SATURDAY, NOVEMBER 13TH, 1909.

THE AUTOCAR

A Journal published in the interests of the mechanically propelled road carriage.

EDITED BY H. WALTER STANER.

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The Autocar.

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Notes.

To Further Harass the Motorist.

It is perhaps not generally known that for some months past there has been in progress what may be regarded as a determined move on the part of a committee meeting at the Home Office to harass the motorist to an even greater degree than is at present the case. In the early part of the present year a committee was appointed to consider the question of the storage, the use and the conveyance of motor spirit, and to suggest what amendments were necessary in order that the trade in motor spirit may be effectively governed. Since that time several witnesses have tendered their evidence, and those who have closely followed the various sittings and noted the questions put to many of the witnesses will have had no difficulty in arriving at the conclusion that the members of that Home Office committee appear to be determined to frame or to suggest the framing of regulations far more drastic than those at present in vogue.

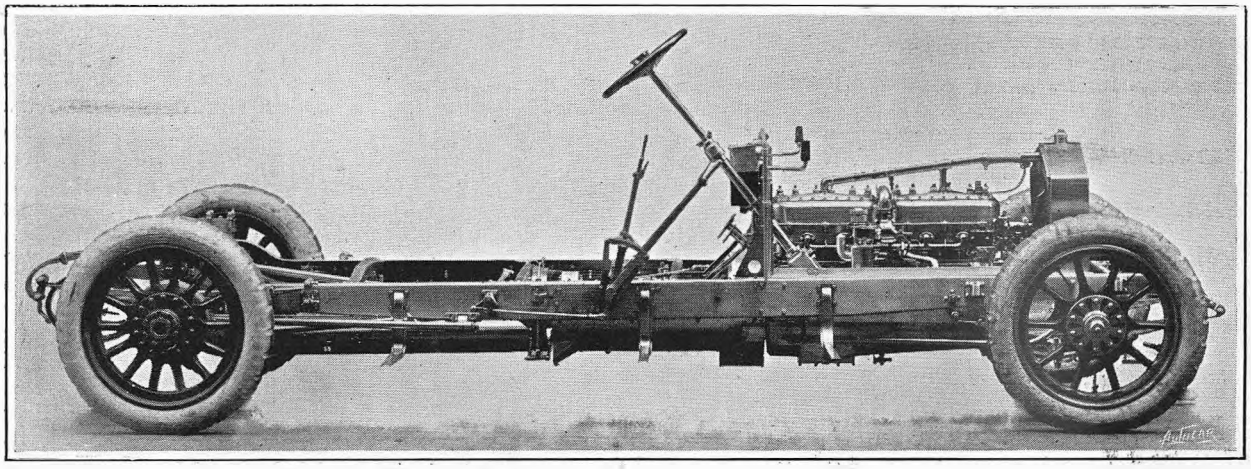
To the casual observer it may not seem particularly important that he should interest himself in a matter which on the face of it is of concern only to the large motor spirit importing and distributing firms. A little consideration, however, will convince him that the question as to new regulations for the storage and distribution of motor spirit is one which has a direct interest to himself, inasmuch as in the long run he has to pay the piper. To-day the most drastic regulations are enforced respecting the storage and the transport of motor spirit. Some of our chief waterways—for instance, the Regent's Canal—are closed to the transport of motor spirit, while on the railways the conditions of classification are grossly unfair. But for all this the motorist pays when he purchases his tin of petrol, the administrative charges upon which, including those of transport, are placed at 4d. per gallon. Thus it is clear that the motorist has a direct interest in all that appertains to the storage or transport of motor spirit, and should use whatever influence he possesses in order to see that regulations are framed which are in accordance with reason.

No Need for Additional Restrictions.

At the most recent meetings of the Petroleum Committee most conclusive evidence was forthcoming from trade witnesses as to the efficiency of the present regulations, while suggestions have been made that many of these might reasonably be relaxed in favour of others which will render the extension of the motor spirit trade more easy, and at the same time relieve those engaged therein from many of the pains and penalties which at present surround them. The evidence tendered by Mr. Falk (the Anglo-American Co.), Mr. Leonard (Messrs. Carless, Capel, and Leonard), Mr. Tennant (of the Gas Light Improvement Co.), and others should in itself serve the useful purpose of amending the motor spirit regulations in the direction desired, but, on the other hand, there are powerful opponents to any suggestion of the relaxation of the present methods in vogue. In fact, it has been seriously argued that the present regulations should be amended to such an extent that all motorists would be brought under the various Acts. Let us explain what has been the suggestion of no less an official than the Chief Assistant of the Public Control Department of the London County Council. In brief, this has been that motorists should be required to register their premises for the keeping of petroleum spirit with the local authority under the Petroleum Act. The reason for this suggestion, in Mr. O'Donnell's own words, will be to render the administration of the law simple, and consequently more effective. The average motorist will, we are convinced, ask what he has done that he should be harassed in this way, but the above suggestion is quite reasonable compared with that put forward from

another quarter, that the premises upon which the motorist keeps his petrol should be under the supervision of an inspector who should have a legal right of entry to see all regulations were obeyed.

To our mind, it is a pity that such suggestions should come from persons in authority; no good purpose would be served by their adoption. The motorist would be considerably harassed, and the imposition of additional restrictions either upon the storage, the transportation, or the mode of packing or delivering motor spirit would spell £ s. d., which the motorist can ill afford to part with in these times of persecution both from the Government and many local authorities. Further than this, there is absolutely not a shred of justification for the proposals. If danger from fire at garages and places where petrol is stored had been proved to exist it would be an entirely different matter, but no fires of any moment have occurred. Garages and motor works enjoy an immunity from fire under existing conditions equal to, if not greater than, that enjoyed by other business premises, while fires in private owners' car houses are almost unknown. The proposed regulations, therefore, are altogether unnecessary, and partake of the nature of a further unwarrantable attempt to harass the already overburdened motorist.



The chassis of the Rolls-Royce car for 1910. In the main the design remains the same, but several minor details have been improved. This car was dealt with in "The Autocar" of June 12th, 1909.

The Autocars of 1910.

The following alterations and additions to *The Autocar* "Buyers' Guide" published in our last issue have been received since the paper went to press. We therefore take an early opportunity of publishing these, in order that the list may be as correct and complete as possible:

ARROL-JOHNSTON CARS.—We are informed by the New Arrol-Johnston Motor Car Co., Ltd., that the horse-power of their new model is, according to R.A.C. formula, actually 15.9, and not 15.8 as might be gathered from the published dimensions of bore and stroke. The difference is accounted for by the fact that the diameter of the pistons, not the bore of the cylinders, is 80 mm., the bore being some few thousandths of an inch larger. The weight of this chassis is 15½ cwt., not 17 cwt., as we were originally informed.

BELSIZE.—The 18-22 h.p. six-cylinder engine is fitted with both magneto and accumulator ignitions, both entirely separated, at the price given in the Guide.

F.L. 12.16 h.p. (France).—15.8 h.p. R.A.C. rating; four cylinders; 80 × 100 mm. bore and stroke; mechanical lubrication; high-tension magneto ignition; four speeds; wheelbase, 9ft. 4in.; track, 4ft. 4in.; extreme width, 5ft. 4in.; extreme length, 12ft. 9½in.; distance from dash to centre of back wheel, 6ft. 7½in.; tyres, 810 × 90 mm. back and front wheels; weight of chassis, 14 cwts.; price, chassis, £305.

MAXWELL 22 h.p. (America).—22.5 h.p. R.A.C. rating; four cylinders; 95 × 102 mm. bore and stroke; mechanical lubrication; dual ignition; three speeds; wheelbase, 7ft. 9in.; track, 4ft. 8in.; price, car complete, four seats, £250.

PEARSON AND COX 12 h.p. steam car.—13.4 h.p. nominal rating; three cylinders; 60 × 70 mm. bore and stroke; mechanical lubrication; wheelbase, 8ft.; track, 4ft. 2in.; extreme width, 5ft. 6in.; extreme length, 11ft. 6in.; ground clearance, 7½in.; body space, 7ft. × 2ft. 10in.; distance from dash to centre of back wheel, 6ft.; tyres, 810 × 90 mm. back and front; weight of chassis, 13 cwts.; price, chassis, £290; car complete, four seats, £335.

SUNBEAM.—The weight of the 12-16 h.p. chassis should be 14 cwts., not 17, and of the 16-20 h.p. 18 cwts., not 19.

TALBOT.—The ignition of the 15, 25, and 35 h.p. Talbots is by the separate magneto and accumulator systems, not "dual" as stated.

THORNYCROFT 18 h.p. (England).—22.4 h.p. R.A.C. rating; four cylinders; 95 × 114 mm. bore and stroke; mechanical lubrication; high-tension magneto ignition; three speeds; wheelbase, 9ft. 8in.; track, 4ft. 5in.; extreme width, 5ft. 1in.; extreme length, 13ft. 4½in.; distance from dash to centre of back wheel, 6ft. 6½in.; tyres, 815 × 105 mm. back and front; weight of chassis, 17 cwts.; price, chassis, £420; car complete, five seats, £495.

THORNYCROFT 30 h.p.—32.2 h.p. R.A.C. rating; four cylinders; 114 × 127 mm. bore and stroke; mechanical lubrication; high-tension magneto ignition; three speeds; wheelbase, 9ft. 10½in.; track, 4ft. 8in.; extreme width, 5ft. 6in.; extreme length, 13ft. 11in.; distance from dash to centre of back wheel, 7ft. 2½in.; tyres, 880 × 120 mm. back and front; weight of chassis, 24 cwts.; price, chassis, £575; car complete, five seats, £650.

THORNYCROFT 45 h.p.—48.3 h.p. R.A.C. rating; six cylinders; 114 × 127 mm. bore and stroke; mechanical lubrication; high-tension magneto ignition; three speeds; wheelbase, 11ft.; track, 4ft. 8in.; extreme width, 5ft. 6in.; extreme length, 14ft. 11in.; distance from dash to centre of back wheel, 7ft. 2½in.; tyres, 880 × 120 mm. back and front; weight of chassis, 27 cwts.; price, chassis, £775; car complete, five seats, £850.

