.m.; 30·75 b.h.p. at 2,000 r.p.m.; 48 b.h.p. at 3,000 r.p.m.; 60 b.h.p. at 4,000 r.p.m.; 62·5 at 4,500 r.p.m. Maximum torque 84 lb. ft. at 3,000 r.p.m.

Price: 1950: £850 + £236 p.t. = £1,086.
1952: £975 + £543 p.t. = £1,518.

The handling and cornering powers of the Jupiter were much praised by car critics; they also provided much amusing racing for the private owner. Here W. H. Robinson is seen taking the chicane at a B.A.R.C. meeting at Goodwood on March 22, 1952. (Photo: Mr. Guy Griffiths)



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