THE WOLSELEY WORD

CAR CLUB

FEBRUARY/MARCH 1980 NEWSLETTER VOL. 4. NO. 4.

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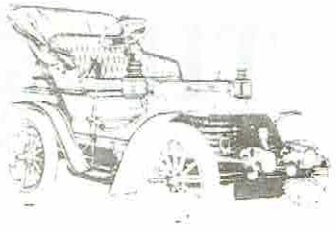
ORDER OF ARTICLES



WOLSELEY, 1904

A 1904 single-cylinder 6 h.p. Wolseley with horizontal engine. The contemporary 'Little Siddeley' was exactly the same except for a different bonnet and radiator and was made in the same factory.

EDITORIAL - FROM MY POINT OF VIEW.

As this is my first editorial without Colin Hey, I would like to pass on everyones appreciation of the manner in which Colin worked at building up the "Wolseley Word", from his accepting the role of Editor. Thank-you Colin for a job well done, as I know you have always strived to improve its presentation, by keeping an open mind, and heeding any reasonable suggestion.

For the benefit of our newer members, and those who have mislaid their earlier copies, the aim of any club newsletter, and particarly our own, is to convey technical information, for efficient maintenance of members vehicles, notices of all our clubs branches, and their activities, and the reporting of same, a regular buy, sell, swap column, letters to the editor, owners questions, and answer column, contributions from members, on matters of interest to club members, articles of historical interest, relating to Wolseley cars, the promotion of road safety.

Recently, after much soul searching as to why Christchurch Branch memberships was being poorly represented, a general questionaire was sent to all club members to obtain their ideas and views, and I am disappointed that about 60% of our members did not bother to reply. So, if you have something to contribute, no matter where you live, please post that form, which is gathering dust on your shelf. A big thank-you to those who have made the effort, as there have been some very good ideas put forward.

I would like to remind all members, that our newsletter is a forum for all members views, and contributions, so come on branch news reporters, lets hear about your activities, and topics of interest.

All clubs, including ours, stand or fall, depending on the support it is given by the members.

Happy Motoring

THE PRESIDENT SAYS

Dear Member,

Recently we corresponded with a Car Club in the North Island called the "Six Cylinder Wolseley Club, Manawatu". They had written to us requesting our permission, firstly for the use of the Wolseley name and later to become a branch.

At a special General Meeting, members decided to advise the Manawatu group that they may become affiliated to our Club, and will be known as the "Wolseley Car Club N.Z. (Inc) Manawatu Branch". They will be using the same Constitution and Rules as the Timaru Branch.

As a result I contacted the Club President to inform him verbally of the decision. He appeared to be delighted with the way our Club operated. He informed me that there are many Wolseley vehicles in the Manawatu area, most of them being six cylinder cars. They have about twenty members, including two in Waihi.

Copies of our Constitution and Newsletters will be forwarded to the President before they call the inaugural meeting, to elect their local Committee. Hopefully, by 1st July, they will be in a position to start operating as a financial and working Car Club.

At the request of the Committee, I have written to fifteen members to inform them, that as they have not yet paid their annual subscription, they cease to be Club members, according to Rule 28 of our Constitution.

There are also many members who have not paid their Levy, as directed by the A.G.M. It is my intention, as your President, to write to them in the very near future. We cannot continue to operate in a piecemeal situation. It is very disturbing to see a handful of people taking an active part in our Club affairs, when, with added participation by others, we would continue to flourish and grow. So COME ON MEMBERS, DON'T let the side down, play yo ur part or we will sink into an apathetic pothole on the side of the road.

It is pleasing to see that in Timaru, Members are enjoying Social contact and raising funds by various means; i.e., Bring and Buys and Garage Sale. Mrs. Sprosen, (Timaru's local Secretary) keeps us fully informed as to the events down there and does a stirling job. The Timaru Committee are to be commended for the great job they are doing in building up their Branch. I'll bet there is not a Wolseley in Timaru that has escaped a Club Introduction pamphlet!

The Committee have decided that spare parts which have been purchased by the Club will be sold to members on a cost plus 10% basis and that donated parts will sell at a price decided by the Spare Parts Officer.

No further progress has been made on the assembl ing of our spare parts shed. By the time you read this however, the land should be cleared and ready

It has been decided not to purchase any more spares until the shed is operational.

COMMITTEE APPOINTMENTS

Recent appointments to the Committee have been as follows:
Malcolm Graham — Spare Parts Officer
Doug McKenzie — Club Librarian
Darryl Briggs — Sub Editor of the Wolseley Word
Robert Hey: As a replacement member on the Committee.

I would like to thank all of these people for volunteering and wish them well.

It is with regret that we received Colin Hey's resignation from the Committee. Colin has done a fantasic job while serving the Committee over the last three and a half years. (Two and a half as Club Editor, six months as Vice President.) For his outstanding service he was awarded the Higgins Trophy at the A.G.M. last year. Our grateful thanks Colin, we wish you well in the future.

I hope to see you at the next club event, but in the meantime, drive safely

JOHN PARKER

FISHING TRIP TO PENDARVES

Nine members and families assembled at Hornby Car Park, and proceeded in convoy to Pendarves, leaving at 11 a.m.

The weather was not very promising to begin with, but by the afternoon the wind had turned to North West, and John Parker was winning at this stage with a Doggie (baby Shark), all the size of 5 inches.

The Final result was:-

Doug McKenzie	1st with a 30inch Red Cod
Tony Shanks	2nd.
Col Crouch	3rd.

On completion of Prize-giving, everyone packed up to go home, as the weather changed once again.

P.S. Better luck next time John.

DOUG McKENZIE.

CHRISTCHURCH BRANCH - COMING ACTIVITIES.

Saturday 3 May

PARTICIPATION DINNER - Rex Fielding's Bakehouse, 26 Boon Street, Sydenham at 8pm. Music and games with prizes. If you wish to participate, please contact Pauline Parker. Ph. 883.034 by no later than Friday, 25th April.

Tuesday 6 May

COMMITTEE MEETING 7.30pm. Suggestions and ideas welcomed.

Sunday 18th May

GYMKANA - Coes Ford. Depart 11am from Supervalue Car Park, corner Lincoln Road and Lyttelton Street. Come along and compete for the BMW Shield. Lets have a good turnout for this last outdoor Club event before Spring.

+ (Postponement on 3ZB and Radio Avon if wet)

Tuesday 3rd June

COMMITTEE MEETING 7.30pm.

Monday 9th June

FILM EVENING - Senior Citizens Hall, Hastings Street, Sydenham. 7.45pm Supper and chat after. Ladies a plate please.

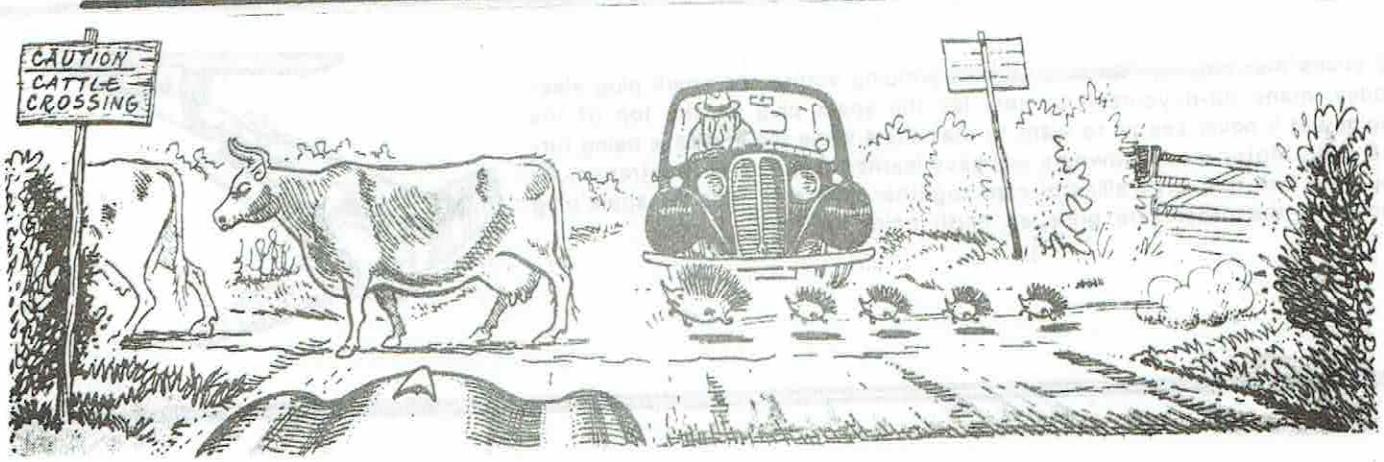
Saturday 21st June

"SOCIAL EVENT OF THE YEAR"

WINE DINE AND DANCE - Russley Hotel - Roydvale Ave, Burnside, 7.30pm 6 course meal, $12 per person. Those wishing to attend please forward $ 2 per person as deposit to confirm booking to the Treasurer P.O. Box 816, Christchurch (No cash please). "Don't miss this one". Out of town members welcome, but be early as a limited number of billets are available.

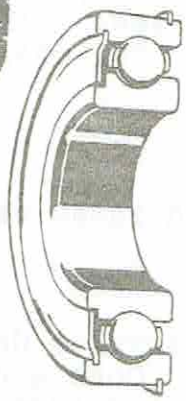
Replies by 31st May. No late entries.

+ In the event of postponement the activities will be held on the following Sunday.



WOLSELEY SERVICE

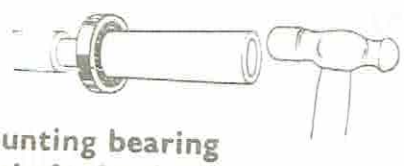
NO. 4 OF 6 | FITTING BALL JOURNAL BEARINGS



Bearing fitted with one metal shield and a circlip.

Before fitting a new bearing check that:
It is the right bearing for the job.
The internal clearance is correct.
Mating parts are in good condition.
Everything is clean and lightly lubricated.

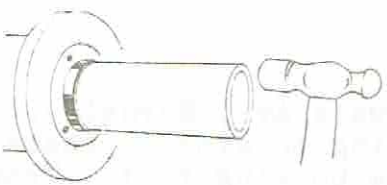
If the bearing has a single shield, seal or circlip, then it can only be fitted one correct way round. Otherwise the only point to watch is that the part number is easily seen when the bearing is installed. (Do not confuse the designation with material serial numbers and other markings on the bearing faces.)



Mounting bearing on shaft. Apply even and steady pressure to the INNER ring.

As a general rule the bearing ring that rotates should be a good press fit on the shaft or in the housing. The other stationary ring only requires a push fit.

Make sure that you start mounting the bearing squarely and be content with a slow but steady positioning. Pressure must only be applied to the ring being fitted—that is, the outer ring going into the housing or the inner ring going onto the shaft.



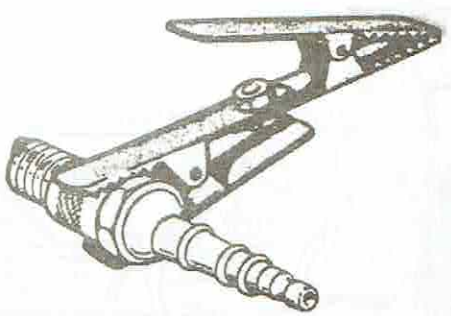
Mounting bearing in housing. Apply even and steady pressure to the OUTER ring.

If you have to use a hammer then transmit light taps, preferably through a tube or using a light metal drift all round the bearing. Avoid the bearing lips as they will easily deform or even fracture. The lips form the inside diameter of the outer ring and the outside diameter of the inner ring.

Finally, make sure the bearing is right home squarely against its abutment face and, if possible, check it for freedom of rotation.

Most bearing failures are due to bad working conditions. These notes will help you to enjoy long and trouble-free bearing life.

To check that the high tension spark is jumping across the spark plug electrodes, many do-it-yourself owners lay the spark plug on the top of the engine but it never seems to want to stay there while the engine is being turned over. Motor mower owners will have learned this to their frustration. All you do is bolt two large alligator clips together. One side grips the spark plug body and the other side grips an earth point firmly.



TECH - TOPIC

TOWING WITH AUTOMATICS - PART TWO.

CONTRIBUTED by PUBLIC RELATIONS OFFICER- AUTOMOTIVE PRODUCTS CO LTD.

There is a rumour currently doing the rounds that the small-capacity, automatic BMC cars - the Mini 850 and 1000, the 1100 and 1300 - with the AP Automatic Transmission system are not suitable for towing caravans or heavy trailers.

People who should know better have been saying that towing with a small automatic causes the transmission oil to overheat with dire results to the system components.

Not only can these alarmists be proved wrong, but a close look at what is involved in towing with an automatic car will show that such transmission systems are a help rather than a hindrance.

Firstly, any car - whether it has automatic transmission or a manual gearbox and clutch - can suffer irreparable damage if it is used to tow an overweight load.

The golden rule when it comes to towing with a car-load, be it a caravan, or trailer, is never to exceed three-quarters of the total (or gross) weight of the car, An alternative 'formula', is that the car must have 100 c.c. of engine capacity, for every hundredweight to be towed.

The point to remember, however, is that the load which can be towed satisfactorily by any car is always subject to the vehicle manufacturer's recommendations, and these can generally be found in the owner's handbook.

Owners of AP Automatic Minis, 1100s and 1300s are fortunate; the handbook itemizes what can be carried (on the roof rack), and what can be towed very carefully.

Provided that these figures are rigidly adhered to, remembering always that maximum weights include the contents of the caravan - food, clothing, gas bottles, and the rest - then the AP Automatic Transmission will operate reliably under all conditions. Indeed, its advanced design is such that a car equipped with this revolutionary system is more suited to towing than is an equivalent vehicle with manual gearbox, and foot-operated clutch!

Fears that the transmission oil may over heat are groundless. The design of the AP transmission system is such that the oil capacity is increased from the standard eight pints (of manual version) to 14 pints. In addition to this the surface area (and thus cooling capacity) of the heavily ribbed, cast-aluminium sump is considerably greater than the standard BMC unit. This means that not only is there a greater volume of oil to absorb the heat output from the engine and gearbox, but that there is a greater sump area in the airstream to cool this oil down.

Vehicles with the AP Automatic Transmission also have operational advantages over cars with a conventional clutch/gearbox system.

The AP system employs a hydraulic torque converter in place of the usual clutch. The torque converter has an inherent characteristic, in that it gives consistent smoothness in taking up drive from rest, whatever the loading on the vehicle. Thus, the driver with an automatic car always achieves a smooth, effortless take-off, whereas the clutch/gearbox man has to be very skilled not to avoid clutch slip or 'snatch' - particularly when making a hill-start.

Perhaps the greatest advantage to the driver with AP Automatic Transmission, however, is its unique manual-change feature which allows all four ratios to be engaged manually without interrupting the power flow.

When ascending hills behind slow moving vehicles the driver can change gear up and down at will, without any of the foot and hand juggling required with the conventional transmission system, and without loss of time. Additionally, this feature also permits the driver to select second or third gear for engine braking when descending gradients; this naturally makes for a safer and less frustrating descents.

In trying to show that the small BMC Automatic saloon is a better choice than the conventional car when it comes to caravan towing, another point should be borne in mind - although, admittedly, it has nothing to do with the transmission.

All Minis, 1100s and 1300s have Hydrolastic all-independent suspension, and it has been proved over the past five years that this type of suspension is completely effective in dealing with the two bugbears of trailer towing - pitching and snaking.

To quote the Autocar Correspondent: 'Hydrolastic suspension is the answer to a touring caravanner's prayer... seems to kill pitch completely,... a snake, started intentionally at 60 m.p.h., quickly died of its own accord...

Let us hope that no one will be misled by these ill-found rumours denigrating towing with a small automatic saloon. Not only are automatics far safer, and easier to operate as a 'prime mover' but the choice of one of the small BMC automatics with their AP Automatic Transmission, and Hydrolastic suspension would seem to offer the caravanner everything he could want.

To summarize: here, for the drivers of cars with AP Automatic Transmission, are a few useful tips for towing:

POWER/WEIGHT RATIO

Basically, the laden caravan, or trailer must not exceed three-quarters of the total weight of the car. This is a general recommendation. But always adhere to the vehicle manufacturer's recommendations.

ENGINE OIL

Maintain full oil level at all times, using the recommended grade of lubricant.

ASCENDING GRADIENTS

Keep the engine speed at around 3,000 to 4,000 r.p.m., manually selecting the appropriate lower ratio if necessary, for maximum control, and driving finesse

DESCENDING GRADIENTS
Always use engine braking, by selecting third, or second speed, as appropriate to the conditions.

PARKING ON A GRADIENT
Use chocks in addition to the hand brake, when parking on a steep gradient. Engine compression, for additional braking, is not available with a hydraulic torque converter transmission. Should chocks not be readily available, remember to turn the front wheels into the kerb when parking.