VALVELESS.—The price of the complete car includes tyres, and is not less these, as indicated.

PUBLISHERS' ANNOUNCEMENT. An Index to Advertisements in this issue will be found on page 66.

Useful Hints and Tips.

Double Pressure Systems.

QUITE a number of cars are fitted with a single pressure system, either by pump or exhaust, working both petrol supply and drip oil feeds. At times such pressure systems suffer from what seems like a partial failure. There is sufficient pressure to feed the engine when throttled on top gear, but the engine commences to misfire when the throttle is opened or a lower gear is put into operation. The explanation is that the pressure is liable to run to waste *viâ* the drip feeds, when the oil in the lubricating tank gets low. Especially if the pressure relief valve is set to blow off at a high figure, the pressure will be strong enough to force its way through a low level of oil coating the bottom of the tank, and though the oil will continue to be forced through the drips (somewhat slowly probably), pressure will escape with it, and the "head" of petrol may be insufficient. The cure is two-fold: it will suffice if an ample reserve of lubricant be maintained in the oil tank, or alternatively if the spring of the relief valve be weakened a trifle, so that the valve "blows off," say, at 2 lbs., when the pressure will not be strong enough to escape through the thick oil. This apparent defect of some pressure systems is really a merit, as it provides an automatic indicator of the amount of lubricant remaining in the tank.

Tubing for Acetylene Gas.

Few car manufacturers or lamp makers supply tubing that is really satisfactory for conveying gas from separate generators to the headlights. As a rule the lightest rubber "babies' bottle" tubing is thought adequate, and in use it perishes very quickly. We have seen cars to which careful owners had fitted copper piping secured to the chassis, and completed by short lengths of rubber at the four unions. We can personally recommend either the very thick rubber tubing used for bicycle inflator connections, which is costly in the first instance but cheap in the long run, or, alternatively, the metal-wound tubing supplied by coal gas companies for use with their latest "inverted mantle" incandescent reading lamps. It is doubtful whether copper tubing is safe, owing to chemical action, and either of the above substitutes is exceedingly durable, and can be neatly run along the members of the chassis by bindings of ordinary insulating tape.

Noisy Clutch Rollers.

A large number of cone clutches are withdrawn by a fork with rollers mounted on their two extremities, which rollers withdraw the clutch by pressing against a circular collar. Till quite recently these rollers were usually made of steel, and unless very frequently lubricated they make a most unpleasant buzzing, as they revolve by friction when in contact with the spinning collar as the clutch is operated. If they are well lubricated they fling off the lubricant in a very short time by centrifugal force, and the noise recommences. It is perhaps impossible to make the action of such a clutch absolutely silent, but the noise is very considerably diminished by the use of fibre instead of metal in the construction of the rollers. A turner will make a pair of hard—really hard—fibre rollers for a few pence, and they require far less lubricant and are far more silent than rollers of steel.

Fierce Leather Clutches

Some leather cone clutches are incurably fierce, owing either to false angles of taper or to malalignment of vital parts of the chassis. Such explanations of ferocity, however, apply only to somewhat obsolete cars. On quite new cars a leather clutch sometimes seems to be incurably fierce. It always takes up its work with a squeak and a bite that may be felt. If the flywheel be liberally anointed with oil its action softens into silkiness for a mile or two, but the oil is presently flung off by centrifugal action when the flywheel is spinning round free, and the clutch returns swiftly to its pristine condition of ferocity. We are afraid that some makers are not very careful about the condition of the leather they fit to their clutch cones. We saw a pile of clutch leathers in one factory, none of which had ever been properly dressed, and we were not surprised to hear from several owners that the clutch of the cars concerned is abnormally fierce. Again, we have seen clutch leathers sent out from another stock room which had evidently lain long on a dusty shelf, and had long since evaporated their natural and artificial lubricants. When an accurately designed clutch is found to be inveterately fierce it is absolutely essential to a cure to dismount the male cone from the chassis, and to give it a prolonged and painstaking dressing with the proper oils. Some owners fail because they merely squirt a few drops of oil on the inner periphery of the flywheel. This lies against the surface of the leather till the car is used, when it is swept off by the flywheel as the two cones part company in the act of declutching, and is flung madly about the chassis. If the clutch had been dismounted, its callous surface rasped, and the oil well rubbed in, the cure would probably have been permanent. Other owners fail because they use unsuitable oils. We have often seen a chauffeur wink knowingly when his clutch bit too hard or squeaked complainingly; then he slips his gear in neutral, lifts his footboards, injects a few drops of lubricating oil while he holds the pedal down, and then remounts with the air of a man who has successfully tackled a problem. Even supposing his leather was not burned so badly that rasping and rubbing were essential to a cure, he has used the wrong oil, castor or collan alone being really good for the purpose, and he has applied the wrong oil in the wrong way; it is certain that after two or three declutchings scarcely a drop of the quantity injected would remain on or near the clutch.

Drip Feed Lubricators. A Suggestion.

I have just adopted a dodge on my drip-feed lubricators which is so great a success and convenience that I venture to submit it to my fellow-motorists for adoption. It is, to remove the set-nut on the feed regulator and to substitute a piece of brass pipe, the length carefully adjusted, so that when the regulator is screwed down tight on it the normal supply of oil is flowing. When an extra amount of oil is desired (on hills, etc.), the regulator can be unscrewed a little instead of resorting to the pump, and screwed down again afterwards; if forgotten, the only result is a little too much oil, but never too little, which is of greater importance. To determine the length of brass pipe, I "guessed" it first time, then, after running half a day, opened the overflow tap in crank case, when about a cupful of oil ran out; thereupon I shortened the pipe until, after three tests, I got it the right length. The knowledge that I can give exactly the right quantity of oil in the dark, without pump or lamps, is delightful.—DESONDI.

Olympia Show Itinerary.

A Forecast of the Exhibition and some General Notes on the Exhibits.

WE pre-suppose that the show visitor who is critically interested in the various exhibits will have armed himself with last week's issue of *The Autocar*, in which "The Autocars of 1910" or "Buyers' Guide" was published. This gave the leading dimensions of the cars of the day, and is most useful for comparison, especially at stands where the attendants do not know the dimensions of their cars—and it will often be found that a good many are ignorant of these important points, particularly in the earlier days of the show before they have been thoroughly drilled to their work. In the present article we publish small key diagrams to show the system of numbering adopted in the show, as unless the visitor knows this it is often very difficult to find some particular stand. At the same time it is well to avoid aimless wandering, as one is sure to miss interesting stands unless one systematically makes a tour of the whole building; our diagrams show the sequence of the stand numbering and enable the visitor to make a complete itinerary and be sure that nothing has been missed. The majority of people who go to the show with the idea of ordering a car then, or subsequently, necessarily have to confine themselves to certain price limits, and to aid them in this we have compiled a classified table in which the cars of each price are separately given, so that the man who has a certain maximum to spend can see the stands on which to find cars which come within his limit. We do not profess that every car in the show is included. Indeed some are necessarily omitted, as at the time of going to press their prices had not been announced, and therefore it was impossible to classify them. Fortunately, these unpriced cars are only small in numbers, though, unfortunately, they are not by any means unimportant.

An asterisk signifies "chassis only without tyres."

PRICE CLASSIFICATION OF CARS IN THE SHOW.

The numbers of the Stands on which the various Cars will be shown are given for the convenience of Visitors.

Classification is based on prices of Complete Cars as published in "The Autocars of 1910" (The Buyers' Guide) in "The Autocar" of November 6th. In certain instances where manufacturers or agents have quoted chassis prices only, we have added sums for bodies on the following scale:

On chassis price up to £300; allowance for body .. £40
" " " from £300 to £500 " " " .. £60
" " " over £500 " " " .. £80

H.P.	Stand
Less than £150.	
5 Jackson	19
8 Phœnix	147
6 Rover	59
£150 to £200	
7 Austin	69
8-9 Chénard-Walcker	19
8-10 Clyde	6
8-10 Darracq	62
*15 Dolphin	22
9 Grégoire	29
8 Humber	48
6.2 Jackson	19
8-10 Mass	67
8-10 Phœnix	147
9 Riley	146
7 Swift	66
*8 Thames	77
8 Turicum	100
8-10 Turicum	100
£200 to £250.	
10 Adams	145
10 Alldays	70
10 Argyll	65
15.8 Bedford	91
12.9 Briton	98
10 Cadillac	89
12-14 Clyde	6
10-12 Darracq	62
14-16 Darracq	62
8 De Dion	60
10 Delage	139
10-12 D.F.P.	7
10-12 Enfield	86
*12 Fafnir	24
*16 Fafnir	24
13.8 Jackson	19
10-12 Mass	67
10-12 N.B.	153
10-12 Phœnix	147
10 Riley	146

H.P.	Stand
£200 to £250 (*cont.*)	
8 Rover	59
12 Rover	59
7-9 Singer	80
8.9 Sizaire-Naudin	45
10 Star	63
*12 Thames	77
£250 to £300.	
10-12 Albruna	133
14-16 Belsize	83
8 Berliet	135
16.6 Briton	98
7 Charron	82
12 Chénard-Walcker	19
10-12 Clément	39
7-9 De Dietrich 71 and	68
12 Delage	139
*12-15 Hillman-Coatalen	140
12 Humber	48
12 Marlborough	15
10-12 Martini	95
14-16 Miesse Petrol	94
12-14 N.A.G.	31
8-10 Panhard	37
9-11 Peugeot	3
10-12 Peugeot	3
12-18 Riley	146
12 Standard	53
12 Star	63
12-14 Turicum	100
12 Vulcan	85
10 Turner-Miesse (steam)	49
£300 to £350.	
12 Adler	58
14 Alldays	70
15 Argyll	65
10-12 Aster	25
16 Bell	40
16-20 Bentall	26
12 Berliet	135
16-20 Clyde	6