DESCRIMINATING OWNERS

James A. Collins -
In February 1963, my wife and I decided the time had come to change from tent to caravan. This entailed investing in a more suitable tow car, as our 4/44 was definately not designed as such.

Being a Wolseley "Fan" (we had the 4/44 and an 8-h.p.) the obvious choice was either a 6/80 or 6/90, with a final decision of 6/90 Series 11 or 111, and in August of that year Cresta Car Sales were advertising a one owner, moderate mileage, (50,000) Series 11 with overdrive. The car appeared to be in reasonable order, but to satisfy myself I decided to arrange for an A.A. inspection.

The report was satisfactory, apart from a few minor faults, such as, "All gear shift levers and linkage badl y worn, general seepage around sump, and gear box, distributor requires overhaul, reverse light out (Switch). The only major fault was a worn reverse gear.

The first job was to have the car steam cleaned, and undersealed, also I gave the under carriage a coat of black "Dulux". After which all the minor faults were attended to.

As the Caravan was on order, the next job was to have the reverse gear attended to. When the engine, and gearbox were removed, and the box dismantled, and inspected, it became apparent that a complete gearbox overhaul was necessary. Also a new cover assembly, clutch plate, and release bearing were fitted.

The first available long week-end we took the Caravan for its first run - not too far - just up to Waipara. Outward bound we plugged into an old man Nor-Wester causing the Wolseley to boil. On the homeward journey an expensive knocking sound was heard coming from the engine compartment. The strange part of it all was that without the Caravan, no knock, so the car was placed on a dynomometer and loaded until the knock appeared - No 5 big end - Oh the pain !!!!

Once more the engine was removed, and stripped down. New big end bearings, new rings, and new exhaust valves fitted. Also about this time I had a booster fitted to the brakes, this has been really worthwhile, as it makes for effortless braking.

During the Sixteen years that I have had the car, it has only let me down twice, The first time on a Friday evening enroute to Lake Rotoiti, we pulled into the layby at Hawkeswood for a "Cuppa", when I noticed water coming from under the front. On lifting the bonnet, I discovered the welch plug behind the manifold leaking badly. Fortunately I carry spare welch plugs, but on this occasion, I had neglected to bring my ring spanners, of which the half inch one, is necessary to separate the exhaust pipe from the manifold. Whilst pondering on the situation, (by this time it was getting dark and starting to rain), a passing motorist enquired if he could help. "Did he have a half inch ring spanner?" I asked rather hopefully. "Yes!!" came the answer. It turned out, that he was a Tractor mechanic on his way back to Christchurch from Kaikoura. He stayed until the new plug was fitted and the exhaust back on, after which he had a cup of tea etc., with us, and went on his way. As it was now fairly late, I decided to call it a day, and finish off in the morning.

The rain proved a boon, as I was able to collect a bucket full off the Caravan guttering.

The second let down, which also resulted in a forced over night stop at Cheviot, was the result of a loose low tension wire to the distributor. This was harder to find than fix.

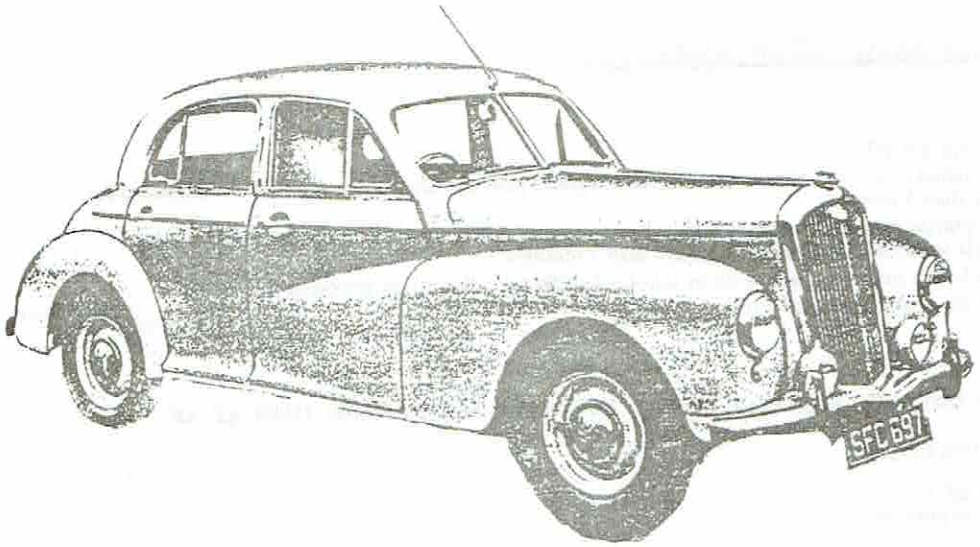
My one real concern, is overheating when towing, except in the cool of the evening. The radiator has been thoroughly cleaned, thermostat changed, (I am reluctant to discard the thermostat) and a six bladed fan fitted, all to no avail.

In conclusion, I still think it is a grand car, neat appearance, comfortable to travel in, and a pleasure to drive. Petrol comsumption has worked out at 17 m.p.g. towing, and approx 22 m.p.g. solo.

Jim Collins has neglected to mention,his car is cossetted in a garage, with it's own engine immersion heater going 24 hours a day, where it is kept in immaculate order, and when one looks under the bonnet,the motor compartment gleams as if new.

Since joining the Club,he has been of immense assistance to me, during my quests for Wolseley material,and information on various models. - ED.

"IT SAYS 'A FEW RUBS WITH THIS SUPER EFFICIENT HAZE CUTTER WILL GET YOU THROUGH THE THICKEST ROAD FOG'!!"



WOLSELEY

WOLSELEY SIX-EIGHTY ROAD TEST

The Wolseley Six-Eighty was introduced as a completely new model in October, 1948, and one of the early examples was road tested in the following summer. It conformed with the Wolseley pattern, as a car at a moderate price offering better than average performance, equipment and detail finish, and seemed likely to exhibit the durability which had previously assured for Wolseley's a faithful clientele, including many business and professional men and numerous police forces. It had modern but sober lines, and a smooth willing, six-cylinder engine with two carburettors, which carried on a Wolseley tradition by having a single overhead camshaft to operate the valves.

This post war Wolseley made its debut at the first post-war Motor Show at Earls Court in 1948 and was road tested by "The Motor" in the following June. At that time we wrote: "We have been able to satisfy ourselves that the new design is fundamentally sound and moreover, one which should be capable of progressive development," The 1951 model tested a little more than 18 months later showed little external change, but internally the design of the front seats has been modified and considerable improved trim provided for the facia panel and window cappings. A study of the specification before taking the car on the road also disclosed that top and bottom gears have been lowered by some 10 per cent., and third and second gears by approximately 20 per cent., from which one inferred that top gear acceleration and hill climbing would be improved at the cost, perhaps, of some reduction in maximum or cruising speed.

Such an expectation proved very far from the truth. Acceleration, it is true, has been very greatly bettered, maximum gradient climbable in top gear being now 1 in 10 as compared with 1 in 12¾ on the old car, that is to say, not far short of the 1 in 9¼, which on the earlier models was the steepest gradient climbable in third gear. Maximum speed on, say, 1 in 15 gradient shows an equally startling improvement from 49 m.p.h. to no less than 68½ m.p.h., but these gains, it is quickly shown were not entirely caused by changes in engine: road speed relationship, but also by improved engine power. In the standing-start acceleration times, for example, 60 m.p.h. is reached in 24.1 seconds as compared with the previous 27.8 seconds, whilst true maximum speed also shows almost unbelievable improvement from 76.9 m.p.h. up to 85.3 m.p.h. Finally, these very big improvements have been made with an actual gain in overall performance which reflects substantially better economy figures in the whole speed band between 30/60 m.p.h.

WOLSELEY OWNER ROAD QUESTIONAIRE.

1. WHAT IS THE MEANING OF THIS SIGN?

A. Any vehicle may stop to pick up or set down goods provided the vehicle is not left unattended for more than 5 minutes
B. Any vehicle except a motor cycle or car may stop to pick up or set down goods provided the vehicle is not left unattended for more than 5 minutes
C. Only trucks may stop to pick up or set down goods for a maximum period of 5 minutes
D. Only buses and taxis may stop

2. FROM WHAT POSITION ON AN UNLANED ROADWAY SHOULD YOU MAKE A LEFT-HAND TURN AT AN INTERSECTION?
   A. The most convenient position for you
   B. No particular place
   C. As close as possible to the left of the road
   D. As close to the centre line as possible

3. WHAT SHOULD YOU DO WHEN PARKING PARALLEL TO THE KERB ON A STEEP DOWN-GRADE?
   A. Leave the front wheels straight ahead
   B. Turn the front wheels towards the kerb
   C. Turn the front wheels away from the kerb
   D. Run the front and rear left wheels hard against the kerb

4. IF YOU INJURE SOMEBODY IN AN ACCIDENT, WITHIN WHAT PERIOD MUST IT BE REPORTED TO THE NEAREST POLICE STATION, MINISTRY OF TRANSPORT OFFICE, CONSTABLE, OR TRAFFIC OFFICER?
   A. 2 Hours
   B. 6 Hours
   C. 12 Hours
   D. 24 Hours

5. WHAT MUST YOU DO WHEN YOU INTEND TO TURN RIGHT FROM A BUSY ROAD INTO A DRIVEWAY OR INTERSECTION?
   A. You should signal immediately before you turn
   B. Do not signal unless traffic is approaching you
   C. No signal is necessary
   D. Give a right turn signal at least 3 seconds before your turning point

6. HOW IS IT ADVISABLE TO WEAR A LAP AND DIAGONAL SEAT BELT?
   A. With no slack at all between your chest and the seat belt
   B. With about 3 cm slack between your chest and the seat belt
   C. With about 10 cm slack between your chest and the seat belt
   D. As loosely as you like as long as it is comfortable

7. WHAT SHOULD YOU DO IF YOU ARE DRIVING AT NIGHT AND BECOME SLEEPY?
   A. Drive on the shoulder of the road
   B. Pull off the roadway and have a rest
   C. Increase speed so you can get home quickly
   D. Keep on driving but use a lower gear

8. WHAT IS THE SPEED LIMIT AFTER YOU PASS A SIGN ADVISING OF AN ACCIDENT AND UNTIL YOU CLEAR THE ACCIDENT SCENE?
   A. 20 km/h
   B. 30 km/h
   C. 40 km/h
   D. 50 km/h

9. WHAT SHOULD YOU DO WHEN YOU ENCOUNTER STOCK?
   A. Slow right down and pull over to the side of the road
   B. Give a continuous blast on the horn
   C. Give a series of toots on the horn
   D. Race your engine intermittently

10. WHAT IS THE AMOUNT OF ALCOHOL PER 100 MILLILITRES OF BLOOD THAT MUST NOT BE EXCEEDED IF A PERSON IS DRIVING OR ATTEMPTING TO DRIVE A MOTOR VEHICLE ON A ROAD?
    A. 50 Milligrams
    B. 80 Milligrams
    C. 100 Milligrams
    D. 120 Milligrams

11. WHAT SHOULD YOU DO WHEN RED LIGHTS ARE FLASHING AT A RAILWAY CROSSING?
    A. Cross immediately the train has passed
    B. Change into low gear and then cross the line
    C. Stop until the lights cease flashing
    D. Stop and if no train is in sight you may cross

12. ARE YOU PERMITTED TO DRIVE A VEHICLE WITH AN INSECURE LOAD?
    A. Yes – if you drive at less than 20 km/h
    B. Yes – if you display a white flag on the right front corner
    C. Yes – if you have a special licence
    D. No – not under any circumstances

13. MAY YOU OVERTAKE A VEHICLE THAT HAS STOPPED OR SLOWED DOWN TO GIVE WAY TO PEDESTRIANS USING A PEDESTRIAN CROSSING?
    A. Yes – in any circumstances but give 4 metres clearance to pedestrians
    B. Yes – but only if you slow to less than 10 km/h
    C. Yes – but stop first and give 4 metres clearance to pedestrians
    D. No – not under any circumstances

A STRIKING EXAMPLE

It may seem strange that we have gone to such lengths to comment on the performance of what many may think is essentially a moderately priced "family car," but we wish to put on record not only that this is one of the most striking instances of the relative importance of development and design with which we have had experience, but also that the six-cylinder Wolseley in its present form has probably the highest performance of any British car of equivalent engine size and selling price. The use of six cylinder is, of course, unusual to-day in power units of circa two litres capacity, but in this case nothing seems to be given away compared to four-cylinder types in respect of fuel economy and the gain in smoothness over the whole speed range has only to be experienced to be appreciated.

So smooth, indeed, is the engine that the top gear acceleration appears less emphatic than it is in reality, and this tempts the driver to make perhaps unnecessary changes of gear. If this is done, however, the result is truly rewarding, for the acceleration on second ot third gears is extremely satisfying, although one might very well wish for rather quieter indirect ratios and certainly has a right to expect a smoother and more decisive gear change mechanism. If one wishes, however, one has at once on hand a speed range varying from under 10 to nearly 90 m.p.h. on one ratio, whilst by virtue of the relatively short stroke/bore ratio and the multiplicity of cylinders, the theoretical cruising speed of 75 m.p.h. can be comfortably maintained in practice at a corresponding engine speed of 4,400 r.p.m. Valve bounce does not set in until a shade under 5,000 r.p.m. (as measured on a Crypton electric tachometer), and as will be seen from the data panel, over a mile a minute can if need be reached on third gear, although in normal driving top gear would be engaged at some 45 m.p.h. even if the car was being hurried.

A tendency to "run-on" experienced on earlier models of this car appears to have been abated, although not wholly eliminated whilst on current Pool petrol pinking, although present, was by no means excessive.

Mechanically the engine was quiet, and the unique spring-loaded split worm wheels on the overhead camshaft driving gear do their job so well that there is no audible indication that this unusual position for the camshaft has been adopted

Although no outstanding power output is claimed on paper, it is obvious from the performance figures that the engine is in fact unusually efficient; but this is not the sole aspect in which the overhead camshaft engine can claim virtues. Maintenance is improved because it is possible to completely overhaul and adjust the valvegear when it is dismantled from the main engine casting, whilst the symmetrical design of the cylinder block should ensure freedom from distortion when the cylinder head is tightened down, and thus help to give exceptional length of life between re-boring.

ACCESSIBILITY

General accessibility for routine maintenance remains well above the average. Fuses, voltage control unit, and electric fuel pump are prominently mounted on the scuttle, while the coil, and distributor are also easy to reach. However, the fact that the oil filler has been repositioned so that it is now necessary to open one side of the bonnet to look at the dipstick - which in any case is not as easy to reach as it could be - and then to open the bonnet on the other side to put the oil in, can hardly be counted among the improvements.

BRAKING.

High performance is well matched by Lockheed brakes which need a fair pedal pressure but give an even stop, a tendency to harshness when the car was delivered to us having entirely disappeared by the time it was relinquished, with an additional 1,000 mile on the odometer.

ENHANCED ROADWORTHINESS.

Both steering and road holding have also been improved in the past year or so, and it is no longer true, as mentioned in our previous report, that the springs, are very lightly damped. On the contrary, front suspension now boasts two direct acting dampers on each side of the suspension arms, whilst the same type of unit is used at the rear inclined inwards to assist the rear springs in preventing sideways motion of the rear axle. These changes have perhaps made the car a trifle harder riding over really rough roads, but have immensely enhanced the all round roadworthiness, whilst the steering wheel now seems reasonably free from reaction of bumpy roads. It remains true, however, that this is a car with very pronounced under-steer characteristics to which is added a powerful caster return action. The net result, taken in conjunction with small diameter steering wheel which needs some three turns over the extreme range with a lock of 40 ft., is to make the car feel somewhat clumsy on confined roads and in city traffic. To these undoubted physical factors one may add the psychological effect of an abnormally long body by modern standards, and a seating position which puts the driver rather high in relation to the top edge of the windscreen and side windows.

In main road running the under-steer is also felt when traversing sharp corners, or roundabouts, but the associated straight running characterstics are eminently suitable for really fast sections, and would be particularly valuable in foreign markets. One can think of few cars of similar size, and practically none at a comparable cost, which would equal the Wolseley for transcontinental motoring, and for work of this order the value of the car is greatly aided by the 10 cu. ft. of luggage space which is obtained in part, by having the rear seat well forward of the back exle centre.

INTERIOR APPOINTMENTS

A feature which will commend itself to long-distance motorists is the fitting of separate front seats, so that a driver and passenger of widely varying stature can make themselves equally comfortable. Although the Wolseley could undoubtedly carry five people on demand, it is rather to be regarded as a four-seater for ordinary occasions. The front seats are interesting in the they are adjustable for both height and reach, but even in their most upright position, the driver will find that the squab slopes backwards at an undesirably large angle to the vertical, whilst if the telescopic steering column is extended to the limit the gear lever itself will be found rather far away.