H.P.	Stand
£300 to £350 (*cont.*)	
10-12 Cottin-Desgouttes	151
20-24 Darracq	62
9 De Dion	60
10 De Dion	60
12 De Dion	60
12-16 D.F.P.	7
14 Delage	139
16 Enfield	86
14 Grégiore	29
15 Marlborough	15
18 Marlborough	15
12-16 Martini	95
13.8 Métallurgique	74
12 Mors	79
10 Napier	75
20 Rothwell	88
15 S.C.A.T.	153
12-14 Singer	80
15 Star	63
12-16 Sunbeam	64
12-16 Vinot	—
20 Vulcan	85
12 Turner-Miesse (steam)	49
£350 to £400.	
20 Alldays	70
20 Argyll	65
15.9 Arrol-Johnston	51
15 Austin	69
15-20 Austrian-Daimler	1
18-22 Belsize	83
20-30 Cadillac	89
15 Charron	82
14-18 Clément	39
12-14 Crossley .. 108 and	45
14 Deasy	34
13.8 De Dietrich 71 and	68
14-20 D.F.P.	7
18 Dennis	47
18-22 Enfield	86
12-16 Gobron-Brillié	81
12-16 Hotchkiss	30

H.P.	Stand
£350 to £400 (*cont.*)	
10 La Buire	84
15 Mass	67
14-16 Motobloc	142
10-14 Peugeot	3
12-14 Rapid	143
12-16 Rochet-Schneider	27
15 Rover	59
16-20 Singer	80
16 Standard	53
20 Star	63
20 Stella	10
15 Straker-Squire	46
12 Talbot	52
*18 Torbinia	150
*22 Valveless	93
17.9 Vauxhall	61
16 Vulcan	85
£400 to £450.	
16 Adams	145
16 Albion	50
14-16 Aster	25
15 Berliet	135
20-22 Brown	133
20 Cooper	8
15 Cottin-Desgouttes	151
15 Daimler	36
15 Deasy	34
14 De Dion	60
10 Delaunay-Belleville	35
*30 Dolphin	22
30-35 Enfield	86
*25 Hillman-Coatalen	140
16 Humber	48
25 J. & B. Vertex	91
15 La Buire	84
16 Minerva	44
15 Mors	79
15 Napier	75
12-15 Panhard	37
12-15 Peugeot	3
12-16 Piccard-Pictet	27

£400 TO £450 (*cont.*)

H.P.	Stand
17.9 Pilot	9
25 Rothwell	88
20 Rover	59
*24 Thames	77
14 Vulcan	85
20 White (Petrol)	136
15 Turner-Miesse (Steam)	49
15 White (Steam)	136

£450 TO £500.

30 Argyll	65
20-24 Aster	25
24-30 Aster	25
20 Bell	40
28 Belsize	83
18 Benz	148
25-30 Brown	133
18-28 Clément	39
20 Crossley	108 and 45
*22 Daimler	36
25-30 Darracq	62
18 Deasy	34
20 De Dietrich	71 and 68
24 Dennis	47
16-20 Hotchkiss	30
30 J. & B. Vertex	91
20 Lancia	18
16-24 Martini	95
20 Mass	67
17 Maudslay	56
17.9 Métallurgique	74
18-22 Motobloc	140
16-18 N.A.G.	31
10-15 Panhard	37
16-20 Peugeot	3
16-20 Rapid	143
22 S.C.A.T.	153
14-20 Sheffield-Simplex	54
25 Star	63
16-20 Sunbeam	64
15 Talbot	52
20 Vauxhall	61
14-16 Withers	21

£500 TO £600.

*30 Adams	145
20 Adler	58
18-24 Austin	69
30 Bell	40
22 Berliet	135
22 Charron	82

£500 TO £600 (*cont.*)

H.P.	Stand
28-35 Clément	39
20 Cottin-Desgouttes	151
22 Cottin-Desgouttes	151
40 Crossley	108 and 45
*38 Daimler	36
40-50 Darracq	62
25 Deasy	34
23.7 De Dietrich	71 and 68
30 De Dietrich	71 and 68
18 De Dion	60
25 De Dion	60
15 Delaunay-Belleville	35
14 Germain	28
18 Germain	28
45 J. & B. Vertex	91
16 La Buire	84
20 Lanchester	72
25 Lancia	18
24-30 Mass	67
28-32 Mass	67
26 Minerva	44
20 Mors	79
25 Motobloc	140
26 Napier	75
15-25 Panhard	37
18-24 Piccard-Pictet	27
25-30 Rapid	143
18-22 Rochet-Schneider	27
20-30 Sheffield-Simplex	54
20-25 Singer	80
20 Standard	53
40 Star	63
25-30 Sunbeam	64
20 Talbot	52
25 Talbot	52
25-30 Vinot	3
30 Vulcan	85
35 Vulcan	85
20-22 Withers	21

£600 TO £700.

25 Adler	58
24 Albion	50
40 Austin	69
40 Brown	133
30 Charron	82
35 Charron	82
24 Charron	82
35-45 Clément	39
40 Cottin-Desgouttes	151
*33 Daimler	36

£600 TO £700 (*cont.*)

H.P.	Stand
40 Dennis	47
20 Germain	28
20-30 Gobron-Brillié	81
*40 Hillman-Coatalen	140
20-30 Hotchkiss	30
18 La Buire	84
24 La Buire	84
28 Lanchester	72
25-35 Martini	95
30-40 Mass	67
25-30 Maudslay	56
25.4 Métallurgique	74
38 Minvera	44
35 Motobloc	140
30 Napier	75
40 Napier	75
20 N.E.C.	20
18-30 Panhard	37
25-35 Panhard	37
18-24 Peugeot	3
22-30 Peugeot	3
25-30 Rochet-Schneider	27
35 Talbot	52
*45 Thames	77
26.8 Vauxhall	61
40 Vinot	—
24-30 Withers	21
30-35 Withers	21
20 Turner-Miesse (Steam)	49
30 Turner-Miesse (Steam)	49

£700 TO £800.

35 Adler	58
50 Austin	69
60 Austin	69
35 Benz	148
40 Berliet	135
50 Cottin-Desgouttes	151
35.7 De Dietrich	71 and 68
25 Delaunay-Belleville	35
28 Delaunay-Belleville	35
28 Germain	28
30 Germain	28
35 La Buire	84
35-45 Maudslay	56
30 Mors	79
45 Motobloc	140
30-35 N.A.G.	31
45 Napier	75
30 N.E.C.	20
30 Panhard	37

£700 TO £800 (*cont.*)

H.P.	Stand
35-45 Panhard	37
35-45 Peugeot	3
28-50 Piccard-Pictet	27
28-40 Piccard-Pictet	27
28-40 Rapid	143
30-35 Rochet-Schneider	27
45 Sheffield-Simplex	54
40 Standard	53
*50 Thames	77
40 White (Steam)	136

£800 TO £900.

40 Adler	58
40 Benz	148
60 Berliet	135
50 Charron	82
45 Cottin-Desgouttes	151
*57 Daimler	36
41.9 De Dietrich	71 and 68
60 Dennis	47
40 Germain	28
54 La Buire	84
38-7 Métallurgique	74
45 Mors	79
60 Napier	75
40 N.E.C.	20
40 Panhard	37
50-70 Rapid	143

£900 TO £1,000.

75 Charron	82
35 De Dion	60
40 Delaunay-Belleville	35
40-60 Gobron-Brillié	81
65 Napier	75

£1,000 AND OVER.

60 Benz	148
52.8 De Dietrich	71 and 68
62.8 De Dietrich	71 and 68
40 Delaunay-Belleville	35
70 Delaunay-Belleville	35
60 Germain	28
70-90 Gobron-Brillié	81
50 Mors	79
70 Motobloc	140
50-60 N.A.G.	31
90 Napier	75
40-50 Rolls-Royce	57

The Main Hall and Annexe.

The Main Hall and the Annexe are now practically one, as the partition dividing the large extension building or Annexe at the end opposite Addison Road entrance has been removed, so that if it were not for the lower pitch it would almost appear to be part and parcel of the main building. Unfortunately, however, the numbering does not run straight down the rows of stands into the Annexe as it should do, and doubtless would do if the shape of the building permitted. As usual, the Main Hall is entirely devoted to car and chassis exhibits, with the exception of some stands along the walls of the building. In the Annexe will be found a number of the carriage work displays of the leading coachbuilders, as well as chassis and complete cars by many leading makers who have not been able to find space in the Main Hall.

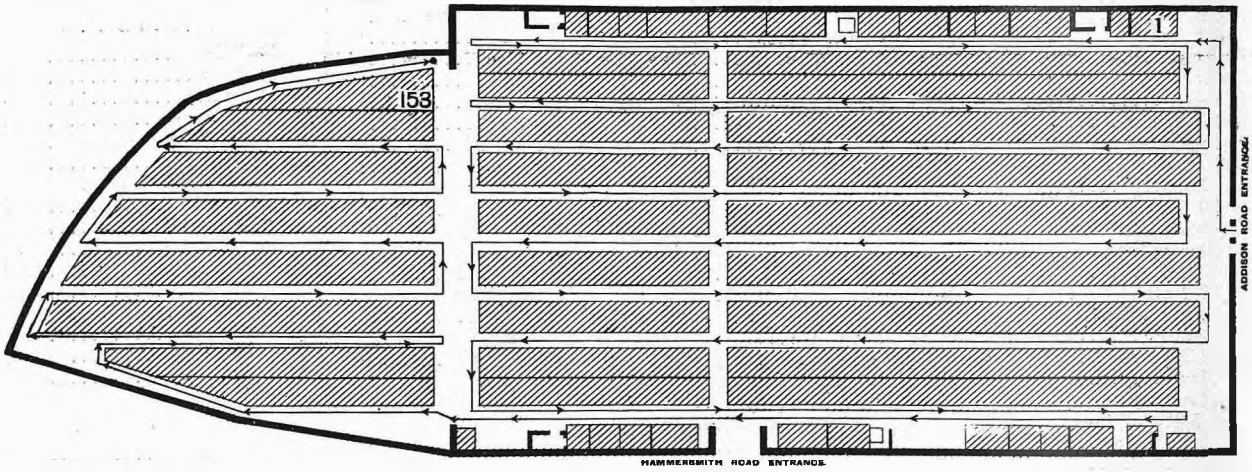
The Gallery.

In the Gallery will be found engines, tyres, detachable wheels, rims, lamps, and accessories of every description, prominent among them being a number of new magnetos. These magneto exhibits will be of special interest, because the recent efforts of magneto makers have been so strongly devoted to simplification of the machine as a whole. Not only have the parts themselves been reduced to the smallest possible number, but contact makers in particular have been rendered extraordinarily accessible, and all parts of the magneto which may require attention from time to time have been so designed that in many cases it is quite impossible to put them back the wrong way. There are few striking novelties in tyres, but there is more than one new design of non-skid. Duplex pneumatic tyres will be found, we believe, for the first time for motor car use, though they have been shown before on motor cycles, and duplex solid tyres are, of course, a common thing for motor 'bus and other heavy work. The best thing about the modern tyre is that which cannot be exhibited in a show. We refer to its vastly improved reliability and longevity. Every year up to the present has shown an all round improvement in the durability of the motor tyre, and tyres will be exhibited which are well nigh unpuncturable, while one of the greatest tyre advances of late years, reinforced air tubes, will be shown for the first time.

Among the lamps are a number of ingenious detail improvements, and electric head lamps will take a much more prominent position in the present show than in any previous exhibition. Among acetylene head lamps will be found a strong tendency to construct generators of the separating type—that is, generators in which the carbide is carried in a basket.

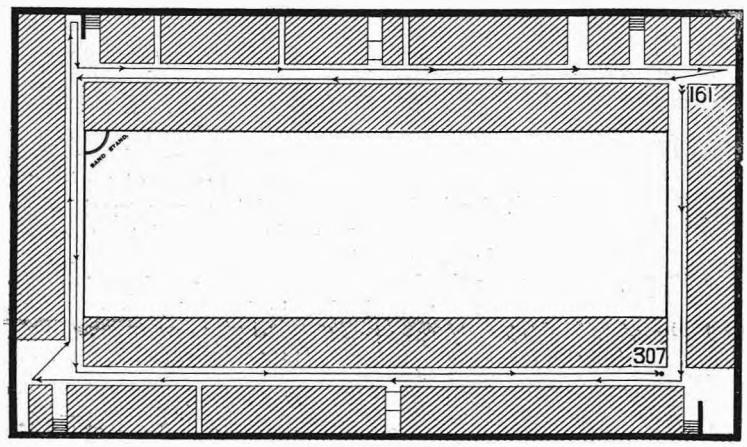
so that the spent lime is automatically sifted from the good carbide and falls to the bottom of the container. The system is a good one, and we are glad to see that it is coming into wider use. Reflectors of the Mangin type are also much more widely used than heretofore, and, although the condenser lens in the front of the lamp is still very prevalent, there is no doubt that the lens reflector is more widely represented than ever before. Last, but by no means least, are those firms which show almost innumerable small items, many of them novel, and most of them exceedingly ingenious. They are all brought out with the one idea of saving the motorist trouble or of providing him with various luxuries and comforts such as veteran motorists would not have imagined in their wildest dreams.

STAND NUMBERS OF EXHIBITORS AT OLYMPIA.



A list of exhibits and exhibitors, together with their stand numbers, compiled from particulars submitted by the exhibitors. The letters **F** and **G** after the stand numbers indicate the stand as being on the Floor or in the Gallery respectively. The key guides accompanying the list shows how the visitor, by following the route indicated in the direction of the arrows, may be assured of inspecting the whole of the exhibits. The stand numbers run from **1** to **153** on the Floor and from **161** to **307** in the Gallery.

	No.
Acetylene Illuminating Co., Dissolved Acetylene .. 104F and	237G
Adams Cars	145F
Adams and Co.	247G
Adler Cars	58F
Albion Cars	50F
Alford and Alder, Bodies	129F
Alldays Cars	70F
Anglo-American Oil Co., Pratt's Spirit	189G
Argyll Cars	65F
Aster Eng. Co., Aster Motors	280G
Auster Screens	196G
Austin Cars	69F
Austrian-Daimler Cars	1F
Auto-Machinery Co., Ball Bearings, etc.	278G
Avon Tyres	286G
Bailey, Sir W. H., and Sons, Pumps and Tyre Carriers	191G
Barker and Co., Bodies	120F
Bedford Cars	91F
Bell Cars	40F
Belsize Cars	83F
Bentall Cars	26F
Benz Cars	148F
Berliet Cars	135F
Bleriot Lamps, etc.	172G
Bosch Magneto	192G
Botwood and Egerton, Agents	112F
Bowdon Patents	154G
Bowley, S., and Son	190G
Bowring Petrol Co., "Mex" Spirit	227G
Brampton Chains	210G
Bransom, Kent, and Co., Accessories	211G
Briton Cars	98F
Brooks, J. B., and Co., Leather Goods	214G
Brown Cars	135F
Brown Bros., Ltd., Accessories and Parts	213G
Brown and Barlow, Carburetters	229G
B.S.A. Cars	55F
Brown, David, Gears and Parts	255G
Cadillac Cars	89F
Calmon Asbestos and Rubber Co., Tyres	301G
Calthorpe Cars	76F
C.A.V., Electric Ignition	243G
Charles Jarrott and Letts, Sizaire and Crossley Cars	45F
Chénard-Walcker Car	19F
Charron Cars	82F
Clément Cars	39F
Clincher Tyres	287G
Clyde Cars	6F
Collier Tyres	293G
Cole, W., and Son, Bodies	126F
Connaught Motor Co., Bodies	107F
Connolly Tyres	215G
Continental Tyres	297G
Cooper Cars	8F
Cottin et Desgouttes Cars	152F
Cowey Speedometer	201G
Coventry Chains	161G
Coventry Motor Fittings	203G
Crossley Cars	108F
Daimler Cars	36F
Darracq Cars	62F
Davenport, G., Accessories	186G
Deasy Cars	34F
De Dion-Bouton Cars	60F
Delage Cars	139F
Dennis Cars	47F
Docker Bros., Paints and Varnishes	240G
Doherty Motor Components	279G
Dover, Steering Wheels	258G
Drummond Bros., Tools	236G
Dunhill's Motor Clothing, etc.	195G
Dunlop Rubber Co., Waterproofs, etc.	182G
Dunlop Tyres	299G
Duplex, Motor	141F
East London Rubber Co., Accessories	238G
Eichhorn, E., Lamps	198G
Electric Ignition Co.	275G
Electric Vehicles	101F
Electric and Ordnance Co., Timkin Roller Bearings	267G
Elliott Speedometers	259G
Enfield Autocars	86F
Englebert and Co., Oils and Greases	233G
Fafnir Cars	24F
F.I.A.T. Cars	73F
Finnigan, Ltd., Motor Trunks	264G
Flather, W. T., and Co., Steels	165G
Gaulois Tyres	306G
Gauthier and Co.	15F
Germain and Grégoire Cars	28F
Gladiator Cars	29F
Gobron-Brillié Cars	81F
Godin, A., Ducellier Lamps	164G
Goodrich Tyres	292G
Grégoire Cars	29F
Grose Non-skid Bands	302G



Key to Gallery Stands.