Other features which may be regarded as targets for legitimate criticism are the noise of the heater motor, the fact that the installation system is only of the recirculatory type and the comparative inefficiency of the de-misting ducts. No trouble, of course arises in this last respect if the triangulated ventilators are opened, but the overall temperature level then declines rapidly and, in any circumstances, the rear passengers are somewhat afflicted by draughts from the door openings.

In interior finish and equipment several changes are to be noted since the last Six-Eighty was tested, notably on the facia panel, which now has more wood and leather. The two small glove boxes have lids but cannot be locked: there is a shelf for small parcels below the facia, and another shelf for larger parcels behind the rear seat. Ash trays are recessed in each front door, and in the back of each front seat. Leg room, and head room are good at both front, and rear and the interior conveys a quiet impression of quality, with its polished wood garnish rails, real leather upholstery, and neat pile carpets. Seat cushions have soft foam rubber overlays. Combined grab handles, and armrests are mounted on all four doors. Other points of note are the durable, and easily cleaned plastic lining, twin interior lights, and four ventilating windows, those on the front doors being reversible to act as air scoops. There are two vizors, the one on the passenger's side carrying a vanity mirror.

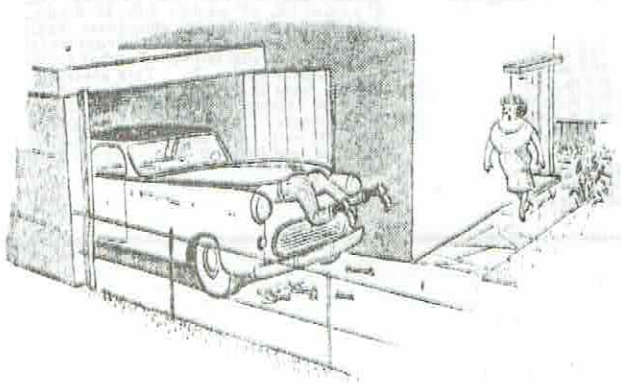
Equipment on the instrument panel includes an electric clock. There is a switch to operate the electrically controlled starting carburettor, which proved practically unnecessary in warm weather, including a warning light to show when it is operating. There are also warning lights for ignition, and the head lamp main beam, while instrument lighting is rheostat controlled. The head lamps, are of the latest double-dip type with block-type lenses and are adequate for the performance of the car. Two fog lamps are also included in the standard equipment.

Good detail finish is to be noticed in the luggage locker, which has a rubberized carpet. There is an adequate tool kit, and a useful safety feature is an automatic interior lamp for the luggage locker, which shows a red light to the rear when the lid is open.

CONCLUSION

In general, the Wolseley Six-Eighty should appeal to those who are sufficiently conservative to appreciate an interior finished in good quality leather, and polished woodwork, but who like to be able to travel fast when necessary. It is well equipped; it has good brakes, a good engine, and its suspension and steering will meet the requirements of the great majority of owners.

In this, as in many other respects, the producers must be given credit for meeting the legitimate demands of the motorist who travels far and fast each day to p ut up big mileages in the year. On the first acquaintance in city driving, and even on more extended runs on crowded roads, the true merit of the Wolseley can be obscured, and such faults as it has magnified. On longer acquaintance, and where really open road conditions obtain, the car shows its real virtue, and wins both liking and respect.



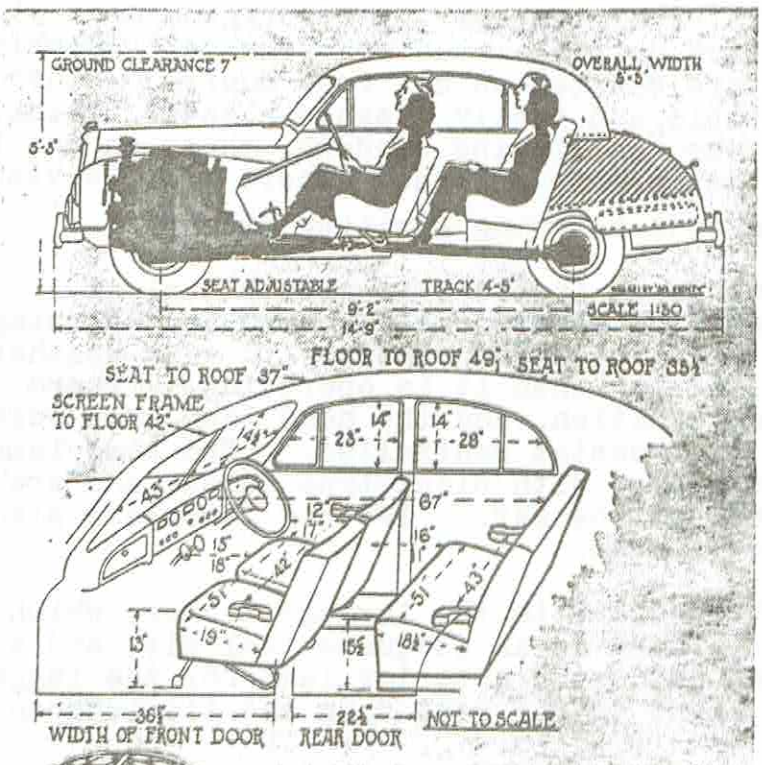
'You said it would take you five minutes to mend that bonnet support—you've been three hours already!'

"This is an old Roman road."

Make: Wolseley. Type: 6/80 Saloon.

Makers: Wolseley Motors Ltd., Cowley, Oxford.

Dimensions and Seating



WOLSELEY

Test Conditions

Fine, moderate wind, damp roads.

Test Data

ACCELERATION TIMES on Two Upper Ratios

	Top	3rd
10-30 m.p.h.	10.7 secs.	7.8 secs.
20-40 m.p.h.	11.4 secs.	7.8 secs.
30-50 m.p.h.	12.5 secs.	8.4 secs.
40-60 m.p.h.	13.6 secs	10.7 secs.
50-70 m.p.h.	18.9 secs	—

ACCELERATION TIMES Through Gears

0-30 m.p.h.	6.1 secs.
0-40 m.p.h.	9.8 secs.
0-50 m.p.h.	15.0 secs.
0-60 m.p.h.	21.4 secs.
0-70 m.p.h.	32.4 secs.
Standing Quarter Mile	22.0 secs.

MAXIMUM SPEEDS

Flying Quarter Mile

Mean of four opposite runs	85.3 m.p.h.
Best time equals	88.2 m.p.h.

Speed in Gears

Max. speed in 3rd gear	62 m.p.h.
Max. speed in 2nd gear	45 m.p.h.
Max. speed in 1st gear	31 m.p.h.

FUEL CONSUMPTION

27.0 m.p.g. at constant 20 m.p.h.
30.5 m.p.g. at constant 30 m.p.h.
30.0 m.p.g. at constant 40 m.p.h.
26.5 m.p.g. at constant 50 m.p.h.
23.0 m.p.g. at constant 60 m.p.h.
17.5 m.p.g. at constant 70 m.p.h.
Overall consumption for 218 miles, 10 gallons=21.8 m.p.g.

WEIGHT

Unladen kerb weight	26.1 cwt.
Front/rear weight distribution	56/44
Weight laden as tested	29.6 cwt.

INSTRUMENTS

Speedometer at 30 m.p.h.	3.3% fast
Speedometer at 60 m.p.h.	3% fast
Distance recorder	2.0% slow

HILL CLIMBING (at steady speeds)

Max. top gear speed on 1 in 20	74.5 m.p.h.
Max. top gear speed on 1 in 15	68.5 m.p.h.
Max. gradient on top gear	1 in 10.4 (Tapley 210 lb./ton)
Max. gradients on 3rd gear	1 in 7.7 (Tapley 290 lb./ton)
Max gradient on 2nd gear	1 in 5.3 (Tapley 415 lb./ton)

BRAKES at 30 m.p.h

0.25g retardation (=120 ft. stopping distance) with 25 lb. pedal pressure)
0.5g retardation (=60 ft. stopping distance) with 50 lb. pedal pressure)
0.92g retardation (=32½ ft. stopping distance) with 130 lb. pedal pressure)

In Brief

Price £600 plus purchase tax £167 8s. 4d. equals £767 8s. 4d.

Capacity	2,215 c.c.
Unladen kerb weight	26.1 cwt.
Fuel consumption	21.8 m.p.g.
Maximum speed	85.3 m.p.h.
Maximum speed on 1 in 20 gradient	74.5 m.p.h.
Maximum top gear gradient	1 in 10
Acceleration	
10-30 m.p.h. in top	10.7 secs
0-50 m.p.h. through gears	15 secs

Gearing 17 m.p.h. in top at 1,000 r.p.m. 74.5 m.p.h. at 2,500 ft. per min piston speed.

Specification

Engine

Cylinders	6
Bore	73.5 mm.
Stroke	87 mm.
Cubic capacity	2,215 c.c
Piston area	39.5 sq. in.
Valves	Single o.h. camshaft
Compression ratio	7.0/1
Max power	72 b.h.p.
at	4,600 r.p.m.
Piston speed at max. b.h.p.	2,630 ft. per min.
Carburetter	2 horizontal S.U.
Ignition	12-volt Lucas coil
Sparking plugs	14 mm. Champion L10
Fuel pump	S.U. electric
Oil filter	Tecalemit full-flow

Transmission

Clutch	9" s.d.p.
Top gear (s)	4.55
3rd gear (s)	6.59
2nd gear (s)	10.25
1st gear	14.64
Propeller shaft	Open Hardy Spicer
Final drive	Hypoid bevel

Chassis

Brakes	Lockheed (2 l.s. front)
Brake drum diameter	10 ins.
Friction lining area	130 sq. ins.
Suspension	
front	Torsion bar i.f.s.
rear	Semi-elliptic springs
Shock absorbers	
front	Girling Telescopic
rear	ditto.
Tyres	Dunlop 6.00 x 15

Steering

Steering gear	Cam
Turning circle	40 feet
Turns of steering wheel, lock to lock	3

Performance factors (at laden weight as tested)

Piston area, sq. in. per ton	26.7
Brake lining area, sq. in. per ton	88
Specific displacement, litres per ton mile	2,640

Fully described in "The Motor," October 27, 1948

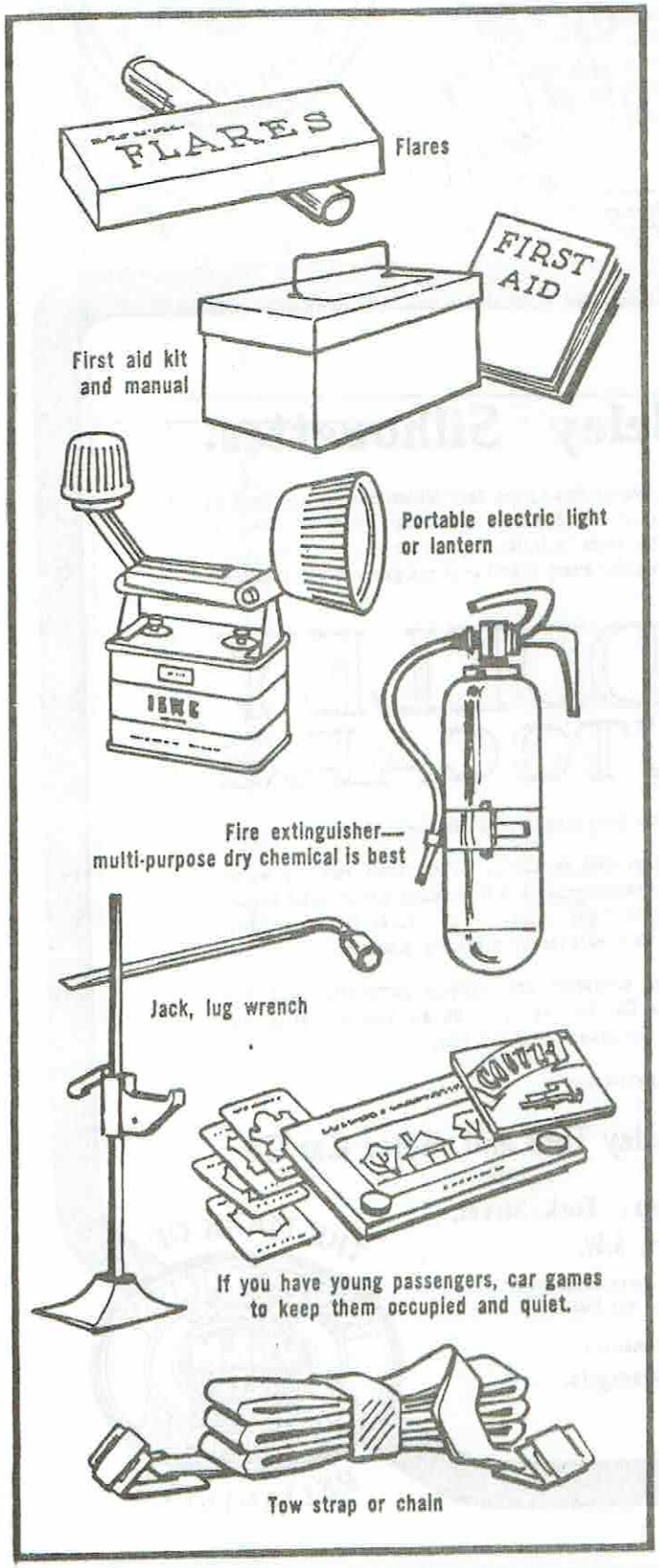
Maintenance

Fuel tank: 12 gallons. Sump: 10 pints S.A.E.30. Gearbox and differential: 2½ pints S.A.E.90 Gear Oil. Rear axle: 2½ pints S.A.E.90 Hypoid. Radiator: 20 pints (drain taps). Chassis lubrication: By grease gun to 14 points. Ignition timing: 5° B.T.D.C Spark plug gap: 0.018-0.022 in. Contact breaker gap: 0.012 in. Valve timing: I.O., 8° b.t.d.c.; I.C., 52° a.b.d.c.; E.O., 52° b.b.d.c.; E.C., 8° a.t.d.c. Tappet clearances (hot): Inlet 0.015 in., Exhaust 0.015 in. Front wheel toe-in: Nil (parallel setting). Camber angle: Nil. Castor angle: 2°. Tyre pressures: Normal, Front 22 lb., Rear 24 lb. Brake fluid: Lockheed "Orange." Battery: Lucas 12-volt, 51 amp-hours. Lamp bulbs: Headlamps, N/S 36/36 watt; O/S 36-watt pilot; number plate and roof lamps, 6 watt; stop tail lamp 6-24 watt.

FOR THE LADIES.

Emergency Equipment

Highway troubles are rare for the modern motorist, but they do happen Here's what the wise driver keeps in his car for possible on-the-road emergencies:



Car Trouble

Your car can be stopped by:

1. Empty fuel tank
2. Overheating
3. Electrical failure
4. Flooded carburetor
5. Wet ignition
6. Fuel system dirt
7. Vapour lock
8. Broken fan belt
9. Frozen petrol line

Most stalls you can handle. Here's how:

1. Check your petrol gauge. If it reads "Empty", do not attempt to re-start the engine until the tank is re-fuelled.

2. If the engine overheats, stop in the shade if possible. Put transmission in neutral or park. Lift the hood. If the fan belt is tight and hoses are not leaking, run the engine at fast idle. If you have air conditioning, shut it off. If temperature does not return to normal after a few minutes drive slowly to the nearest service station, stopping for 15 minutes every couple of miles.

3. Electrical failure usually means a blown fuse or opened circuit breaker, a loose or broken wire or corroded or loose battery terminals. If everything is dead, the trouble is with the battery, battery cables or connections. Remove cables and clean battery terminals. Check tightness of cable connections to starter and engine block.

4. Petrol odour means a flooded engine. Remove the air filter, flip the choke open, crank the engine. Engine will dry out and start. (Don't drive with air cleaner off, it also acts as a flame arrester.)