	No.
Hamshaw, H. A., Bodies	122F
Hans Renold Chains	223G
Harding, A. F., Leather and Metal Polishes	200G
Hardy, E. J., Accessories	241G
Harvey Frost Vulcanisers	207G
Harvey, W. J.	163G
High Tension Co., Electric Ignition, etc.	179G
Hill and Boll, Bodies	125F
Hillman-Coatalen Cars	140F
Hill, E. H.	235G
Hobson, H. M.	25F
Hobson, Ltd., Hobson-Pognon Plugs	212G
Hoffmann Ball Bearings	250G
Hora, E. and H., Bodies	119F
Hotchkiss Cars	30F
Howes and Son, Bodies	113F
Hoyt Metal Co., Bearing Metal	245G
Humber Cars	48F
Hunt, H. S., Accessories	206G
Hutchinson Tyres	304G
Imperial Motor Industries	269G
Iris Cars	78F
Itala Cars	16F
Kalker and Co., Electric Specialities	205G
Keele, E. J., Ltd., Belsize, Darracq, Renault, and Sunbeam Cars	114F
Kempshall Tyres	294G
King, A. C., and Co.	265G
K.T. Tyres	283G
La Buire Cars	84F
Lake and Elliot, Tools, etc., "Millennium" Lifting Jack	216G
Lanchester Cars	72F
Lancia Cars	18F
Laystall Motor Engineering Co.	117F
Leon Bollée Cars	32F
Leo Ripault Electric Ignition	268G
Lever Spring Suspension	248G
Lithanode Accumulators	178G
Liversidge, Allen-Liversidge Front Brakes	290G
Lodge Bros., Electric Ignition	234G
Lorraine-Dietrich Cars	68F
Lovegrove's, Motor Tailors	175G
Lowe, Bevan, and Co., Carriage Fittings	217G
Lucas, J., Lamps, Horns, etc.	219G
Lynton Wheels and Tyres	298G
Markt and Co., Jones Speedometers	180G
Marston, J., Radiators	273G
Martini Cars	95F
Mass Cars	67F
Maudslay Cars	56F
Maythorn and Sons, Bodies	117F
McNaught and Co., Bodies	106F
Melhuish and Co., Bodies	128F
Mestre and Blatge	194G
Métallurgique Cars	74F
Michelin Tyres	281G
Midland Rubber Co., Ajax Tyres	295G
Miesse Petrol Car	94F
Minerva Cars	44F
Moebius and Son	263G
Mors Cars	79F
Moseley Tyres	282G
Motobloc Cars	142F
Motor Accessories	226G
Motor Schools, Ltd.	9F
Motor Supply Co.	115G
Motor Mercantile Co.	150F
Mulliner, H. J., Bodies	132F
N.A.G. Cars	23F
Napier Cars	75F
New Arrol-Johnston Cars	51F
New Engine Co. Cars	20F
New Motor and General Rubber Co.	285G
Niclausse Cars	23F
Nilmelior, Electric Ignition	270G
Nixey, W. G., Graphite Lubricants	187G
Norton, T., Stoves and Oil Trays	184G
Opel Cars	152F
Owen, J., and Son, Body Timbers	168G
Panhard and Levassor Cars	37F
Palmer Tyres	296G
Parsons' Non-skids and Sparklet Inflators	228G
Penman, Dumfries, Bodies	116F
Peter Union Tyres	289G
Peto and Radford, Electric Ignition	174G
Peugeot Cars	3F
Phœnix Cars	147F
Powell and Hanmer, Lamps	166G
Prested, Electric Ignition	230G
Price's Oils	249G
Rapid Cars	143F
Rawlence and Co.	188G
Renault Cars	33F
Riches, G. T., General Accessories and Parts	246G
Riley Cars	146F
Rochet-Schneider Cars	27F
Rolls-Royce Cars	57F
Ross-Courtney, Small Parts and Fittings	221G
Rotax Motor Accessories	167G
Rotherham and Son, Lubricators, etc.	202G
Rothwell Cars	88F
Rover Cars	59G
Rudge-Whitworth Detachable Wheels	276G
Rushmore Lamps	260G
Salmon and Son, Bodies	124F
Sankey, J., and Son, Steel Wheels	232G
S.C.A.T. Cars	153F
Self-sealing Rubber Co., Air Tubes	291G
Sheffield-Simplex Cars	54F
Simms Magnetos	257G
Singer Cars	80F
Sirdar Tyres	307G
Smith, Parfrey, and Co., Wheels and Car Components	272G
Smith, S., and Sons, Speedometers, Clocks, etc.	244G
Soc. Lorraine-Dietrich Cars	71F
Spencer Moulton Tyres	300G
Standard Cars	53F
Star Cars	63F
Steel Barrel Co.	261G
Stella Cars	10F
Stepney Spare Wheel	208G
Stern-Sonneborn Oils and Greases	181G
Stewart Speedometer	239G
Straker-Squire Car	46F
Sunbeam Cars	64F
Swift Cars	66F
Sylverlyte Lamps	224G
Talbot Cars	52F
Terry, H., and Son, Springs	231G
Thames Cars	77F
Thompson and Bennett, Electric Ignition	271G
Thorn, W. and F., Bodies	127F
Thornycroft Cars	38F
Thrupp and Maberly, Bodies	130F
Torkington Tyres	305G
Tormo Mfg. Co., F. and S. Ball Bearings	170G
Trier and Martin, Carburetters	262G
Turicum Cars	100F
Two-stroke Engine Co.	22F
Unic Cars	137F
United Motor Industries, Magnetos, Accessories and Parts	162G
Vacuum Oils	176G
Valveless Cars	93F
Van Raden and Co., Electric Ignition	173G
Vauxhall Cars	61F
Vi o Wheels	281G
Vulcan Cars	85F
White and Poppe Engines and Carburetters	251G
White Cars, Steam and Petrol	136F
Willans and Robinson, Castings and Metals	256G
Willcox, W. H., Oils, Pumps, and Parts	169G
Willoc and Bottin Lamps and Radiators	242G
Windham Detachable Bodies	123F
Withers Cars	21F
Wolseley-Siddeley Cars	43F
Wrigley, E. G., and Co., Gear Specialists	274G

The 1910 Car as Exemplified by Exhibits at Olympia.

Detail improvement is unquestionably the keynote of the 1910 car. Many designs will be found unchanged in the main, though improvements have been introduced here and there which are of very great importance to the owner, as they tend either to accessibility, increased reliability, or greater economy. To take the engine first, there is no doubt that the practice of casting the cylinders *en bloc* is growing, and, although it is still mainly prevalent with engines of 80 mm. bore or under, a number of much larger engines will be found constructed on the monobloc system. The prevalent fashion is unquestionably to cast the cylinders in pairs, and, although some of the best makers still pin their faith to entirely separate cylinders, they are certainly in the minority, though some three or four years ago it looked as if the practice would become universal. With the block engine there is a growing tendency to include the inlet and exhaust passages within the casting, so that the exterior piping of the engine is reduced to extreme simplicity, and sometimes, we fear, at a sacrifice of efficiency.

The tendency to lengthen the strokes of the smaller powered engines is still more apparent than last year, and comparatively few of the engines of about 80 mm. in bore have strokes much below 120 mm. This is a tendency in the right direction so long as it is not overdone. It appeared probable that exceedingly large valves would come into use, but this has not been the case, though the very small valves which were used a couple of years back are now very rarely employed, and it may safely be said that the more advanced makers, particularly those who turn out small or medium sized engines, have adopted as a safe general rule the practice of making the smallest dimension of the valve seating equivalent to half the bore of the cylinder. This is good practice when it is borne in mind that the majority of these engines, especially the smaller ones, must be run at high engine speeds if they are to develop sufficient power.

Mechanical Lubrication.

Probably the most striking feature in connection with engines is the growth of mechanical lubrication. Although the old drip feed is far from being discarded, it is being replaced with great rapidity by what is known as the semi-mechanical system. Some simple form of pump—usually a couple of gear wheels—is employed to maintain a constant level of oil in small troughs under each big end, and when well and carefully carried out this system is eminently satisfactory, but it must not be confounded with forced lubrication, in which the oil is forced through hollow crankshafts to each of the main bearings of the engine. In the best examples it is also forced up to the gudgeon pin or little end bearing of each connecting rod, and thence, in some cases, to the cylinder walls.

The Prevalent Ignition System.

The sway of the magneto is now to all intents and purposes absolute, as the accumulator ignition as a sole ignition is very rarely used, and only then on the cheaper and smaller cars. On many of the smaller machines a magneto only is employed, but the prevalent system is undoubtedly the dual magneto. Of course, the best combination is two entirely separate systems of magneto and accumulator, and, although many profess to regard this as a needless complication, we must still adhere to it as the ideal, though it is rarely found now except upon the most expensive cars. Before leaving the engine we should perhaps add that the very large engine is now almost a thing of the past. When very large power is required for the carriage of heavy covered bodies it is usual to have six cylinders, which are generally one and a half of one of the four-cylinder models of the same make and dimensions. This reduction of engine dimension is partly due to the increased efficiency of the modern engine as compared with that of its predecessor. Such efficiency has unquestionably come about very largely through the improvement in ignition afforded by the magneto and the great improvement in carburation effected by the carburetter of to-day. It can be said without exaggeration that almost the worst carburetters of to-day are above the average of three or four years ago, while the best now do that which would have been regarded as quite impossible till comparatively recently. That is to say, they not only provide the engine with plenty of power at high speeds, but they enable it to be run exceedingly slowly when running light, and to pull well when running slowly. In other words, they have more or less brought about the ideal of combining racing efficiency with touring smoothness and flexibility. Few realise how very much the improvement of the running of the modern engine has been brought about by these two vital outside factors—the ignition and the carburation.

The Chassis.

With regard to the chassis generally, it may be said that the clutch problem remains much where it was, though we think if a careful census were taken it would be found that the multiple-disc clutch has somewhat strengthened its hold. The well-tried leather cone clutch still holds its own, and is employed by some of the best makers of the day, and we cannot say that their faith is mistaken. The single plate clutch also has a number of faithful adherents, but it must be admitted that in the main the clutch depends more upon correct design and accuracy of workmanship than upon the actual system employed. That is to say, a good car by a good maker will have a satisfactory clutch, whether it be leather cone, multiple disc, or uni-plate. This may read as rather a backboneless statement, but it is nothing of the sort, and we are prepared to prove it by reference to the actual driving of a number of various makes of cars.

Ball bearings are now practically universal throughout the chassis with the exception of the engine, in which they remain a rarity. In the cheaper cars they are omitted from the gear box, and usually from the front axles and steering heads and from the central load bearings of the driving axles. As we have said before, the term ball bearing covers a multitude of imperfections, as the bearings may not only be poor in workmanship, but the design may not be good, though to the uninitiated the difference between a properly designed ball bearing axle and a back axle with ball bearings will not be apparent, though the difference will be noticeable enough after the cars have been in use a few months. The system of making the engine, clutch, and gear box in one unit is not spreading, and, although this practice may be found advisable for certain purposes, we cannot say we regret its failure to become more general. Unquestionably worm-driven back axles in place of bevel-driven back axles have gained ground. The worm drive is still conspicuous by its absence on the vast majority of larger cars, except those of the two pioneer firms, but on cars up to about 20 h.p. there has been a very distinct growth in the number of examples provided with a worm drive. The two great points in favour of a worm drive are that if it is properly designed and made it is quiet at the start and remains quiet. It does not gradually get noisy, as bevel gears are apt to do. It costs more to make, but there is comparatively little trouble in getting each worm and wheel to run silently, whereas each pair of bevels require considerable trial and error treatment before it produces a silent drive.

Improvement in Car Bodies.

The last three shows, and particularly the last two, have been very conspicuous for the progress which has been achieved by carriage designers and builders, and the all-round improvement which will be visible in the chassis will unquestionably be even more noticeable in the bodies. However, the improvements are not merely in workmanship or finish, as these have long been excellent by all the best body builders. The advance has been made in design. The coachbuilder has taken a long time to learn that a motor car is a very different thing from the horse carriage, but if he have been slow he has been very thorough, and he has been greatly assisted by his clients or those of them who have taken an intelligent interest in the subject. High side doors to both back and front seats will be more widely represented in the present show than ever before. The old practice of cutting senseless curves in the doors is dropping out, and the straight line body is becoming more and more prevalent. Unquestionably in open bodies the feature of the show will be the torpedo or flush-sided body, which is seen at its best as a four-seated body, but a great deal of ingenuity has been displayed in adapting the design to five-seated cars, and these will unquestionably be among the most interesting exhibits of the carriage builders.

We take some credit to ourselves for the high side doors, as we have preached them persistently for some years, and we venture to state that it will very soon be unusual to see a car without doors to the front seats.