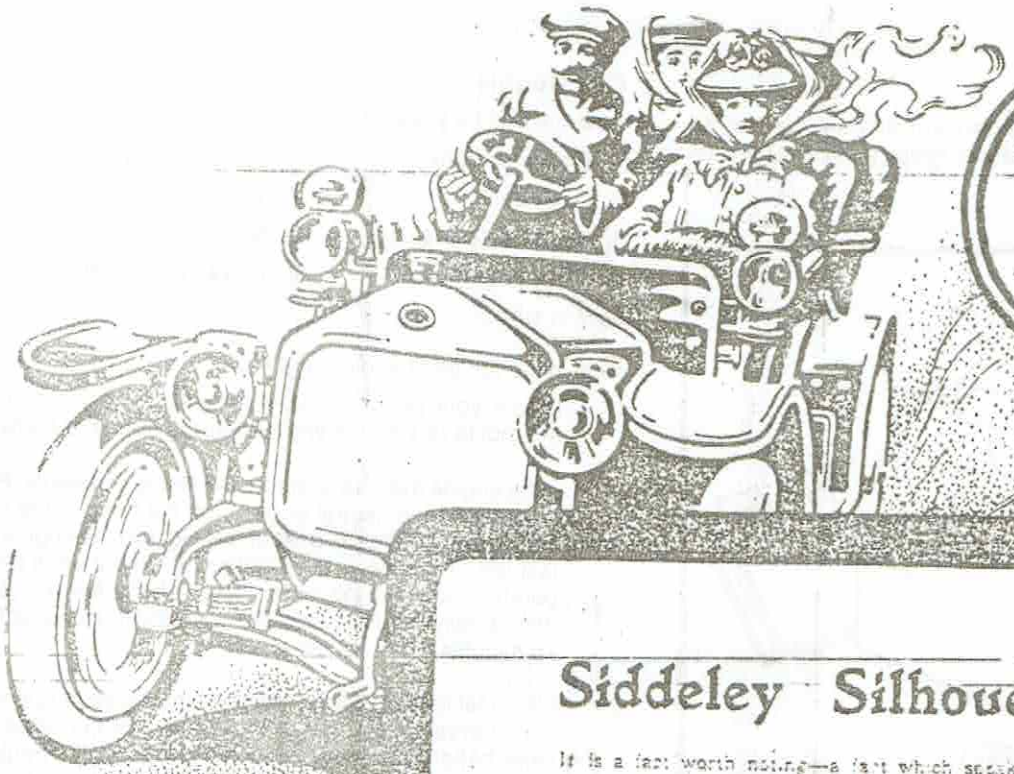
5. Wet spark plugs and cables will short out, causing the engine to miss or stall. Dry off top of ignition coil, all cables and spark plug porcelain with a rag.

6. If dirt plugs the fuel system, remove the air filter, hold your palm over the carburetor while someone operates starter. Powerful suction may remove the obstruction. If not, call for service.

7. Vapour Lock: Just park in any shade available, raise the hood and wait 5 or 10 minutes. To speed things up, put a wet rag on the fuel pump and the fuel line to the carburetor to cool the vaporjzed petrol.

8. If a fan belt breaks, the engine will overheat and the generator or alternator will cease to operate. Stop to let the engine cool off (about 15 minutes), then proceed slowly to the nearest service station, stopping from time to time to cool the engine.

Answers to page 11-: 1/A, 2/C, 3/B, 4/D, 5/D, 6/B, 7/B, 8/A, 9/A, 10/B, 11/C, 12/D, 13/D.....



BY APPOINTMENT TO H.M. THE QUEEN

Siddeley Silhouettes.

It is a fact worth noting—a fact which speaks volumes as to the merits of the Siddeley Car—that when or wherever you meet one, there is invariably an air of comfort and pleasure pervading every member of the party who travels in it.

SIDDELEY AUTOCARS

Are famous for Consistent Reliability—that is the reason.

There is an ease and restfulness about their running which stimulates enjoyment—there is certainty about their action, their ability to "get there" that robs the journey of which is the very essence of motoring pleasure.

Economy and efficiency are happily combined and you know that the Car will not only do all you ask of it, but will do it at the lowest possible cost.

Write us for particulars.

The Wolseley Tool and Motor Car Co., LTD.

Head Offices: York Street, Westminster, S.W.

Telegrams: "Siddeley, London."
Telephone: 411 Victoria.

Manchester:
76, Deansgate.

THE MARK OF WOLSELEY VS&M LTD SIDDELEY RELIABILITY

SIDDELEY AUTOCARS can be purchased on the Instalment System from William Whiteley, Ltd., Westbourne Grove and Queen's Road, London, W.

THE WOLSELEY YEARS

CHAPTER VIII

THE WOLSELEY-SIDDELEYS - PART ONE

COMMENTARY

Looking back at the birth of the motor industry, is seems that everything happened so much more quickly than it does today.

That first 20 years is time foreshortened, and it comes as a shock to realize that men we call pioneers, were already regarding with amused tolerance, the efforts of those who had gone before. They would speak of 'veteran cars' even then.

The two decades after Karl Benz's first car took to the road in 1885, saw the primitive first thoughts of the Germans taken over, and refined by the French, to form the basis of a thriving industry.

By this time a real home manufacturing industry began to appear, with the name of Wolseley well to the front. The make prospered with a range of attractive horizontally engined twin, and single-cylinder light cars, designed by Herbert Austin.

One of the chief benefits, which British automobilism derived from the thousand Miles trial of 1900, in which the Wolseley car performed so meritoriously, was the settlement of certain fundamental principles in design, which had long been disputed among Engineers. Steam, as the motive, aircooling, belt transmission, solid tyres, tiller steering, and tube ignition had all been the subject of fierce argument, but the trial in question had dealt many of them the well-merited coup de grace, and designers were then free to develop their ideas along channels, which this long, and strenuous trial had proved to be sound.

It had not had this effect, however, on one of the most thorny problems of all, namely, the horizontal engine versus the vertical. In spite of the fact that the horizontal school was small in numbers, and was losing, rather than gaining ground in popular favour, the Thousand Miles Trial had demonstrated, that in point of reliability, and freedom from breakdown, the vertical engine could concede nothing to the horizontal. Indeed, the latter had upheld all the claims of its sponsors, and those who possessed cars with such an engine, were seldom heard to complain of their choice. Nevertheless, the vertical engine had also proved its high degree of efficiency, and had many more supporters than the horizontal.

But motoring was then indulged in largely by those with sporting instincts; nine motorists out of every ten in those early days, motored for the pleasure of motoring, and not merely for the purposes of transportation from, place to place. Some early semblance of a fashion in motor cars had already sprung up; it took the form of a long bonnet in front, which gave the car a somewhat rakish, and speedy appearance, which the horizontal engine could not provide without waste of space, and a certain amount of "make-believe."

The motorist who had a car with a horizontal engine, was not always anxious to change, but the chief difficulty was to convince the intending purchaser of no previous experience, that the "horizontal" advocates (constituted the extreme minority) were right, and that the overwhelming numbers of "vertical" enthusiasts were wrong, and as time went on, and new car after new car appeared on the market, each with a vertical engine, with-out any notable additions to the horizontal ranks, the task became still more difficult.

From 1900 onwards, the horizontal engine slowly, but surely lost ground, and was abandoned by such important manufacturers as Peugeot, Benz, and others. The writing on the wall could not be overlooked, and by the time the winter of 1902 arrived, a landslide had set in, and the vertical engine had become practically supreme.

J.D. SIDDELEY

One of the competitors in the Thousand Miles Trial of 1900, had been John D. Siddeley.

He was a good example of an enterprising breed of late Victorians, who were both interested in engineering, and active as entrepreneurs, and who could use their contacts in Society circles, to further the companies in which they were interested.

Like the Hon. Charles Rolls, he was to become immersed later in aviation, and his name is enshrined in one of today's consolidated aircraft groups — Hawker Siddeley. After a long career he died in 1953, as Lord Kenilworth.

At the time of the 1000 trial he was the Managing Director of the Clipper Tyre Company, and he drove a 6-h.p. Parisian Daimler fitted with a set of British-made Clipper tyres through that trial with marked success. The object was to test the tyres, not the car, over the whole distance. He remained with the Clipper Tyre Company a couple of years, but the then swiftly developing motor industry caused him to resign that position, and to strike out in the motor business on his own accord. At first, and largely to acquire the necessary experience, he became the British agent for the French Peugeot car, the makers of which had recently abandoned the horizontal engine for the vertical, but it was not long before Siddeley felt this circle was too narrow for his activities. He desired to see a British-built car on the market bearing his own name, and incorp orating various features his experience had taught him were desirable. One thing he desired, was a more extensive use of aluminium, and the adoption of a propeller shaft, and torque tube for the smaller cars, in lieu of the heavier chain drive, which was then so common.

In those days, it would not have been easy to find the necessary capital, to build and equip a factory, and start manufacturing a new car, so John Siddeley decided to have his car designed, and manufactured, according to his specification, by some well-known firm of engineers. In company with Mr. Lionel de Rothschild, who afterwards became a Director of the Wolseley Company, and with whom he was in close touch, he approached the Vickers Company, to whom he unfolded his whole proposition.

In chapter five, it has been explained how Vickers had bought the motor business of the old Wolseley Sheep-Shearing Machine Company, and were the owners of the Wolseley Tool, and Motor Company, Limited, who were at the time Siddeley approached them, still making horizontal-engined Wolseley cars.

But the ever-growing popularity of the vertical-engined car had not escaped the notice of the Directors, and of Mr Albert Vickers in particular. It was apparent to them that the Wolseley car was losing ground, but by developing, and manufacturing the proposed "Siddeley", with its vertical engine, and other interesting features, they would gain experience in a direction, which they might, at no distant date be forced to follow.

A certain amount of competition between the two cars would, of course, be inevitable, but after certain negotiations, it was agreed that the design of a car laid down by Siddeley, should be developed by the Wolseley Company, and manufactured at Vickers' factory at Crayford.

The Siddeley Autocar Company was duly registered with offices in Coventry, and the first time Siddeley cars were exhibited in public, was at the old Crystal Palace Show during January-February, 1903. A four-cylinder 18/24-h.p., and a smaller 12/16-h.p. chassis were shown, as wellas a twin-cylinder 8-h.p., and a still smaller 6-h.p. with a single-cylinder engine. The general lay-out proved to be in keeping with designers' ideas of that period, without any special breakaway from the conventional.

The "Honeycomb" radiator, first introduced by Mercedes, and the square-type of bonnet were adopted, as well as mechanically operated inlet valves, which at that time, had not become universal.

"Peach's Motor Annual," 1905.

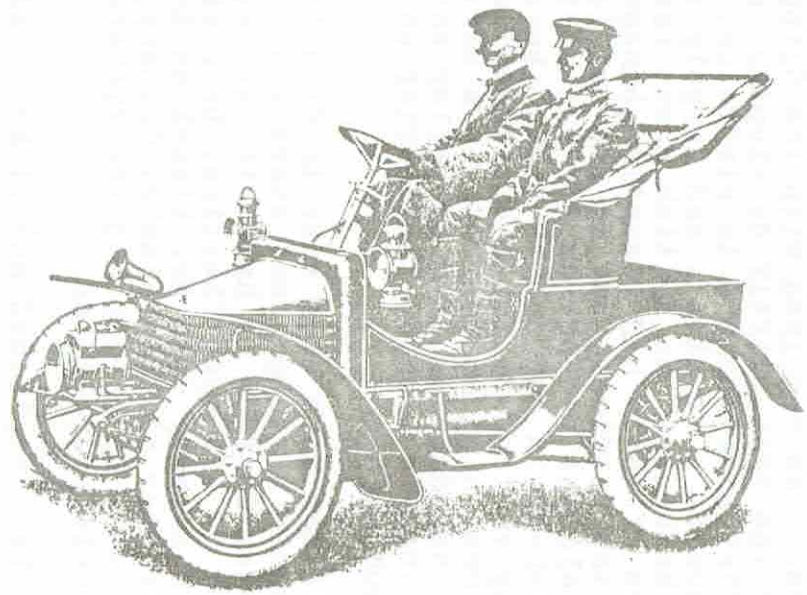
FRANK PEACH & CO., Ltd., 48, Holborn Viaduct, LONDON, E.C.

WHO WILL FORWARD ANY FURTHER PARTICULARS AND TERMS OF PURCHASE THAT MAY BE DESIRED.

THE WOLSELEY LIGHT CAR.—Its Possibilities as an Aid to Professional Men and Commercial Representatives.—In the selection of a car for other than purely pleasure use, the prospective owner's requirements need careful consideration. This is especially the case with doctors, for whom a vehicle must be, without doubt, absolutely reliable under all conditions. It is an almost equally important point to the owner who uses his car for business purposes. As accomomdation is usually needed for only the driver and one passenger, or at most three people, a small car is more suitable than one of a larger type, and, moreover, permits of the motor and driving mechanism being simplified both in design and constructional details a far as may be consistent with the main object, viz., reliability. In a brief consideration of the points which favour the use of a motor car for business purposes we must take as a comparison the method of travel which has hitherto been used by Doctors and Commercial men for making their "rounds." We refer to the horse and trap, which, of course, is still very largely used, but which must eventually be superseded by the newer means of conveyance, if only on account of the great saving in time taken to do a specified journey. In first cost the motor car represents a considerable outlay as compared with the cost of a horse and trap, but this is more than counterbalanced by the saving in upkeep and the very much larger area which may be covered with the car. This to a doctor is almost equivalent to doubling his practice, as he is able to reach patients at a distance of from fifteen to twenty miles in less time on a car than he could travel half the distance with a horse. In the matter of stable accommodation, a car again offers many advantages, as it can be safely housed immediately after a journey, only needing the switch, petrol tap, and lubricators being turned off until it is required to go out again. These operations are the matter of a few minutes, and can be attended to by the owner himself, whereas a horse necessitates keeping a man to groom and stable it, and to accompany the doctor on his journeys to take charge while waiting outside a patient's house. At times when the car is not in use no expense is being incurred for its upkeep; but a horse must be fed and exercised whether it is doing useful work or not. It will be seen, then, that the use of a motor car is practically a necessity to busy men in outlying districts. This need has been recognised by a very large number of professional men, and consequently the demand for a car which will meet their requirements has resulted in such a vehicle being placed on the market. We append a few particulars which have lately been forwarded to us by a medical man, after his first twelve months' experience in using a car for a country medical practice:

"My car was delivered to me at the works on July 15th, 1903, and after a very short preliminary instruction, I drove it the latter part of the journey home (about thirty miles). Up to the end of July, 1904, it had been run 3,325 miles, and during this time I had been delayed twice on the road; on the first occasion by a stuck inlet valve, which was quickly remedied by squirting a little paraffin on to it; the second occasion was through grit choking the carburetter supply pipe, and took rather longer to remedy. The exhaust box blew out once, which I had repaired at a local cycle shop, and the following renewals have been required: four new asbestos washers on the exhaust pipe, three nuts replaced on the chain bolts, a grease cup replaced for one lost, and one bolt renewed on the front spring. The above indicates the expense of the renewals to the mechanism. The tyres have worn very well; at the end of the first six months the back cover treads were worn in places down to the canvas so I put on new covers and had the old ones re-rubbered. So far there has not been a puncture, and I have run for 500 miles without touching the tyres or making adjustment of any kind to the car. In addition to these expenses there is, of course, the licenses, pit, clothing, etc. I get the car washed by my gardener-groom, and do my own small repairs and adjustments when any are required. This car has done the chief part of its journeys in a large country practice, where all the roads are hilly, although the surface is good. I have also taken it for a long tour through Wales."

The foregoing serves to show that a properly constructed car can be relied on to do the work required by medical men without trouble, and will need only ordinary care in the adjustment of various parts from time to time to keep it in good order. The cleaning can be done by a gardener or a boy, and thus the expense of a groom's service is avoided. For sudden calls at night time a car is invaluable, as it is always ready to start away at a minute's notice. For commercial representatives who have to serve out-of-the-way districts the same conditions apply, and it is just as necessary that their car shall be in every way reliable.



The 6 h.p. "WOLSELEY"—Net Cash Price £175 - 0 - 0. Without Hood

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MANUFACTURED BY

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The Siddeley cars were well received by the public, and the reports in the technical papers were very favourable. In due time, they were submitted to most of the public reliability, and other trials, but one of the most strenuous was a private one organized by Siddeley himself. This consisted of a test, under official R.A.C. observation, extending over 5,000 miles. Practically no trouble of any sort was experienced beyond a minor tyre difficulty or two.

The demand for Siddeley cars soon began to overtake expectations, and the fact became only too apparent, that the day of the horizontal engine had passed, and that if the wolseley cars were not to incur the reputation of being badly out of date, some speedy, and drastic redesigning was urgently necessary.

By the end of 1904, the Siddeley car had been in existence for approximately two years, and good progress had been made. It was during the early days of 1905, that the Wolseley Company, acting under instructions from their Proprietors - Vickers - approached Siddeley, with a view to their taking over his business entirely. Until then as has been explained, the Wolseley Company had manufactured the components of the Siddeley cars, but had no control over the marketing arrangements. The Siddeley Company were then occupying premises at Nos 79-80, York Street, Westminster, as showrooms and offices.

In the terms of the amalgamation, York Street were to be taken over from the Siddeley Autocar Co., and J.D. Siddeley himself was to become Sales Manager of the Wolseley Tool, and Motor Car Company.

The importance of this amalgamation to the Wolseley Company needs no emphasis. The trend of motor-car design, the growing competition among manufacturers, and the necessity of the Company to resist the feeling among the public, that Wolseley productions were not keeping pace with the unwritten laws of development, fully justified such action.