Another point of advance is the dashboard. There is no doubt that the car makers are beginning to realise that the coachbuilder cannot make a comfortable carriage if he be provided with a chassis that has a dashboard little wider than the frame. As it is, most coachbuilders who want to fit a comfortably wide and deep dashboard and side doors often have to start work by scrapping the car maker's apology for a dashboard altogether, building one of their own. Some car builders have recognised this, and the big box dashboard is no longer the speciality of a single firm. In covered cars ingenuity has been mainly displayed in detail improvements, such as improved springing for the seats and backs, improved ventilation, and the stopping of rattle from every possible source.

Design is still crude in covered cars; many are shown which look rather piecemeal productions. The back part and the front do not harmonise in contour, and the lines are often stiff and conflicting.

NEW CARS. IMPROVEMENTS IN DESIGN. NOVELTIES IN ACCESSORIES.

IT is not claimed that the following brief outline of the improvements, novelties, and new models to be found at Olympia is actually a complete account of *all* the "new things" to be seen. There may be one or two new cars which will be shown, but about which no information has been afforded by the makers, and there are perhaps some novelties in accessories which have not been put forward as such by the firms handling them. At the same time, this condensed forecast may be considered fairly comprehensive, and contains some reference, however brief, to the most striking points of interest to be found in the show.

ADAMS CARS.—This company are now fitting, at option of purchasers, either planetary or sliding gears. The new gear box of the latter type has four speeds and reverse, operated by gate change. Adams Manufacturturing Co. (Stand No. 145.)

ADLER CARS.—The 12 h.p. Adler is a model in which have been embodied many improvements for 1910. The stroke of the engine has been increased from 88 mm. to 100 mm. A larger flywheel has been fitted, while a gate change system has been introduced, and a new type of carburetter. Morgan and Co. (Stand No. 58.)

ARGYLL CARS.—Three new models will be shown by the well-known Argyll Co., *i.e.*, 10 h.p. two-cylinder, 15 h.p. four-cylinder, and 20 h.p. four-cylinder. All these new types have many improvements in design as compared with the older models, and were described and illustrated in *The Autocar* of November 6th. Argylls, Ltd. (Stand No. 65.)

ARMSTRONG-WHITWORTH CARS.—The light model recently introduced by this firm will make its first public appearance at Olympia. The engine is 12-14 h.p., having four cylinders cast *en bloc*, the bore being 80 mm. and the stroke 120 mm. Lubrication is forced, the pump being operated by a skew gear. The gear box has a three-point suspension, and gives four speeds forward and reverse to propeller-shaft and live axle. Sir W. G. Armstrong, Whitworth, and Co., Ltd. (Stand No. 42.)

ARROL-JOHNSTON CARS.—The 15.9 h.p. model recently introduced by the makers of these cars will be exhibited on their stand. The many detail improvements and the method of securing the engine and gear box on one bedplate will at once be apparent on inspection of the chassis. Thermo-syphon cooling is employed, the radiator being placed between the engine and dashboard, immediately over the flywheel. The car used on the Shackleton Expedition will also be shown for the first time in public. New Arrol-Johnston Car Co., Ltd. (Stand No. 51.)

ASTER ENGINEERING CO., LTD.—A new and small type of 12 h.p. four-cylinder engine will be shown, with bore and stroke of 75 × 100 mm.; also an Allsopp paraffin engine. (Stand No. 280.)

AUSTIN CARS.—Two special models for 1910 are being manufactured by the Austin Co. The first, having an engine of 7 h.p.—single-cylinder 4½in. bore by 5in. stroke—will be handled jointly with the Swift Motor Co. It has a live axle, pressed steel frame, three speeds and reverse, thermo-syphon cooling, magneto ignition, and internal expanding brakes. The other special chassis referred to is an improved and re-designed edition of the 1909 15 h.p. type, and having four cylinders of 3½in. bore by 4in. stroke. Thermo-syphon cooling is employed, live axle drive, and a four-speed gear box is fitted. The wheelbase is 8ft. 4in. or 9ft. at option, and the track 4ft. 6in. The larger Austins will also be shown. Austin Motor Co., Ltd. (Stand No. 69.)

W. H. BAILEY AND CO., LTD.—A new type of speedometer, which is entirely dependent for its action upon the concave form assumed by the surface of a liquid in a rapidly rotating vessel, will be shown by this firm. Other good things on this stand will be the "Open Door" tyre carrier, which is hinged to allow free access to the driver's seat from the offside of the car. (Stand No. 191.)

BELSIZE CARS.—An interesting exhibit will be that of Messrs. J. Keele, Ltd., in the Annexe. This firm are agents in London district for Belsize cars, and will show one of these, of 14-16 h.p., fitted with a special type of de luxe torpedo body. J. Keele, Ltd. (Stand No. 114.) Belsize cars will also be shown by the makers themselves on Stand 83 on the Main Floor.

BENETFINK AND CO.—One of the most interesting novelties to be shown on this stand will be the Union Rectifier, whereby an alternating current may be converted into a continuous one for charging purposes. The method of using this rectifier is quite simple, and the instructions for use are remarkably short, consequently technical knowledge is quite unnecessary to connect up with electric light, mains, and battery.

BENTALL CARS.—A new piston valve engine will be exhibited by Messrs. E. H. Bentall and Co. The special feature of this engine is the slow movement of the valve sleeves in comparison with the speed of the crankshaft, the respective speeds being as one to four. E. H. Bentall and Co. (Stand No. 26.)

BERLIET CARS.—A new model for 1910 will be shown. This has a 40 h.p. engine, with six cylinders cast in two sets of three, forced lubrication and disc clutch. The chassis on view will be fitted with the new Michelin twin tyres. A new type of aluminium wind shield, weighing but 10 lbs., will be shown on a 15 h.p. light touring car. Berliet Motors, Co. (Stand No. 135.)

BLERIOT, LTD.—A new electric car lighting set will be shown, the current for which is generated by a dynamo coupled to the engine. (Stand No. 172.)

E. M. BOWDEN'S PATENTS SYNDICATE, LTD., are introducing a new type of speedometer, which possesses the following features: Simplicity of construction, neat appearance, and a small number of moving parts. This instrument was described and illustrated in the issue of *The Autocar* of November 6th. (Stand No. 254.)

J. B. BROOKS AND CO., LTD.—An interesting example of what can be done towards gaining accessibility in the matter of the tool kit will be shown in the new tool cabinet introduced by Messrs. Brooks. The whole of the contents of this cabinet are brought into sight on opening. (Stand No. 214.)

B.S.A. CARS.—The new 15-20 h.p. four-cylinder model will be shown. The bore and stroke of the engine are respectively 90 mm. and 120 mm.; cylinders are cast in pairs. An entirely new type of carburetter is fitted, ignition being by Bosch high-tension magneto. Birmingham Small Arms Co., Ltd. (Stand No. 55.)

CADILLAC CARS.—Last year the Cadillac chassis created a good impression at the Show, and there seems every prospect of this again being the case. The 30 h.p. chassis, which has just arrived from the States, will be on view. The stroke of this model is 4¼ inches. The simple Delco system of ignition, which it is claimed requires no adjustment for 20,000 miles, is being fitted. The brake on the back wheels has been enlarged on the present model, and the frame is arched over the back axle, and then drops again. The pedals are adjustable to the extent of four inches. This chassis will be shown cut open with electric lamps inserted to show the working parts. Anglo-American Motor Car Co., Ltd. (Stand No. 89.)

CHARRON CARS.—A new six-cylinder model on view. This has all the cylinders cast in one piece, the bore and stroke being 80 by 120 mm., and giving on R.A.C. formula approximately 24 h.p. Four speeds and reverse by gate change are provided with propeller-shaft drive to live back axle. London Motor Garage Co., Ltd. (Stand No. 82.)

COLLIER TYRE CO., LTD.—The new Sheath tube will make its bow to the motor world. The object of this device is to enable a driver to reach home with a badly burst cover when a spare is not at hand. A length of sheathing is threaded on the tube in course of manufacture before the join is made. The sheath can be moved round the circumference of the tube to any desired point. (Stand No. 293.)

COVENTRY CHAIN CO.—A light chain for aeroplanes will be shown, the special feature of which will be in the fact that it can be driven on both sides, enabling it to be crossed, as with a belt, if required. (Stand No. 161.)

COWEY ENGINEERING CO., LTD.—The extraordinarily comfortable Cowey suspension, described in *The Autocar* of November 6th, will be shown on a car on the stand of Messrs. Crossley Bros. (Stand No. 108.)

CROSSLEY CARS.—The new 12-14 h.p. Crossley chassis will be shown. This type has four cylinders cast *en bloc*, all valves and tappets enclosed, high tension dual ignition, four-speed gear box, with gate change. The other features of this model are the Crossley metal to metal clutch, and propeller-shaft drive to live axle. C. Jarrott and Letts, Ltd. (Stand No. 45), and Crossley Bros., Ltd. (Stand No. 108.)

DAIMLER CARS.—The new Daimler models, 15 h.p. four-cylinder, and 33 h.p. six-cylinder, some of the points of which were described in *The Autocar* of October 30th, will be shown on Stand No. 36. The improved methods of hanging front and rear springs, the new lubricating system, and many other refinements are worthy of interest. Daimler Motor Co. (1904), Ltd. (Stand No. 36.)

DARRACQ CARS.—The design and construction of the frame of the new 14-16 h.p. Darracq (described and illustrated in *The Autocar* of October 30th) will be clearly shown on a chassis of this type. The "clean" appearance of the engine, in fact, of the whole chassis, will be apparent at a glance. The engine of this model has four cylinders cast *en bloc*, with 85 mm. bore and 100 mm. stroke, the R.A.C. rating being 18 h.p. A. Darracq and Co. (1905), Ltd. (Stand No. 62.)

DEASY CARS.—In addition to their 15 h.p. and 25 h.p. models, the Deasy Co. will introduce two new models to be known as the "J. D. S." type. These latter have been designed and constructed under the personal supervision of Mr. J. D. Siddeley, who has with him several of his former responsible assistants in his new sphere as managing director of this company. (Stand No. 34.)

DE DION CARS.—A great feature of interest on this stand will be the new chassis with an eight-cylinder V engine. Besides the engine, the chassis has many other novel points—the method of spraying the gears in the gear box with oil from a force pump, for instance. De Dion-Bouton (1907), Ltd. (Stand No. 60.)