An ambitious, and exceedingly costly racing programme had been undertaken by Austin, and at a time when the finances of the Company hardly justified such a high rate of expenditure. 1904 was a year which produced no profit, and the Directors viewed with growing concern, Austin's refusal to redesign the Wolseley car with a vertical engine. Many discussions, before the Siddeley absorption was even mooted, took place between Austin, and the Directors in regard to this serious matter, but these led to nothing, and he remained one of the few pioneers, who refused resolutely to move with the times in the direction indicated. When, however, the Company began to manufacture a car with a vertical engine, even though it did not bear the name of Wolseley, Austin's position became a very difficult one, for he was chiefly responsible for the light in which the Wolseley car was regarded.

Something approaching a crisis in the affairs of the Wolseley Company had been reached, and during the summer of 1905, Austin handed in his resignation. For some time, he had paid but scanty attention to the affairs of the Company; all his keenness had gone, and his resignation was the only possible solution to the problem. J.D. Siddeley was at once appointed General Manager.

Before closing this episode of Austin's life, one interesting story which came to light should be told. Although he did not revolutionize the Motor Industry in England, until he introduced the Austin Seven in 1923, he was always interested in cheap light cars, and always thought that if a suitable reliable vehicle could be made, a vast new market would be opened up amongst lower-middle, and artisan classes.

For the 6 h.p. "SIDDELEY" LIGHT CAR see page

Unfortunately, this particular attempt to cater for the less wealthy failed. In 1949, an early 5 h.p. Wolseley car was discovered bearing the Works' number X22. A member of the staff began to search the old Wolseley records, and finished car reports, in an attempt to help the owner to date the vehicle. He found that there was a list of cars from X1-X52 in the small vehicle class, in the series all made in 1905. This recorded the type of body, size of road wheels, and finish of the fittings. Unlike every other vehicle, there was no individual car record for the batch, nor reference to the X series in the sales records. All the catalogues from 1901 to 1907 were checked, but again there was no mention of these 5 h.p. light cars. The mystery deepened, so the Wolseley employee determined to find the answer. Against one of the lists in the Service Department records, he found the word 'missing' scrawled against the X series of 5 h.p. cars, and his suspicions were aroused. He decided that somebody must have known that the record, was in the cupboard in the old Service Department, otherwise how could he have known that it was missing, when the papers were moved to their new home.

Later, he contacted Tommy Binner, who joined the Wolseley Company in about 1900, and after some persuasion he told his story. It appears that this series comprised a run of cheap cars, designed by Austin, and built in 1905 to the order of a dealer named C.L. Levetus, who had placed on order a hundred cars costing 100 guineas each, for export to India, where he operated his agency. Shortly after the first few cars were completed, A.J. Rowledge, then assistant to the Chief Designer, was asked to take one of the cars out for a weekend. In those days, this was considered a highly prized privilege, but despite this, he was soon back at the Works saying that: 'he was not going to break his dashed neck for Wolseley, or anybody else'. Subsequent to his verdict, efforts were made to persuade the Indian dealer to cancel his order, but he declined. The cars were completed, but after examination, Mr. Levetus must have come to the same conclusion as Mr. Rowledge, because he refused to take delivery. A London dealer bought the lot at cost, and must at least have sold the one that came to light in 1940. During 1908, all records relating to the X series of 5 h.p. cars, with the exception of the list mentioned, were 'accidentally lost'. Another employee, who joined Wolseley's in 1904 confirmed the story.

The fact that the Company had, for a couple of years or more, been manufacturing a car of wholly different design from the horizontal engined Wolseley, proved of inestimable advantage when the change-over had taken place, and it was decided to concentrate on the new car. They were not faced with the possibility of having to close down the Works, or considerably curtail operations until plans were ready to manufacture the new vehicle. All that was required was to slow down with the one hand, and speed up with the other, and this entailed a minimum of disorganization.

The horizontal engine was not abandoned immediately, for every type of car. At the Olympia motor show held during November, 1905, the Wolseley Company exhibited two small 6, and 8-h.p. models with horizontal engines, which were practically the same cars the Company had turned out, during the previous year, and three 15-, 18- and 32-h.p. cars with vertical engines. It is note-worthy, that the reports in the motor press, described the Wolseley exhibit as, "a distinct departure in Wolseley practice".

FITTINGS SUPPLIED WITH EACH CHASSIS.

6-H.P. Wolseley.

One Sparking Plug.
Sparking Plug Spanner.
One each single-ended Spanners, ¼, $\frac{5}{16}$, ⅜, $\frac{7}{16}$, ½, ⅝.
6-in. Moveable Wrench.
Quick set ,, ,,
One pair of Pliers.
One Jet Spanner.
Hub Cap Spanner.
Valve Grinding Tool.
Screwdriver.
Tommy Bar.
Copper & Asbestos Washers for Exhaust Joints.
8-in. Half-round File.
4-in. Smooth File.
8-oz. Hammer and Shaft.
Renold's Chain Links.
Roller Chain Links.
One Jack.
One Tundish.
One Oil Can.
One Small Oiler.
1-lb. Tin Grease.
Tyre Pump.
Repair Outfit.
Box Spanners.

8-H.P. Wolseley.

Renold Chain Punch.
One Sparking Plug.
Sparking Plug Spanner.
One each single-ended Spanners, ¼, $\frac{5}{16}$, ⅜, $\frac{7}{16}$, ½, ⅝, ¾, ⅞.
6-in. Moveable Wrench.
Quick set ,, ,,
One pair of Pliers.
One Hub Cap Spanner.
One Jet Spanner.
Valve Grinding Tool.
Screwdriver.
Tommy Bar.
Copper & Asbestos Washers for Exhaust Joints.
8-in. Half-round File.
4-in. Smooth File.
8-oz. Hammer and Shaft.
Renold's Chain Links.
Inlet Valve Spanner.
2 Clutch Spanners.
Roller Chain Links.
One Jack.
One Tundish.
One Oil Can.
One Small Oiler.
1-lb. Tin Grease.
One Tyre Pump.
One Repair Outfit.
Box Spanners.

12-H.P. Wolseley (M.O.V.)

Renold Chain Punch.
One Sparking Plug.
One Sparking Plug Spanner.
One each single-ended Spanners, ¼, $\frac{5}{16}$, ⅜, $\frac{7}{16}$, ½, ⅝, ¾, ⅞, 1-in.
Box Spanners.
6-in. Moveable Wrench.
Quick set ,, ,,
One pair of Pliers.
One Jet Spanner.
Hub Cap Spanner.
Valve Grinding Tool.
Screwdriver.
Tommy Bar.
Copper & Asbestos Washers for Exhaust Joints.
8-in. Half-round File.
4-in. Smooth File.
8-oz. Hammer and Shaft.
Roller Chain Links.
Renold's Chain Links.
One Governor Spring.
One Jack.
One Tundish.
One Oil Can.
Small Oiler.
1-lb. Tin Grease.
One Tyre Pump.
One Repair Outfit.
One doz. assorted Bolts and Nuts.
2 Clutch Spanners.

12-H.P. Siddeley.

Pressure Valve.
Spring.
One Sparking Plug.
One Sparking Plug Spanner.
One each single-ended Spanners, ¼, $\frac{5}{16}$, ⅜, $\frac{7}{16}$, ½, ⅝, ¾, ⅞, 1-in.
6-in. Moveable Wrench.
Quick set ,, ,,
One pair of Pliers.
One Jet Spanner.
Hub Cap Spanner.
Valve Grinding Tool.
Screwdriver.
Tommy Bar.
Copper & Asbestos Washers for Exhaust Joints.
8-in. Half-round File.
4-in. Smooth File.
8-oz. Hammer and Shaft.
One Exhaust Valve.
One ,, ,, Spring.
One Inlet Valve.
One ,, Spring.
One Governor Spring.
Two Pressure Valve Springs.
One Jack.
One Tundish.
One Oil Can.
Small Oiler.
1-lb. Tin Grease.
One Tyre Pump.
One Repair Outfit.
One doz. assorted Bolts and Nuts.

15-H.P. Siddeley.

One each single-ended Spanners, ¼, $\frac{5}{16}$, ⅜, $\frac{7}{16}$, ½, ⅝, ¾, ⅞, 1-in.
6-in. Moveable Wrench.
One pair of Pliers.
One Jet Spanner.
Hub Cap Spanner.
Valve Grinding Tool.
Screwdriver.
Tommy Bar.
Copper & Asbestos Washers for Exhaust Joints.
8-in. Half-round File.
4-in. Smooth File.
8-oz. Hammer and Shaft.
One Exhaust Valve.
One ,, ,, Spring.
One Inlet Valve.
One ,, Spring.
One Governor Spring.
One Jack.
One Tundish.
One Oil Can.
Small Oiler.
One Sparking Plug.
1-lb. Tin Grease.
One Tyre Pump.
One Repair Outfit.
One doz. assorted Bolts and Nuts.

18-H.P. Siddeley.

Pressure Valve Spring.
One each single-ended Spanners, ¼, $\frac{5}{16}$, ⅜, $\frac{7}{16}$, ½, ⅝, ¾, ⅞, 1-in.
Box Spanners.
6-in. Moveable Wrench.
Quick-set Moveable Wrench.
One pair of Pliers.
One Jet Spanner.
Hub Cap Spanner.
Valve Grinding Tool.
Screwdriver.
Tommy Bar.
Copper and Asbestos Washers for Exhaust Joints.
8-in. Half-round File.
4-in. Smooth File.
8-oz. Hammer and Shaft.
Roller Chain Links.
One Exhaust Valve.
One ,, ,, Spring.
One Inlet Valve.
One ,, ,, Spring.
One Governer Spring.
One Jack.
One Tundish.
One Oil Can.
Small Oiler.
1-lb. Tin Grease.
One Tyre Pump.
One Repair Outfit.
One doz. assorted Bolts and Nuts.
One Sparking Plug.

25-H.P. Siddeley.

Pressure Valve Spring.
One each single-ended Spanners, ¼, $\frac{5}{16}$, ⅜, $\frac{7}{16}$, ½, ⅝, ¾, ⅞, 1-in.
Box Spanners.
6-in. Moveable Wrench.
Quick-set ,, ,,
One Pair of Pliers.
One Jet Spanner.
Hub Cap Spanner.
Valve Grinding Tool.
Screwdriver.
Tommy Bar.
Copper and Asbestos Washers for Exhaust Joints.
8-in. Half-round File.
4-in. Smooth File.
8-oz. Hammer and Shaft.
Roller Chain Links.
One Exhaust Valve.
One ,, ,, Spring.
One Inlet Valve
One ,, Spring.
One Governor Spring.
One Low Tension Magneto Plug.
Two Magneto Springs.
One Jack.
One Tundish.
One Oil Can
Small Oiler.
1-lb. Tin Grease.
One Tyre Pump.
One Repair Outfit.
One doz. assorted Bolts and Nuts.

32-H.P. Siddeley.

Pressure Valve Spring.
One each single-ended Spanners, ¼, $\frac{5}{16}$, ⅜, $\frac{7}{16}$, ½, ⅝, ¾, ⅞, 1-in.
Box Spanners.
6-in. Moveable Wrench.
Quick-set ,, ,,
One pair of Pliers.
One Jet Spanner.
Hub Cap Spanner.
Valve Grinding Tool.
Screwdriver.
Tommy Bar.
Copper and Asbestos Washers for Exhaust Joints.
8-in. Half-round File.
4-in. Smooth File.
8-oz. Hammer and Shaft.
Roller Chain Links.
One Exhaust Valve.
One ,, ,, Spring.
One Inlet Valve.
One ,, Spring.
One Governor Spring.
One Low Tension Magneto Plug.
Two Magneto Springs.
One Jack.
One Tundish.
One Oil Can.
Small Oiler.
1-lb. Tin Grease.
One Tyre Pump
One Repair Outfit.
One doz. assorted Bolts and Nuts.

70-H.P. Siddeley.

(Same as 32-H.P. Siddeley.)

Tools and spare parts for 6 and 8-H.P. Cars are fitted in Canvas Kits; for Cars above these sizes the Tool Kits are of Leather.

CHAPTER III.

THE FIRST WOLSELEY CARS

When the first Wolseley car ever constructed is examined in detail it is necessary to bear in mind the conditions which faced the Designer at the time. General development was held in check by certain circumstances which were highly unfavourable to such an enterprise. Those who struggled in 1895 to establish the British motor industry had a task which is far under-estimated today.

When Austin visited Paris for the purpose of taking stock of what types of motor vehicles were then in use in France, he was not at all impressed by what he saw. Each vehicle he examined was, in his view, too heavy and clumsy to possess future commercial possibilities. There was, however, one exception; the small three wheeled Bollee made by the famous Bollee Brothers at Le Mans.

Austin's engineering training had made him familiar with stationary gas engines with either flame or tube ignition, the power from which was conveyed to the machines they had to drive by means of belts and shafting. In the Bollee, he saw this principle adopted in what seemed to him a simple and efficient manner, but in most other types he was confronted by verticle engines, friction clutches, differential gears and chains. Why, he asked himself, should all this be necessary when the recognized method of operating machinery in any factory was largely on the lines of the Bollee?

There seemed to be but one answer to the question, and he returned home with the fixed idea of designing a motor vehicle on the lines of the Bollee, but shorn of certain of what seemed to him its obvious shortcomings.

The similarity between the first Wolseley car of 1895 and the Bollee three-wheeler of that period is striking. Austin's efforts to overcome some of its weaknesses are also obvious. The Bollee single-cylinder engine was extremely noisy and ill-balanced, in fact, it would hardly be an exaggeration to state that it was not balanced at all. When running, it seemed as though the whole machine were **stricken** with the palsy, and Austin endeavoured to overcome this by adopting a twin-cylinder engine which will be described in detail later.

There are, in addition, other features of uncommon interest in this first Wolseley production, for more than one principle is adopted which is found on many high-grade cars of today. The use of overhead valves and a camshaft driven by a vertical shaft and skew gearing, to say nothing of roller cam followers mounted on the ends of valve rockers, sounds far more like a brief description of some modern engine about to emerge from the drawing board stage, than a Pioneer's efforts of the mid-nineties of last century.

Although the first Wolseley vehicle had such interesting features, it was never developed. In fact, a thorough search has failed to produce any reference to it in any contemporary paper, and as far as is known, there exists but one photograph of it which appeared in The Autocar of April 2nd, 1904, some nine years after the car is known to have been built. No attempt was made to introduce improvements or to increase its efficiency; it was abandoned, and a second car of entirely different design was constructed.

The apparent secrecy concerning this first car and the reason for its complete abandonment in favour of an entirely different design can, however, be readily explained from an examination of what was taking place in the then very young British motor industry.

About the time experimental work was being carried out by Austin on this first Wolseley car, the almost limitless possibilities opened up by the coming of the automobile had made a profound impression on certain financiers in Britain. More than one fortune was being made by promoting companies during the cycle boom, and the pneumatic tyre looked like becoming a gold mine to those who had been bold enough to take it up when it was the subject of ridicule from one end of the land to the other.

The question these financiers had to solve was the best manner in which they could "corner" the coming British motor industry, for they were as certain of its coming as they were that night follows day. The obvious way, so it seemed to them, was to purchase all the patents connected with motor vehicle design which appeared to have possibilities so that any manufacturer of the future would have to pay to them whatever royalties they might demand.

The British Motor Syndicate Ltd was formed to exploit this idea, and warnings were broadcast that dire penalties awaited any person who infringed such patents. Writs were issued wholsesale against so-called Infringers, and in certain instances judgements were obtained; in all the patent-rights connected with the Bollee Voiturette were held by the Syndicate. Is it to be wondered at, therefore, that Austin considered it far better to abandon all thought of developing Wolseley No. 1 which so closely resembled the Bollee, and concentrate his whole attention on some other form which would, in no way, bring him into conflict with any patent-holders?

Happily, this first Wolseley car was not destroyed, as so many other early vehicles were, and it is still occupying a place of honour in the private museum of the Wolseley Company.

When one comes to examine a motor vehicle of the "nineties", one is usually faced with ideas more in keeping today with a schoolboy's conception of engineering than the product of a designers brain, but it must always be borne in mind that the very few British engineers of that period were all working largely in the dark; few, if any, lessons could be learnt from experiments carried out by others, and this applied with particular force to England because the use of horseless vehicles on the streets was practically illegal. Road tests could only be effected in defiance of the Law, and so designers were forced to adopt principles which would, probably, have been discarded if only they had been submitted to practical trials which could be undertaken freely by all continental designers. It was a halter round the neck of all in the country who were engaged on the problem at that time.

The frame of this first Wolseley car, which closely follows cycle design, is constructed of weldless steel tubing; it is light in weight, which probably accounts for its adoption, and the triangulated bracing imparts a good measure of rigidity thereto. A glance at the illustrations will show that, contrary to Bollee practice, the driver occupied the front seat, and that the whole of the steering is consequently, different.