D.F.P. CARS.—Messrs. Gaal and Co. are introducing into this country the automobile productions of a Continental factory—that of Messrs. Doriot, Flanden, and Parant. These cars will be known as the D.F.P. Two complete cars and one chassis will be on view. A. Gaal and Co. (Stand No. 7.)

DRUMMOND BROS., LTD., will be showing a new light grinding machine specially designed for motor repairers, and sold at a price bringing it within the compass of the average garage. (Stand No. 236.)

DUNLOP TYRE CO., LTD.—A feature of this exhibit will be the new Dunlop detachable wheel which was recently explained and illustrated in *The Autocar*. The mechanism by which the wheel is detached and secured is very simple and ingenious, and very neat in appearance as well. (Stand No. 29.)

ELECTRIC IGNITION CO., LTD.—A four-cylinder induction coil, specially designed for use in tropical countries, will be shown. No paraffin wax is used in its construction, nor, indeed, any readily meltable substance. Another novelty will be a porcelain-lined electric lamp arranged to act as a firing tell-tale by connecting it up in a simple manner with the accumulator and ignition system of an engine in such a manner that, by the lighting of the lamp, one can ascertain the exact relation of the firing point in each cylinder in regard to the position of the piston. There will also be the new magneto recently described in our columns. (Stand No. 275.)

ELECTRIC AND ORDNANCE ACCESSORIES CO., LTD.—This firm will be introducing the Warner speedometer, a combined speedometer and distance recorder constructed on the magnetic principle, the rotation of a permanent magnet revolving a dial in direct proportion to the speed of the magneto. (Stand No. 267.)

ELLIOT BROS. will show, among other novelties, an ingenious little instrument for measuring to thousandths of an inch. This instrument weighs but 2 to 3 ozs., according to size and range, and can be carried in the waistcoat pocket. (Stand No. 259.)

ENFIELD CARS.—A new system of brake application will be embodied in the design of these cars for 1910, and will be seen on the chassis exhibited. Enfield Autocar Co., Ltd. (Stand No. 86.)

ANDRE GODIN.—Something quite novel in the way of shock absorbers will be shown, viz., the "Mihi," and a full range of Ducellier lamps including some interesting new models. (Stand No. 164.)

H. M. HOBSON, LTD.—On their accessories stand this company will be showing the Hobson tyre clamp, quite recently introduced. It is claimed that the use of this device obviates the necessity for using security bolts, and absolves the tyre from risk of injury in the process of manipulation when tyre troubles occur. (Stand No. 212.)

IMPERIAL MOTOR INDUSTRIES, LTD.—An accessory to be introduced on this stand is an apparatus, about the size of an egg, for keeping the hands warm inside a pocket or muff. The heat is generated by the action of the fumes of methyl alcohol on soft platinum. (Stand No. 269.)

IRIS CARS.—A new four-cylinder model will be introduced which has an engine with 83 × 114 mm. bore and stroke, these dimensions admitting the car into the four guinea category of the proposed horse-power tax. A steering pillar designed to tilt to any desired angle, within limits, is one of the novel features of this chassis. Legros and Knowles, Ltd. (Stand No. 78.)

KEMPSHALL TYRE CO.—This firm will be introducing a new type of tyre patch well worthy of attention. The method of self-attachment, once it has been placed in position, will particularly appeal to owners who drive and keep their own cars in repair. (Stand No. 294.)

LA BUIRE CARS.—A new type with 15 h.p. four-cylinder engine will be introduced for 1910. The bore and stroke of the new engine are 85 mm. and 140 mm. respectively. A patented system of lubrication is used, high tension magneto ignition, cardan drive, and a special form of clutch contained in the gear box. Hollingdrake Automobile Co., Ltd. (Stand No. 84.)

J. LACOSTE AND CO.—A new vulcaniser which has been put on the market by this firm will be of interest, for it has many good points which tend to simplify the process of vulcanising repairs to both tubes and covers.

LAKE AND ELLIOT will be showing a new compound lifting jack, specially suitable for use when changing spare wheels, which raises or lowers a car in considerably less time than the ordinary type. Also a new spanner, called by the makers the "Autogrip," which, it is claimed, actually grips a nut when in use, and is instantly adjustable to all sizes within its range. (Stand No. 216.)

LANCHESTER CARS.—The 1910 Lanchester models positively bristle with novelties and improvements in detail, though no drastic alterations have been made for 1910. Among the many new features may be mentioned a new principle of filtering the exhaust gases between the engine and petrol tank in connection with the pressure feed. An exhaust foot-warmer is another well-thought-out scheme, the same applying to a new auxiliary seat spring. The new starting handle and the improvements in the design of the steering heads, a new water joint, and a well-placed dual ignition coil—well-placed in that the control is convenient to the driver's hand, and yet the whole device is particularly unobtrusive—are all features that will be found of considerable interest. Lanchester Motor Co., Ltd. (Stand No. 72.)

LANCIA CARS.—A 20 h.p. Lancia chassis will be shown on which will be mounted a landaulet body with a distinct innovation in connection with the driver's seat. This is arranged for a gentleman's own use, and by the clever arrangement of a sliding seat the driver has plenty of room to get in or out on the off side behind the levers. Maythorn and Son. (Stand No. 117.)

LODGE BROS. AND CO.—The new Lodge double-pole sparking plug will be shown. This type, which is screwed to fit the standard sparking plug thread, renders ignition possible, simultaneously, at more than one point in the cylinder—whatever means of ignition may be employed. A large model of this plug will be a feature of this stand. (Stand No. 234.)

MASS CARS.—The new 10-12 h.p. Mass will be on view. This has four cylinders cast *en bloc*, and a gear box with three-point suspension. The Mass patent carriage body lifter will be shown in operation. By means of this device a body can be lifted by one man, completely exposing the chassis without, it is claimed, disturbing the passengers. Mass Cars, Ltd. (Stand No. 67.)

MAUDSLAY CARS.—A new model will be introduced at Olympia. This is a 17 h.p. four-cylinder type (bore 90 mm., stroke 130 mm.) with thermo-syphon cooling, forced lubrication, four speeds and reverse by gate change, with direct drive on third speed. Pressed steel is used for the frame, and Rudge-Whitworth detachable wheels are fitted. All wheels have 870 by 100 tyres. Maudslay Motor Co., Ltd. (Stand No. 56.)

MICHELIN TYRE CO.—The new Michelin security-bolt-cum-valve, by means of which the usual type of security bolt can be dispensed with, will be one of the many interesting features on this stand. The new type of twin tyre will also be on view. (Stand No. 281.)

MORS CARS.—This company will be introducing two new models for 1910, viz., 20 h.p. and 50-60 h.p., the engines of both having six cylinders. The former has a bore and stroke of 80 × 120 mm., being identical with the 15 h.p. type except for the two additional cylinders. Mors (England), Ltd. (Stand No. 79.)

NAPIER CARS.—The new colonial model Napier, with large amount of ground clearance, large wheels, a special system of water circulation with enlarged radiating surfaces, together with other special features, will probably attract considerable attention from colonial visitors, and those who desire a car for use on other than well-made roads. S. F. Edge, Ltd. (Stand No. 75.)

N.E.C. CARS.—Few alterations in design have been embodied in the N.E.C. 1910 models by reason of the success of the standard types of 1909, but an interesting feature of Stand No. 20 will be one of the 30 h.p. engines shown on a stand representing the front half of one of the carriage bodies. The object of this is to demonstrate the accessibility of every part of the engine. New Engine (Motor) Co., Ltd. (Stand No. 20.)

NORTH BRITISH RUBBER CO., LTD.—In addition to a full range of Clincher tyres, a new type of security bolt will be shown, also a new "valve grip," which, it is claimed, renders it impossible for the valve to be drawn from the tube by accidental circumstances. A new deflation alarm will also be introduced, a neat contrivance, which, by blowing a whistle, warns the driver when his tyres are punctured or insufficiently inflated. Another new feature will be the Clincher detachable rim, which differs considerably from most other devices of this description. A point of merit is its extreme ease of manipulation. (Stand No. 287.)

PANHARD CARS.—The new model 12-15 h.p. will be shown. This engine has a bore and stroke of 80 mm. and 120 mm. respectively. Cooling is by thermo-syphon system, an improved type of radiator being used. The carburetter is of the well-known Krebs pattern, ignition by Nilmelior high-tension magneto, and lubrication by means of a special type of pump operated from a worm on the rear end of the camshaft. Three speeds are employed, with direct drive on third. All tyres are 815 × 105 mm. Panhard and Levassor. (Stand No. 37.)

ROSS, COURTNEY AND CO., LTD.—A new type of greaser will be shown which, although having no protruding springs or ratchet devices, is fitted with a grip plate of such design as will prevent loss from vibration. (Stand No. 221.)

RUDGE-WHITWORTH, LTD.—The developments in the methods of securing and removing the Rudge-Whitworth detachable wheels will be exhibited in detail on wheels specially mounted to illustrate ease of manipulation. Three varieties are now being made—(1) detachable dished wire wheel, (2) detachable artillery wheel, and (3) a triple spoked type. This latter has been specially designed to replace existing artillery wheels, the shape being more suitable than the ordinary dished type when the question of retaining the original wheel track is a consideration. (Stand No. 276.)

SIZAIRE CARS.—The 1910 type Sizaire car will be shown by Messrs. Jarrott and Letts, Ltd. The chief points in which improvements in these little vehicles have been made are: The engine has been increased in size and power, greater accessibility has been arranged for and an improved method of brake adjustment has been embodied. A number of other details have been modified with advantages to the comfort of driving and ease of upkeep. Charles Jarrott and Letts, Ltd. (Stand No. 45.)

S. SMITH AND SONS, LTD.—The petrol-meter recently introduced by this firm will be of interest to those who, of necessity or choice, study the question of petrol consumption and engine efficiency. (Stand No. 244.)

STANDARD CARS.—This firm will exhibit a new model of 12 h.p. Four cylinders, 2⅝in. × 4½in. (approximately 67 × 115 mm.), are employed, together with thermo-syphon cooling, high tension magneto ignition, worm drive to top of differential, the latter giving considerable ground clearance, and making the car suitable for rough roads and colonial work. Friswell, Ltd. (Stand No. 53.)