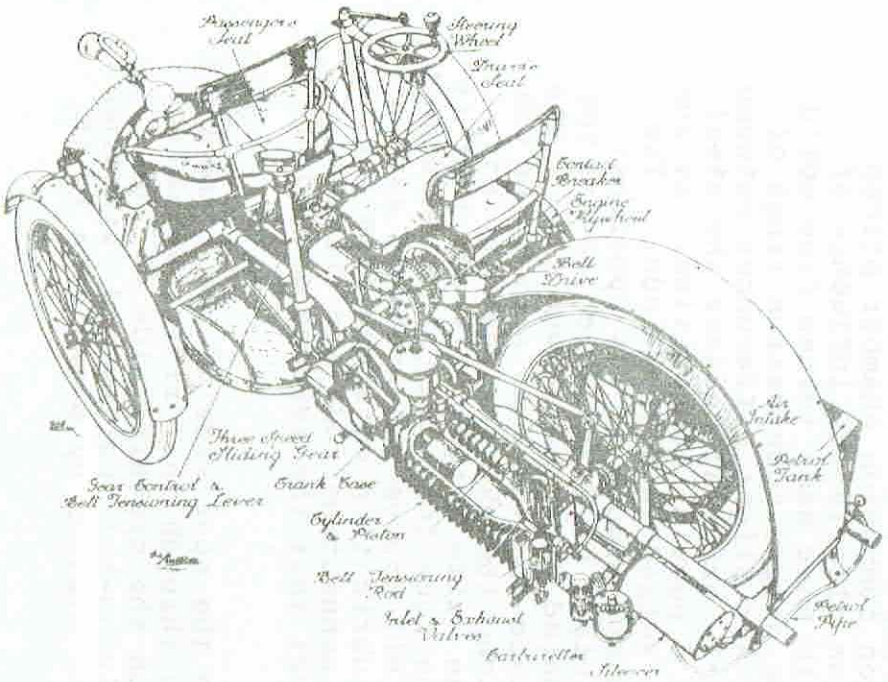
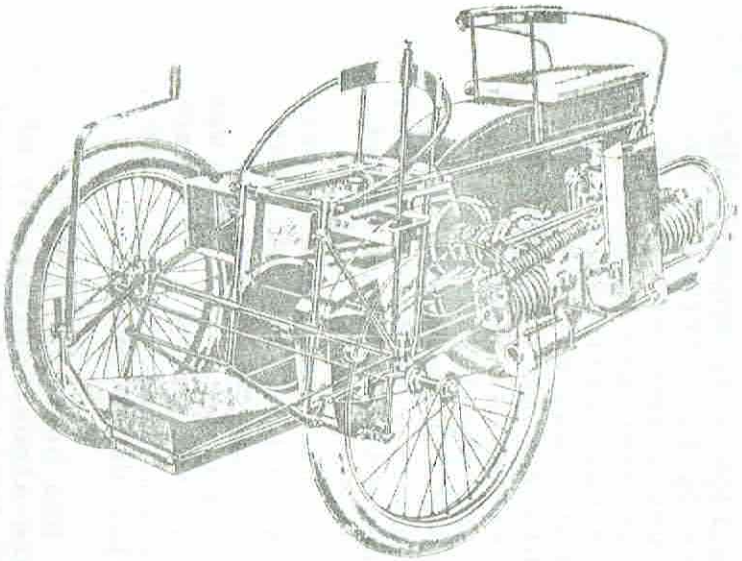


Fig. 1 — 2 h.p. Leon Bollée tricar — 1896



Cut-away drawing of the first Wolseley car of 1895

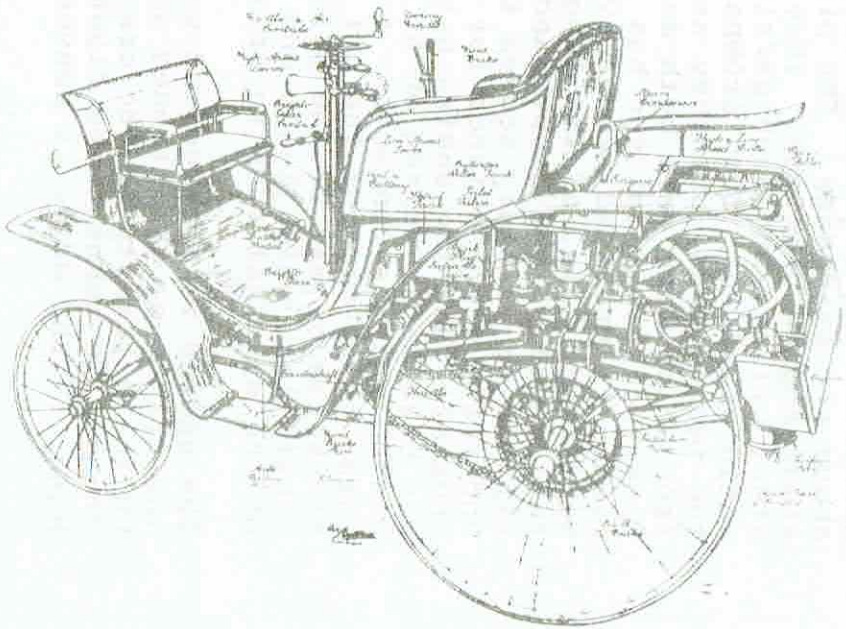
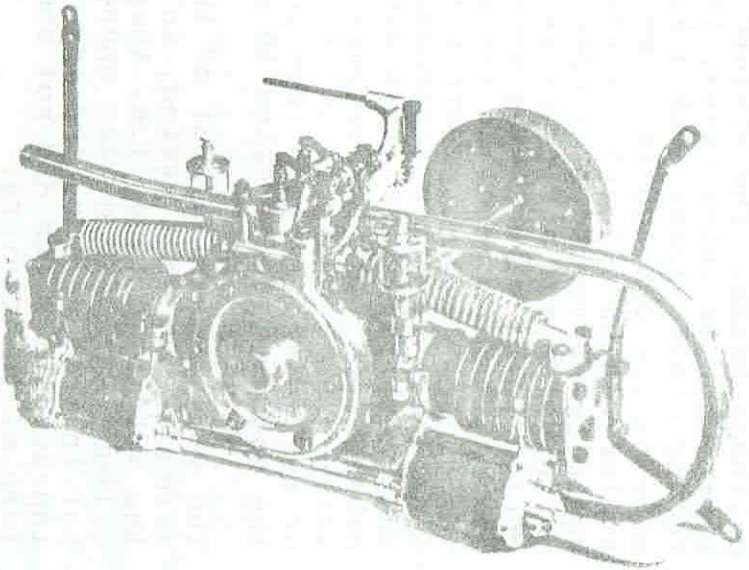


Fig. 2 — 3 h.p. Benz motorcar — 1897



The twin-cylinder engine fitted to the first Wolseley car of 1895

The Wolseley Twin-Cylinder Prototype

This car was powered by a twin-cylinder horizontally opposed air-cooled engine of 7.81 RAC H.P. rating, bore 3⅛ in., stroke 5 in. producing approximately 2 b.h.p. It employed a two-throw crank and the cylinders had a common combustion chamber and bronze cylinder heads. The mixture from a surface carburettor was drawn in through an inlet valve, the rocker of which was actuated by a roller cam-follower with a knife edge. This ran in a groove on a very narrow cam and could be moved by the driver so that the roller ran on a plain cylindrical surface and the inlet valve could be prevented from opening. An overhead camshaft was driven by spiral gears and there were tapered helical valve springs, that on the inlet valve being considerably weaker than on the exhaust. The camshaft bracket on the crankshaft of the car as it exists today, has been so severely filed that the exhaust cam almost cuts into the hole which accommodates the exhaust pipe, implying that the camshaft was not intended originally to take two cams. In other words, only an exhaust cam was used, and the inlet valve was not probably designed to work automatically, but owing to the lack of sufficient suction (due possibly to the low compression ratio), the engine was converted to mechanical inlet valve operation.

The very modern lay-out of the valve gear has been mentioned already. At that period, inlet valves were almost univerally of the automatic type, i.e. they were kept on their seat by means of a light spring and were opened by the suction stroke of the piston; but in this engine, the inlet valves were mechanically operated, an improvement which did not come into general use until well past the turn of the century.

Both pistons reached top dead centre in the flat twin engine and were fired together by hot tube ignition, although a crude attempt was made some time before the last war to convert the engine to run on an 18 m.m. sparking plug. Finned pipes with a bore of only ⅞ in connected the cylinders, with a common combusion chamber placed above the crankcase. The pistons show clearly the influence of steam engine practice. They appear to have been turned from solid steel billets and each carriers three pegged compression rings of solid brass near the crowns. There are slight differences between the two pistons, but they are certainly original because the steel from which they were both made is of a pecular composition. At one time the forward piston has probably seized in its cylinder. The piston is provided with a 'V' shaped oil groove on its uppermost part about ½ in. of its length by a piece of brass which covers the full depth of the groove and is soldered onto the second ring. The first ring is badly scored in one place and there is a crack on the underside which extends for ⅝ in. along the skirt. These points indicate that the engine has been run quite extensively and that it has been badly seized on at least one occasion, damaging the forward piston and its connecting rod. The oil groove was probably added later to supplement the oil splash lubrication obtained from the crankcase by way of the oiler. The connecting rods are quite dissimilar, which leads one to suspect that the seizure caused one of the original rods to break.

The engine is mounted and carried on the near side of the frame and the crankcase is extended and passes through the driving-wheel hub. On the extremity of the crankshaft on the opposite side of the chassis is mounted the flywheel, driving-belt pulley and starting handle. The drive is conveyed to the gearbox by means of a 1½ in.

flat belt running on flanged pulleys, the reduction ratio from engine to gearbox being 3 to 1. It is mounted beneath the driver's seat and provides three forward speeds. There is no reverse gear. The need for some kind of friction clutch is obviated by means of slipping the main driving belt. Bollee also followed this design in 1895 in a somewhat different manner, but in the first Wolseley, the effect is achieved by swinging the gearbox instead of moving the rear wheel as on the Bollee. The belt-slipping action takes place automatically when a change of gear is effected. At the moment the gear lever is moved, the entire gearbox swings rearwards thereby slackening the belt, and in effect providing a "neutral". This swinging gearbox will be found again in the first Wolseley four-wheeled car.

What is equivalent to a clutch stop is obtained by means of the driving-belt pulley coming in contact with a metal brake-block, thereby reducing its speed and enabling the gears to be engaged without too much delay. It is interesting to note that the "gate" system of changing gear is adopted, and that in changing from first to second gear, it is necessary to pass through top gear; the final drive is by roller chain to the rear wheel. The workmanship throughout is of a high order. The overall gear-ratios are: top gear 4 to 1, second gear 8 to 1, first gear 17¼ to 1.

The braking system is simple and was probably efficient taking into consideration the speed at which the car had to travel. It is effected by means of a rocking bar that extends the full width of the driver's bootboard, and the pressure applied is transmitted to an external contracting brake attached to the rear wheel; the brake drum is 9-in. diameter.

The steering is based on the Ackermann principle and is operated by a tiller which has a travel of some 13-in. each side.

Another interesting feature of this vehicle is that the two silences are packed with pebbles and coke, thus forming an elementary type of baffle. A torque reaction lug is provided on the chassis frame at the apex of the triangle formed by the diagonal bracing tubes, but there is evidence that this system was not satisfactory as metal stays were subsequently bolted from the chassis frame to each cylinder head. It is interesting that identical lugs with the holes for the torque reaction are also used in the tubular frame of the second Wolseley car, and were presumably made from castings left over from the first car.

The fuel tank is located beneath the driver's seat, which can be seen quite plainly in the cut-away illustration.

So much for the first Wolseley car of 1895, and the unfavourable conditions in which is was designed and tested.

Let us now consider the second Wolseley car which is different, in nearly every major component, from the one just described.

In considering this second car, we are fortunate in having much more published information available, but this in itself introduces complications.

The descriptions in the various contemporary publications, and the car as it now exists in the museum of Wolseley Motors Ltd., are often at complete variance. This is not so surprising as it may

at first seem if one appreciates that one would find an exact parallel in any motor-car manufacturer's experimental shop today.

If an article were to appear in the motoring Press describing an experimental car as it was in, say January, and the same car were again described a few months later, it might be difficult indeed to recognize the two as applying to the same car.

So with the second Wolseley. It was continually changing as its designer carried out his experiments on engines, transmissions and other components; testing, rejecting, redesigning until finally the whole car was abandoned in favour of a still more advanced model.

Although the first Wolseley car was built more or less in secret, for the reason explained, it would seem that Austin was able to bring about a change in the attitude of his Directors when it came to the building of the second car! The fact, as already mentioned that the Company was at that time forced to seek additional work to the production of sheep-shearing machines, undoubtedly influenced their decision.

The Second Wolseley Car

This second car was built during 1896, and it made its first public appearance at the National Cycle Exhibition at the Crystal Palace in December of that year, and was sufficiently well received to warrant a description in The Autocar of December 12 1896 with a second article in the same paper on January 9th 1897. The Engineer of December 25th (a curious date on which to publish a paper) and the Automotor Journal of February 1897 also described this car in identical wording.

The Engineer description is quoted below:-

> "This car, which was exhibited at the National Show, is in the form of a dogcart, the seats being arranged for two people back to back. It has three wheels, the one steering wheel in front being similar to that of a bath chair. The framework throughout consists of tubes, rendering it very light and yet strong. The engine is arranged in the body of the car under the seats, and is entirely hidden from view by light wooden panels, which are lined with thin sheet iron to prevent the oil soaking into the wood.
>
> "The engine works on the well-known Otto cycle, and has two cylinders, which are water-jacketed, the water being carried in a tank under the front seat. The crankpins are fixed directly into the two flywheels, and are case hardened and ground up to fit the hardened steel bushes in the ends of the connecting rods.
>
> "The differential speed gear is of a new and special design, particulars of which we may be able to describe in a future issue, together with a section of the car. The forward and backward motions, and the application of the brake are all worked with one lever, which can be fixed either side of the car.

"The firing is effected by an electric spark from a small accumulator, which is carried in a box in the frontboard. The engine is made in a very substantial manner, and, being designed for hard use, has good long bearings, cast-steel frame etc., and an aluminium bed-plant. All the bearings are fitted with grease lubricators, which will last for a considerable time without replenishing. The exhaust discharges onto the ground, after assisting to cool the water in the tank. One good feature about the car is the handy way in which the seats etc., are arranged to allow of ready examination of the motor and gearing."

The car was modified considerably over the two or three years which followed, the two-cylinder water-cooled engine was soon replaced as were the epicyclic gears.

No trace remains of the two-cylinder water-cooled engine or of the unusual cooling system, but one can obtain a good idea of the eipcyclic gear from an examination of Patent No. 20401, dated 29/10/95, entitled "Improvements in Driving Gear for Mechanical Carriages", and which covers the use of two epicyclid trains coupled by bevels with band brakes arranged to give neutral - reverse or variable gear by slip.

This epicyclic gear does not seem to have been satisfactory and a further Patent No. 104 dated 2/1/1897 for a belt-driven transmission was taken out. As experiments continued, still further Patents were registered.

In spite of these attempts to solve the problem of transmitting the power from the engine to the road wheels, the final solution, as used on the car as it now exists, is of a much more simple design.

One does not have to give much rein to one's imagination to visualize Austin experiencing considerable trouble in his early experiments with the transmission, and it is long odds that his twin-cylinder engine was anything but perfect. In desperation he appears to have reapproached the problem strictly in the light of his early engineering training, and refused to let his judgement be influenced by the fact that he was dealing with a motor-car.

How, he asked himself, would one drive a small machine in a factory? By means of a single-cylinder horizontal gas or paraffin engine. How would one provide for the necessary alternative speeds at which the machine tool had to be driven? By belts and fixed and loose pulleys of different sizes.

If now these basic principles could be incorporated within the small space available in his car, surely there was the answer!

That this line of reason proved successful will be seen in due course from the description of the car in its present form.

During the two years occupied with these various experiments, the car must have impressed the Directors of the Company with its possibilities, so much so that they issued a catalogue, which is one of the earliest of an English car. It must also claim the record of containing the minimum of information about any

mechanical details! Fortunately, a copy exists and is reproduced herewith.

In June 1896 Austin took out Patent 12,394 in conjunction with the Wolseley Sheep-Shearing Machine Company, which covered a complete design for the tubular frame, allowing also for a development for twin-steered front wheels. Two months later, this time under his own name, Patent 18,783 was brought out; this was for a power unit for attaching to a horse-drawn vehicle 'so as readily to convert it to a mechanically propelled vehicle'. His own epicyclic gearing was to be used, and he still favoured the idea of surrounding the frame with a hollow casing to contain the cylinder coolant. No prototype appears to have been produced.

Wolseley Autocar Number 1 was modified and used extensively during 1897 and 1898, the longest journey made being one of about 250 miles, to Rhyl and back, in June 1898. With two passengers, the car averaged about eight miles an hour and the journey was completed without a breakdown. The three-wheel cars taught Austin many lessons which led to the production of his first four wheeler; he had come to the conclusion that three-wheelers were a mistake, that a heavy flywheel was necessary for a smooth running engine and that the old tube ignition was useless.

A few years before his death, Lord Austin was questioned on whether this journey was accomplished on this car whilst it had the original epicyclic gear or after it had been converted to belt drive. Although he was not sure on the point, he said that, so far as he could remember, it had belt transmission. This would seem to be confirmed by the fact that shortly after the date of this historic journey, the car was abandoned in favour of a four-wheeled model.

There are a number of features of this second Wolseley car as it exists today, which are of striking interest, and the general layout of the chassis is a testimony to the advanced ideas of its designer. Independent rear-wheel suspension still remains largely an unsolved problem, but it is incorporated in this Wolseley car of 1896-97.

The frame is constructed of steel tubing throughout, and its side members are triangulated and braced in precisely the same manner as in the first car. Austin was so impressed with this design that he protected it by a Patent No. 12394, dated June 6th 1896, which is described in detail in the Automotor Journal of December 1897.

At the front the side members contract and link together into a tube, forming the steering head, exactly as in a bicycle. There are also patents in connection with this, entitled "Improved means for the use of clamping the ball head of a cycle or other vehicles and the adaptation of a part thereof for other uses." The number of this is 4840, dated February 28th 1898. The front wheel, by which the car is steered, is carried in bicycle-type forks, at the top of which is a tiller. The construction of the main frame provides a considerable degree of "springiness" to the front wheel, which is otherwise unsprung.

Bronze is used very extensively in the construction of this vehicle. Presumably, this was due to the ease with which this metal could be cast and worked and, in spite of its age, no deterioration of any of these parts has taken place. The following major parts are constructed of this material: Cylinder block and crankcase (the whole is machined in one casting), driving pulleys, the massive casting which carries the countershaft and houses the differential gear, the large diameter brake rims and the water pump. In addition, there are a host of smaller bronze castings, in fact, this metal is used almost exclusively except for the moving parts of the engine and the steel tubing in the chassis construction.

The engine, which has a bore of 4-in. and a stroke of 4-15/16 in. is mounted horizontally with the cylinder to the rear. The square casting which constitutes the combined crankcase and cylinder block is fitted with a wet liner, held in position by four studs. The cylinder head, which is air cooled by porcupine spikes, houses the sparking plug axially and the valves vertically; the lower being the mechanically operated exhaust and the upper the automatic inlet. A governor driven frictionally by one of the two flywheels, operates by holding open the exhaust valve.

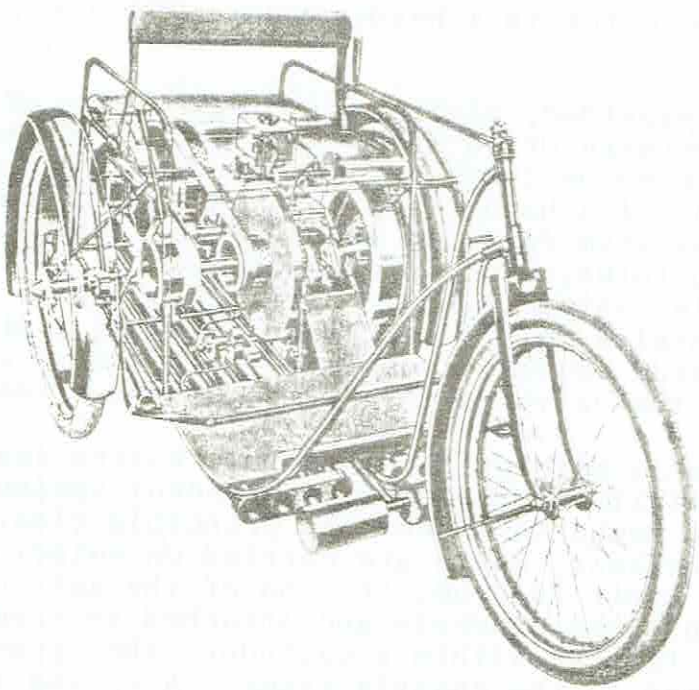
The radiator is unusual and consists of eight tubes, carried longitudinally below the chassis. Within the tubes are smaller tubes, providing an annular space for the water. Cool air passing through the smaller diameter tubes reduced the temperature of the water as, in an opposite manner, hot gases are used to heat the water in a steam boiler. A small eccentrically operated pump returns the water to a header tank under the passenger's seat.

Two speeds are provided, giving an overall ratio of 9.6 and 7.2 to 1, and the primary drive is by flat belts. Fixed and loose pulleys are carried on the countershaft, and the gears are changed by means of a hand lever on the right of the driver which shifts the belts from fixed to loose pulleys, through spring-loaded striking forks. The intermediate drive is by a roller chain to an axle casing which is bolted rigidly to the chassis. This casing contains both a reduction gear and a differential, and at the outside extremities of the half shafts are spur gears which transmit the drive to the 30-in. diameter rear wheels.

The final drive is perhaps the most interesting feature of the car, seeing that it incorporates independent springing. The drawing of this mechanism makes the principle clear, and it will be seen that the rear wheels are carried on swinging brackets which have, as their fulcrum, the end of the axle casing. Lugs are provided on these brackets and attached to them are rods which are free to move within a cylinder, the opposite end of which is anchored to the chassis frame. A spring is enclosed between the ends of the rod and the free end of the cylinder, and consequently a considerable amount of movement of the rear wheel, in a general vertical direction, may take place; this is resisted by the spring being compressed within the cylinder. The movement of the rear wheel is actually in an arc struck from the centre of the axle housing so that the spur gear on the end of of the half shaft and the gear wheel attached to the road wheel which it drives, are in constant mesh.

Two brakes are provided, both operating on rims bolted to the rear wheels. The footbrake is actuated by a rocking lever extending the full width of the driver's footboard as in car No. 1 coupled to a brake shoe acting on the rim of each rear wheel. The handbrake is actuated by a lever on the right-hand side of the vehicle and coupled to another pair of brake shoes.

Austin's pleasure in producing a moderately successful vehicle was tempered considerably when his wife was taken desperately ill suddenly with tuberculosis, and part of a diseased bone in her jaw had to be removed. The operation, a very serious one in those days, was performed at their home by Gilbert Barling, later Sir Gilbert Barling, and for a time he despaired of being able to save her life. But she had the will to live, and her youth was in her favour, and she recovered after a nine month long illness. It was also about this time that Austin's youngest brother, Harry, joined him as an employee at Wolseley's - they were to work together for the next forty-five years. They often disagreed, particularly in the early days, but they never got in each others way as each was intensely fond of the other. 'Mr Harry' never aspired to a senior position at Longbridge. He felt that his big brother was worrying himself to death and that it was much easier being a Shop Superintendent than a 'Captain of Industry'. Harry remained at Austin's for nearly twenty years after Herbert's death and, like him, never retired, but was taken ill with pneumonia and died in a matter of weeks.



Cut-away drawing of the second Wolseley car of 1895

PREFACE:

When the full story of the British Motor Industry comes to be written, the name of Wolseley will occupy a place therein which will be shared by few others. The Wolseley car was not only one of the first petrol-driven vehicles ever to be designed and manufactured in a British factory, but it has survived the passage of more than half a century.

This narrative explains the quaint circumstances in which the first Wolseley came into existence, anterior to the "Locomotives on Highways" Act of November 1896; how the third Wolseley car ever made established a remarkable reputation for reliability in the famous Thousand Miles Trial of 1900; and how this marque has maintained that reputation ever since. This is, doubtless, one of the contributing factors which has enabled the Wolseley name to weather so many storms which have engulfed others, and attain the position it occupies today.

As one of the swiftly diminishing band of participants in the Thousand Miles Trial mentioned above St. John C. Nixon recalled the clockwork reliability of the little single-cylinder Wolseley car driven by "Mr Herbert Austin", its designer. It ran through that strenuous trial under a severe handicap. Except for a second Wolseley car of higher h.p. which ran over parts of the course in the early stages more for the purpose of testing than competing, it was the only car of this make taking part, and so failure would have projected a strong limelight on its weaknesses. Every test hill it surmounted without difficulty, and the climb up Shap Fell, which was considered so severe that it was made optional, was undertaken and completed by the Wolseley.

At the speed trial over one mile of slight ascent and a similar distance of slight descent, the Wolseley Voiturette averaged 22.81 m.p.h. a performance in excess of that accomplished by at least two twin-cylinder Panhard cars.

The remarkable success of this little car, which even then embodied certain ingenious and unorthodox features, focused attention on Wolseley developments, for here was a car with a future.

In the early Edwardian days St. John C. Nixon drove several Wolseley cars with their horizontal and slow-running engine in front, their chain drive to the gear-box and their final drive from the countershaft by external chains. True, they were not exciting cars to handle, but month after month they would continue running with a minimum of attention and a degree of reliability commonly associated with present-day productions.

The adoption of the vertical engine cast a mill-stone from the neck of the Wolseley which had been retarding its progress for some years, and it was noted the change that came over public opinion.

They were seen in ever-increasing numbers on the roads, and the Company continued to progress until the first European war so effectively put a temporary stop to private enterprise.

The early re-entry into the field of production of the Wolseley Company, and the striking post-war models produced, served to render the financial difficulties in which the Company became involved all the more tragic, and the ultimate bankruptcy seemed like an echo of the great Overend Gurney bank tragedy of yore.

To those, however, who had watched the rise of the Wolseley Company from its earliest days, it was apparent that the British Motor Industry would never be allowed to suffer the amputation of so vital a limb, and so it proved when Lord Nuffield so effectively scotched the Company from drifting into trans-Atlantic control.

The day the Wolseley interests were purchased by his Lordship, all its financial and kindred worries ceased and so today, as a number of the huge organisations which bears his name, the Wolseley car stands as the prototype of British craftsmanship in the world of automobilism.

There was a fascinating contrast between the personalities and operating methods of the two giants of the British motor industry in the 'tween-war era W.R. Morris later to become Lord Nuffield, was quite different in make-up and behaviour from Lord Austin.

It was the difference between the rapier and the sword. Both had keen cutting edges, which demonstrably produced results, but Morris, small, wiry, dark and

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habitually hatless - was quite unlike 'Pa' Austin the large, square-cut man who accentuated his squareness by favouring a squat bowler hat.

Morris was quick, lithe and unpredictable both in mind and bodily movement. He darted at decisions, content to know that if he was right fifty-one times out of a hundred his speed of action was usually fast enough to enable him to correct his forth-nine errors before they became effective.

Herbert Austin, far from ponderous, was much more deliberate mover. Where Morri was a mechanic, skilled to tune and adjust and coax the last ounce out of a mechanism once it had been designed and made, Austin was a creative designer. His free-ranging mind and stub of pencil originated the sturdy cars that he made as complete entities.

Morris became great by his shrewd assessment of component parts; engines, axles, frames, bodies and such-like that could be conglomerated into a balanced whole. Where Morris thrived on 'Bought out parts', Austin manufactured a far greater proportion of his cars himself. This was very emphatically true in the earlier years of their ventures.

The Austin empire was expanded into a monolithic enterprise Morris gained in size by acquisition - he bought the Wolseley company, he bought E.G. Wrigley and re-named it Morris Commercial Cars Limited. He bought Riley's as a going concern. The only self-generated car in the Morris complex was the M.G. - the offspring of a manager of Morris Garages Limited who was a racing and sports car enthusiast and whose intrepidity was not always smiled upon from the Chairman's office.

This infant prodigy again points a difference between the outlooks of the then two predominant British motor chief-tains. Morris had been a very keen racing cyclist. His office glittered with medals and little trophies that he had won riding bicycles that he had assembled and adjusted with his own sensitive hands. Yet when it came to supporting a racing programme for his cars he demurred. One of his favourite sayings was 'I challenge you to show me a motor firm that has supported a racing programme that has not had the receiver in' - then he would reel off a long list that included famous names like Sunbeam, Talbot, Vauxhall, Humber, Hillman and others.

Austin took the opposite view. His philosophy went back to the early days when he had drivers like Dario Resta and - yes - J.C. Moore-Brabazon, the great 'Lord Brab' of later years, to race his cars in highly competitive events.

Much of the public acceptance of the Austin Seven was due to the brave, honest and open way in which it showed its paces in public, frequently and brilliantly driven by Arthur Waite, Austin's son-in-law, an Australian whose land of origin obviously gave him a special place in the affections of 'Pa' Austin.

One of the most deeply etched memories of yesteryear, was a scene in Carey Street where London Wolseley Motors Ltd., once owned by Vickers, was under the hammer. There were three bidders - an agent for some vaguely specified American company; Herbert Austin and W.R. Morris, both in person.

Wolseley's meant a great deal to the sentimental side of Austin. It was as the head executive of the Wolseley Company, then makers of sheepshearing machinery, that he had ventured into the manufacture of automobiles. He wanted to buy the company, among other things for old times sake. Morris also yearned to be owner of the Wolseley Motor Co. It had prestigious goodwill; a fine chain of loyal agents; and in any event he did not want Austin to own it in case it tipped the scale of production in his favour. The dignified court procedure began, and it soon became a battle of the giants. Original sealed tenders were soon outstripped by verbal bids. The rivals had their antlers locked in a fierce fiscal battle. Morris, tight-lipped, finally declared: 'Whatever you bid I shall bid £1,000 more. Austin knew that at that moment Morris had greater financial resources than he could muster. And so he conceded.

It was an ironic situation. But 'Pa' did not sulk or moan. He just got on with the job of building the Austin empire until it was big enough, some time after his sudden death, to absorb and digest his old rival, the then Nuffield Organisation. Thus was created the British Motor Corporation.

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CHAPTER 1

SHEEP SHEARING IN AUSTRALIA DURING THE "EIGHTEEN SEVENTIES"

The Wolseley car owes its existence to a combination of circumstances which are more in keeping with the higher flights of imagination of a Novelist than with hard reality. To establish any liaison between the Squatter of the Australian Bush in the seventies of last century and the B.M.L.C. production which is seen today in its thousands on every road in the world, appears at first sight, to be an impossible task, but strange though it may seem it is in this direction that we must turn if the history of the Wolseley car is to be traced to its source.

We must, however, visualize a very different Australia from what it is today, and a type of sheep-farming which has long since ceased to exist if we are to gain a true perspective of that combination of circumstances which resulted in the birth of the Wolseley car.

It has been said, and with at least some justification, that a great part of Australia's wealth grows on the backs of her sheep, for the production of wool is one of her chief industries. With the introduction of the Merino sheep to Australia by Captain MacArthur in 1797 and the opening up of the rich pasture land by the early explorers, sheep-farming in Australia expanded so rapidly that it was in danger of being strangled by the difficulties in shearing sheep. Hitherto, the shearing of sheep had always been by means of hand shears, and while the average shearer was famed for the great speed at which he worked - it was even that he always conveyed the impression that he was working for a wager of some kind - the system imposed a limit on the number of sheep that could be shorn each season. This handicap became more apparent as the wool trade of Australia developed, and the need was felt for some mechanical device if the trad were to expand in accordance with the requirements of the times, and full use mad of all the wool available.

The urgency of the need for such a mechanical device can be gauged from the fact that in 1792 the total number of sheep in Australia was 105, and in 1860 the number in New South Wales alone had risen to well over 6 millions, increasing to 35 millions in 1880. But the introduction of anything that constituted such a radical breakaway from the orthodox, as a method of shearing sheep by mechanical means was, at the time of which we write, fraught with difficulties of a formidable kind. Only too often an Inventor's whole attention remains focused on the bright vista his idea seems to open up before him, and it is inconceivable to him that others will be unable to share his enthusiasm or to appreciate the revolutionary benefits that he is convinced must result from the introduction of his invention. He is blind to the many obstacles that lie before him; the overcoming of prejudice against any attempt to replace a tradition and to conquer conservatism, but perhaps the greatest obstacle of all is of his own making. Many an invention, which might well have proved a boon to humanity, has suffered a premature death by being introduced to the public while it was still in an incomplete and experimental state, and has therefore had its advantages passed over and its short-comings magnified by a sceptical public. It is a pitfall that has proved the undoing of more than one inventor, and when mechanically operated sheep-shearing was first introduced this was its greatest obstacle; it was far from perfect and still unfit to be entrusted to the remote settler whose knowled of machinery, even in its most simple form, was strictly limited.

Let us, however, see how this revolutionary idea of a mechanical method of shearing sheep came into being; its struggle for survival and its ultimate triumphant success. In the next Chapter will be recorded the strange part mechanical sheep-shearing was destined to play in the birth and early developmen of the Wolseley motor car.

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CHAPTER II

THE WOLSELEY SHEEP-SHEARING MACHINE COMPANY LIMITED

It is not commonly known that the house of Wolseley is one of the few remaining in England that can prove, by authentic evidence, an unbroken descent from Saxon times, and can show the inheritance of the same lands in the male line from a period long anterior to the Norman conquest. A legend in the family narrates that their ancestor was given the lands of Wiselei (now Wolseley) for destroying wolves in County Stafford in the reign of King Edgar, at which time wolves were exterminated in England. For the purpose of this narrative, however, it is not necessary to go back further than 1837 in which year Frederick York Wolseley was born.

He was the third of four sons, the eldest of whom was to become the renowned Field-Marshal, Viscount Wolseley, one of the most outstanding soldiers of his time and whose fame added to the English language the expression "All Sir Garnet," which might be described as the fore-parent of the Americanism "O.K."

F.Y. Wolseley, the only civilian of the four brothers, was born in County Dublin and at an early age he manifested an instinctive desire to travel. Before he was 30 he sailed for Australia and in 1867-68 he became the manager of a sheep statio in Victoria belonging to a settler named Caldwell. It was while he was so engage that the possibilities of utilizing machinery for shearing sheep occurred to him He had a natural flair for engineering and carried out much experimental work bu under a considerable handicap because of the difficulties of finding firms which were both willing and able to undertake the manufacture of the small and intricat components for his machines.

In spite of this, he persevered with the development of his new idea to such good effect that within the next five years he was able to make use of mechanical shea on the station which he managed. Then for a brief period he returned to England, but went back to Australia again with the fixed determination to devote his whole time to the improvement and development of his invention.

After three years of costly and laborious experiment which he carried out from a room in Bourke Street West, Melbourne, he was rewarded by the grant of his first patent for a sheep-shearing machine. In 1876 he decided that the time had arrived for further trials of his machine under practical working conditions and accordingly purchased a large sheep station near Walgett, New South Wales, where he continued to live for some years, during which period a great part of his time was spent in perfecting his various inventions.

In 1887 the Wolseley Sheep-Shearing Machine Company Limited was established, with its offices at 19 Philip Street, Sydney, for the object of exploiting the large number of patents then held by F.Y. Wolseley. By the time the English Company was established in 1889 and the old Australian Company was wound up some forty or more patents stood in his name, each one relating to the sheep-shearing machinery.

The Company, however, failed to make the progress anticipated by its sponsors. Wolseley was ahead of his time, and progress was held in check by the fact that his products, in spite of all the experimental work that had been carried out for so long, were not sufficiently reliable for the work involved. Owing to transport and other difficulties, overhauls and general servicing, so essential to checkmate adverse criticism resulting from any breakdowns, were rarely possible. Apart from design problems, the manufacture of the shears involved the Company in difficulties because it was not easy in those days to find engineering firms capable of turning out parts which were both sufficient in quantity and up to the requisite standard.

Extreme accuracy of workmanship was essential, just as it is today, when quantity production is at stake and this applies whether the particular branch of engineering is the manufacture of sheep-shears or motor cars. A number of engineering firms, both large and small, were tried and orders placed for certain parts to be made and delivered to the Wolseley Company. One of the smaller firms, owned by Richard Pick-up Parks, that was given a trial was later managed by a young man

amed Herbert Austin. He was the son of a farmer and was born at Little Missenden ucks. It was his parents' intention that he should be trained as an Engineer, an rrangements were made for him to serve an apprenticeship to the Great Northern ailway Company, although the boy does not appear to have been too enthusiastic bout the idea. His father was very patient and anxious that Herbert should have he best opportunity to enter a trade which would best suit his aptitude. rchitecture would not do, so an approach was made to the railways with a view to btaining an apprenticeship in one of the workshops. There was no vacancy at the ime, so his name was entered on the waiting list until such time as he could egin his five years training. Whilst training, he continued to improve his skil n freehand drawing and managed to win some prizes for life-size crayon enlarge- ents from photographs, although he was still much better at mechanical drawing.

owever, while on a visit to England in 1883, his mother's brother, who was an ngineer and had spent many years in Australia, fired the boy's imagination with tories of the chances for young men, particularly those with an engineering bent n this great new country of Australia. As a result he returned with his uncle o Australia in 1884 and started work at an engineering firm in North Melbourne, f which his uncle was the Manager. During the next few years, Austin worked for arious firms and became Manager of a small one which was approached by the olseley Sheep-Shearing Machine Company.

little while before this, Austin had met and fallen in love with an Australian irl, Helen Dron, the seventh daughter of Scottish parents who had left Scotland nd settled in Melbourne early in their married life. This attractive girl, with er fair hair and blue eyes was not only witty and vivacious, but also had an ctive mind and the ability to think for herself. The young couple talked for ours about his dreams and ambitions and, even in those formative days, she elieved in this determined Englishman in spite of the fact that her sisters thought him 'nice but a little mad'. She used to tell an amusing story about their courtship. Mr and Mrs Dron imposed a strict condition upon their daughters efore they would allow them to be alone in the parlour with their boyfriends. hey were made to take their knitting or crochet work with them and were expected to produce sufficient results to account for the time they had spent unaccompanie with their young men. Failure to show enough rows or work at the end of an even- ing resulted in some difficult questions. 'But how on earth did you manage?' she was asked. 'Oh, I just gave the work to one of the other girls', she replied. 'Someone was always willing to be bribed with a pair of stockings or ribbons for er hair, and I would collect the work and give it to mother when Herbert had gone Of course, I did the same for my sisters.'

elen and Herbert were married on 26 December 1887. Three days before the wedding erbert gave up his job at Longlands and as they could not afford a honeymoon the went straight to their new home in Melbourne so that he could start the new job, at £3 10s a week, as Manager of the engineering workshop which was developing new sheep-shearing parts for F.Y. Wolseley. This gave him his opportunity, as these were just the sort of problems which Herbert Austin loved to tackle, and after experimenting with the shears, he pointed out to the Wolseley Company several weaknesses in their design and construction and made numerous suggestions which would render them more reliable and suitable for the remote and unmechanically- minded squatter.

It was easiest for him to devote all his engineering talents and to work his hardest and best when the difficulties seemed insurmountable. He worked day and night to improve the crude and primitive driving mechanism, and his enthusiasm an ability so impressed Wolseley that after three months he asked Austin to join his Company as its engineer. Shortly after he had taken up his new post, Herbert was sent out to a large sheep-shearing station at Avoca, on the borders of New South Wales and Victoria to study the machines in the hands of the operations. Conditions there were primitive; for several weeks he worked in the shearing shed in a temperature of 120°F, living on a diet of mutton and tea. The table legs stood in cans of water to prevent ants crawling up them and reaching the food.

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He returned to Melbourne after this session with many ideas for improvements to the machines, some of which he patented before the Company moved to Sydney where the Austins spent their eleventh and last year in Australia.

The task had proved of the greatest possible interest to him. Having studied conditions in the Australian Bush he well knew the many problems that would have to be faced before the products of the Company could ever hope to become generally acceptable. Sheep-shearing machinery would have to be as near fool-proof as it was possible to bring machinery in any form, and the whole force of his inventive powers was brought to bear on this problem. On the other hand, F.Y. Wolseley and his co-Directors quickly recognized Austin's ability and gave him every encouragement to use his initiative.

In the meantime, it had been decided to transfer the activities of the Company from Australia to England and a new Company was registered with its Head Office at No. 3, Crown Court, Old Broad Street, London. In the terms of an agreement dated October 1 1889, the new Company to be formed and registered in England was to purchase the assets, etc., of the old Australian Company for £141,665, of which £75,000 was to be paid in cash and the balance of £66,665 by allotment of 13,333 fully paid deferred shares of £5 each. The Wolseley Sheep-Shearing Machine Company Limited was registered on October 9 1889, with a nominal capital of £200,000 divided into 40,000 shares of £5 each. The first Directors were:-

James Alexander
F.H. Dangar
John Muirhead
Abraham Scott, and
Frederick York Wolseley (Managing Director)

The address of the latter was shown as the Oriental Club, Hanover Square, London.

As an indication of the extent to which the business had developed, it is interesting to examine the figures which are set out in a contract signed between F.Y. Wolseley and an Engineer named William Bourne, in consideration of a loan made to him by F.Y. Wolseley to enable him to install additional machinery. He undertook to supply the Company with 8,000 sheep-shearing machines at 18s each, together with 192,000 combs at 1s each, and the same number of cutters at 3½s each; all of which were to be delivered at the rate of 2,000 machines per month. Considered in the perspective of the time of which we write, these are impressive figures.

In spite of the transfer of the Company to England, its contact with H. Austin continued; the Company had adopted many of his suggestions with marked success, and in 1892 his name first appeared in the official records of the Company. On March 10 of the following year, an agreement was signed between the Company and Herbert Austin in the terms of which Austin assigned all his patents relating to sheep-shearing machinery to the Company, the consideration being the modest one of 0 ordinary shares of £5 each, fully paid. All these patents were described as "Improvements in tools for shearing or clipping hair or wool."

A few months later, he was offered the important position of Manager of the newly formed Wolseley Sheep-Shearing Machine Company in England, and in the winter of 93 he returned to England with his wife and young child. His wife was thrilled with the idea, even though it meant selling most of their possessions and yet other move; she had always wanted to travel, and above all, to visit England. She imagined that they would only be away for a few years, but had she known that she was leaving Australia for good, it is doubtful whether her enthusiasm would have been so great. She grew to love England over the years, because of her home, her husband and her children; but the climate never really suited her and up to the end of her life she always longed for the warmth and sunshine of her native country

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cause of the very short notice given by Wolseley, they had to leave Sydney in a
eat hurry. Their home had been sold at a loss; financially, Austin said later,
ey were 'sailing very close to the wind'. His other daughter, Irene, who had
n born in 1891 was in the throes of whooping cough and his wife was ill with
mach trouble. On board during the long voyage, an incident occurred which
ustrates rather well one of Austin's talents which proved so useful to him in
his future work - his approach to solving a practical problem. To pass the
ng hours between ports, Mrs Austin began to knit a pair of socks. All went well
ill she reached the heel, only to find that she had mislaid the pattern. Austin,
e was hardly the sort of man to have studied knitting before, had never touched
knitting needle in his life and certainly did not know the difference between one
itch and another, took over the work and turned the heel successfully by working
out mathematically. He did it so well that many of the other ladies on board
o were also knitting socks, asked him if he would do the same for them.

the last day of the voyage, he was walking on the deck when he met one of the
ssengers who was anxious to sell a pair of binoculars. At that time, coming
e to an English winter, field glasses were just about the last thing that the
stin family needed, particularly as they were rather worried about their own
ortage of money. But the frailty and obvious need of the old man with the
noculars touched Austin's compassionate nature so he bought them with his last
n pounds, leaving himself with only a few shillings in his pocket until he could
llect his salary from London. Taking his purchase down to the cabin a few minute
ter where his sick wife was packing, he handed them over while he told her the
tory. She was furious, and told him what she thought in no uncertain terms.
urprised at the outburst, he backed away, saying 'But Kiddie, the old man needed
he money.' The situation was simple to him and the remedy effected by exchanging
he money for binoculars; the fact that the article was useless to him did not
nter into it. He saw someone in need and just could not refuse to help.

hey landed at Tilbury on a grey day in November 1893; mother and daughter sick,
ustin having just celebrated his twenty-seventh birthday, was feeling depressed
nd wondering whether the upheaval was going to be justified.

is achievements were threefold. He had an excellent wife, a 'thorough training a
mechanic', and one object less tangible - an insight into what was to become
his life's greatest ambition. In retrospect he said in 1929: 'It was during my
work in the Australian Bush that my life's greatest ambition found birth. It was
then that I discovered the urgency of the transport need, for I was able to obser
the difficulties and dangers under which the outback settler was compelled to liv
and labour. Embedded in my memory and never likely to be effaced are journeys
through the bush in every kind of conveyance. Even today, I find it hard to real
just how the folk of the 'Never-never' managed so wonderfully to perform their
allotted task amid such dreadful isolation. Families were born and reared hundre
of miles from a railhead, hundreds of miles from the nearest medical aid, and som
times hundreds of miles from the nearest feminine neighbour. It would be hard to
make the people of the homeland understand the really terrible loneliness of thos
whose lives are lived in the distant open spaces ... It was in these same isolat
places, and greatly affected by such circumstances, that I made a kind of compact
with myself that I would one day, by some means or other, build motor cars that
could be used by these lonely but lovable people of the bush, and by such means a
I could provide the 'Never-never' would be robbed of much of its inhumanity,
cruelty and terror.'

Since the formation of the new Company, its affairs had gone badly. By 1894 the
situation was becoming serious and F.Y. Wolseley resigned; he died during Januar
1899. The reason for the Company's difficulties was largely due to the fact tha
those in control had just that little knowledge of machinery which is always so
dangerous. Nearly all the parts which constituted the shears were manufactured
outside firms, delivered to and assembled by the Wolseley Sheep-Shearing Machine
Company in their workshop off Broad Street, Birmingham. There existed only a
haphazard system of inspection and a considerable amount of thoroughly bad work

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as being turned out. Nothing but drastic action could save the situation and ustin, profiting by his experiences in Australia and his knowledge of what a reakdown meant to the Settlers in the remote country districts, persuaded the irectors to act. They decided to scrap large quantities of parts which were ither in stock or in the course of manufacture, and to repurchase the whole of he complete machines which had been delivered and which had been delivered and ere thought to contain faulty parts. In spite of this drastic step which cost he Company a great deal of money, they continued to suffer from the same ifficulties in obtaining, from outside firms, parts of a sufficiently high tandard of workmanship to satisfy their requirements.

he situation finally became so acute that the Directors decided, in spite of unds being low, that the Company would cut itself adrift from all outside nfluence: remove to larger premises, install new plant and undertake the man- facture in their own Works of all the parts previously bought-out.

t was during 1895 that a move was made to Sydney Works, Alma Street, Alston, irmingham, and as soon as the necessary plant had been installed and production ot under way, a marked improvement in the quality and subsequent reliability was pparent. Then another difficulty was experienced - the conservatism of their rospective customers - a habit of mind so innate in the Australian Settler. In rder to popularize their products it was found necessary to educate the Settlers and what would nowadays be called a publicity campaign had to be undertaken. Unfortunately, such a scheme takes time, and it was decided that some alternative work would have to be undertaken to add a little grist to the mill.

A department was opened in 1895 for manufacturing machine tools principally for cotton machine makers. The cycle industry was then at its height, and quantities of bicycle parts were turned out and even numbers of complete bicycles (Herbert Austin had been an ardent cyclist in Australia). It is noteworthy too that the original vertical semi-automatic chucking lathe was first made at the Alma Street factory. Almost any class of work was undertaken, and it was while this fight between the Company and the wolf, which so persistently approached its door, was in progress that strange rumours began to circulate about some new form of mechanically propelled road vehicle. Numbers were reported to be in use in Franc and Germany, and one or two had managed to squeeze their way into England, while the authorities were not looking. The laws of England held them to be so danger- ous and undesirable that their speed was limited to 4 m.p.h. and each one had to be preceded by a pedestrian - the red flag story is a fallacy.

It is not easy to visualize less promising conditions for the establishment of a motor-car industry in England than those of 1895. To popularize mechanically operated sheep-shears among the Squatters in Australia was simple when compared to the introduction of a horseless vehicle to horse-loving Englishmen. The very fact that it appeared to be a rival to the age-long friend of man was, in itself almost sufficient to create a grave for its own body.

To Austin, all this was no deterrent. A keen cyclist, a trained engineer who ha already had experience of small gas or paraffin internal combustion engines, the possibilities envisaged proved irresistible. He even made the journey to Paris for the purpose of examining some of the continental machines. The exact year o his visit is not known, but on page 399 of 'The Autocar' of August 30 1929, he says: "Though I had only a vague view of the possibilities of mechanical road traction, nevertheless, some two or three years before I built my first experimental car in 1895, I visited Paris ... "

Back in Birmingham, he was faced with almost the same difficulties that an earli pioneer, Carl Benz, encountered at Mannheim when, in 1884, he saw the immense future before the horseless vehicle; the first Benz and the first Wolseley cars had to be designed and built in secret and in their designer's own time. Neith Benz nor Austin was his own master; their partners or directors had no faith whatever in motor-cars, and for a long time they would not agree to any money

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ing expended on what they held to be useless experiments.

, against this background - and in secret, the first Wolseley car ever
which will be described in detail in in the next Chapter, was designed.
rudeness of its general layout, when viewed through modern spectacles, is
set by numbers of features which are unquestionably ingenious.

is a curious fact, which will be apparent to every student of motor-car
gn, that many of the pioneer designers originally set their faith in a
ie with only three road wheels. One need only mention Carl Benz, J.H.
ght, Bollee, De Deion, the American Duryea, and even the steam advocate Leon
ollet, to bear out this statement. It is, therefore, no matter for wonder-
that Herbert Austin, when designing the first Wolseley car in 1895, should
low in the footsteps of those who had first blazed the trail. The explanation
moreover, always the same: "because it was a simpler proposition."