STAR CARS.—The 15 h.p. model will be shown in which a special feature in the design of the engine is in fact that not only are the four cylinders cast *en bloc*, but the top half of the crankcase is part and parcel of the same casting. The 15 h.p. Flying Star, a type which put up such good performances at Brooklands recently, will also be shown.

STELLA CARS will be exhibited for the first time in this country. The Stella car is of Swiss manufacture, and has an engine of 16-20 h.p. with four cylinders 90 by 120 mm. bore and stroke. Low tension Bosch ignition is fitted, and the ignition tappets are of particularly simple construction. Three speeds and reverse are employed with propeller-shaft drive to live axle. Stella Motor Co., Ltd. (Stand No. 10.)

SUNBEAM CARS.—The new 12-16 h.p. model will be shown. This has an engine with four cylinders cast in pairs 80 mm. bore by 120 mm. stroke. Forced lubrication is fitted, and a new type of carburetter in which the petrol is heated before it enters the jet—a method said to result in greater efficiency. Bosch high tension magneto is used, a novel feature in this connection being a small flywheel which is interposed in the magneto drive to take up the "kick" of the armature. Sunbeam Motor Car Co., Ltd. (Stand No. 64.)

SWIFT CARS.—Particulars of the new 7 h.p. model produced by the company in conjunction with the Austin Motor Co. will be found under our reference in this forecast to the products of the latter company. The standard Swift models, viz., 10-12 h.p., 15-18 h.p., and 18-24 h.p., have several detail improvements for 1910, but no radical alteration in design has been found necessary. Swift Motor Co., Ltd. (Stand No. 66.)

TALBOT CARS.—The new six-cylinder model of 20 h.p. will be shown for the first time. It is on similar lines to the well-tried 12 h.p. model, but with two additional cylinders of the same bore and stroke, also the new long stroke 25 h.p. Clément-Talbot, Ltd. (Stand No. 52.)

TORBINIA CARS.—The Torbinia cars have a striking novelty in a new type of hydraulic transmission. Motor Mercantile Association, Ltd. (Stand No. 150.)

UNITED MOTOR INDUSTRIES LTD., will show a new form of tyre or spare wheel carrier; also a watch for use on dashboards or interiors which is illuminated when required from a small electric bulb inside the watch, the light shining through the face. A further novelty will be an electric lock for cars which, it is claimed, absolutely prevents a car being used without the owner's knowledge. (Stand No. 162.)

WHITE CARS.—The new 20 h.p. petrol car will be introduced to the public for the first time. Bore and stroke of the four cylinders are respectively 95 × 128 mm., the R.A.C. rating being 22.4 h.p. Many novel points are embodied in the design, and this exhibit will doubtless be the centre of considerable interest. The successful 15 h.p. and 40 h.p. White steam cars will also be shown. The White Co. (Stand No. 136.)

WOLSELEY-SIDDELEY CARS.—The Wolseley Co. are listing six models for 1910, five of these being quite new types, viz., the 12-16 h.p., the 16-20 h.p., the 20-28 h.p.; the 24-30 h.p. six-cylinder, and the 40-50 h.p. six-cylinder. The only model with the same rating as last year is the 30-34 h.p., which has, however, been considerably altered in many details. All models are fitted with honeycomb radiators, the circulation being by gear-driven pump in all but the 12-16 h.p., which has the thermo-syphon system. This latter model replaces the 1909 14 h.p. for open bodies. It has four cylinders cast *en bloc*, with ⅜in. bore and 4½in. stroke. A disc pattern clutch is used, the final transmission being by propeller-shaft to worm drive on live back axle. Wolseley Tool and Motor Car Co., Ltd. (Stand No. 43.)

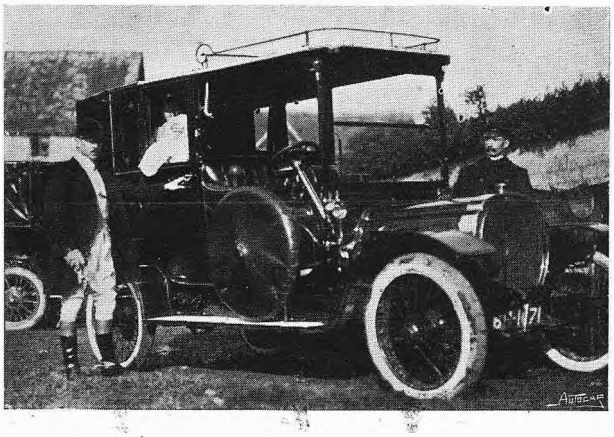
The Grand Prix of 1910.

A communication has been received by the Royal Automobile Club from the Commission Sportive of the Automobile Club of France calling attention to the fact that it is now prepared to accept entries for the Grand Prix Race of 1910. They must be accompanied by entry fees of 5,000 francs per car, or, alternatively, 8,000 francs for two cars and 10,000 francs for three cars. The entry list closes on November 30th, at 6 p.m., and the holding of the race is conditional upon the receipt of forty-five entries by that date, the entry fees being returnable to the entrants in the event of the entries falling short of that number. There are no restrictions as regards weight, cylinder bore, etc. For the date the early part of July is proposed, and the distance will be about 800 kilometres.

Luxury and Sport. The Age of Pace.

By J. Fairfax Blakeborough.

THIS is an age of luxury and pace in matters sporting. They are the main features of a very marked evolution which has changed the whole character not only of hunting, on which I wish to write specially, but also shooting and racing. Nowadays excellent lunches and huge bags, made by means of drives in a very short time, is the man with the gun's idea of sport *par excellence*. On the turf yearlings must be forced to meet the demands for pace, thereby, as one of the most famous authorities on the breed admits, causing much deterioration to the thoroughbred breed generally.



Mr. W. Selby Lowndes, master of the Whaddon Chase Foxhounds, with his car at the opening meet at Creslow, Bucks, on Nov. 2nd.

Not many years ago races were run in heats, and it was the horse with the greatest amount of stamina and staying power which was the most valuable. Not so to-day. Then in the sports of venery the fever of pace—"hustle" the Americans call it—has proved infectious. Our grandsires bred and rode horses which could carry them many miles in the early morning to the covert side, and then hunt the whole of the day. Then was it runs were longer and slower. To-day hounds and horses alike are bred for speed. It is the fashion to fly to the tryst almost at lunch time, mount a galloping thoroughbred, ride a few hundred yards to a covert, find a fox, run him at steeplechase pace for twenty minutes to half an hour, roll him over, and repeat the performance. Pace there must be—plenty of jumping and galloping is the demand of later days, with not too much exertion to procure it.

The old-time squirearchy were out with hounds so soon as daylight appeared; they loved the early morning drag and the hound work they could then see before the fox was actually on foot in front of hounds. They thought no fixture too far, no day too long. This was the day of substantial hunt breakfasts, which are now such a mockery—a biscuit and a glass of cherry brandy. True they are not needed, for even those who do come from a distance send on their horses beforehand and follow them elegantly smothered in furs a couple of hours later. The day over, they join their car at some point near the probable finishing point of the day's sport, and whisk home to change, and see the latest play in town (reached by motor again or express train) or make one at a dinner party. All this is bringing sport down to the level of hustle.

There seems little solidity in it with all this rush and luxury. Yet it is a sign of the times, and it is idle to rail. Many masters of hounds themselves are not averse to enjoying the ease and luxury which are now adjuncts to the sport, and not a few of them have cars, and use them as a speedy means of reaching fixtures, whilst in a season or two we shall see motor hound vans taking the pack to trysts lying wide of the kennels. The covert hack has gone out of fashion, simply because in these days the estate owner and the business man find they can answer their letters and digest the morning's paper and still be with hounds before they make their first draw by means of their

With the Meath Hounds.

motor car, whereas they would have had to set off at the very latest an hour earlier were they riding or driving a cob.

The absolutely idle man, who very often wishes always to go the greatest pace, has time to recoup some of his energy and spirits after the frolics of the previous evening. He has leisure to walk round his stables and alter his mind half a dozen times as to whether he will hunt or not. Having decided at ten he will *not*, he decides at a quarter past that he *will* join the horse or horses (for he will probably have two out), and, ordering his car for twenty-five minutes hence, he runs upstairs, and his valet gets his precious carcase into spotless buckskins, beautiful patent leather boots, a cutaway scarlet coat, a huge driven-snow white stock, and faultless gloves. His dazzling silk hat is placed in its box and stored away in the car, an apron is donned to prevent the breeches from being soiled—no matter how splashed they may be, and probably will be, before night, they must reach the meet clean—and our latter day Nimrod is ready to start on his flying journey. If he be considerate and unselfish he will have ordered his first horse to be stationed half a mile from the meeting place of hounds, so that he may mount it and send his car back home, knowing full well that to drive close up to the fixture would cause considerable disturbance amongst the assembly of horses there ready to buck and jump in their fitness upon the least provocation. In many hunting countries the M.F.H. has circularised the members of the hunt and requested them not to come near hounds with their cars, and to send them home so soon as they have alighted; but, though the master has some jurisdiction over his field, he has little over the *nouveau riche* who understand little about hunting, but enjoy watching the glad throng which goes laughing along from their cars. They turn up ever and anon at unexpected places, dash through groups of horsemen on the roads, follow hounds when they run near to and parallel with the turnpike, and enjoy the day all the more when they have seen the fox, and possibly headed him.

On the whole, the motor car is a nuisance to hunting. It is its abuse, however, and not its use, which makes it so. Owing to this abuse, many masters of hounds in countries where fields are large and where hunting is what is known as "fashionable"—the word seems absolutely foreign when used in connection with sport—have been compelled to draw up rules regarding the use of the car in connection with the sport. They have, of course, only a moral obligation attached to them, but the M.F.H. has the alternative of taking hounds home, and thus disappointing the whole field, if they are not obeyed. This has been done in a few cases of disobedience to other rules, and proves a salutary lesson not easily forgotten either by the offenders or those on the borders of offence. The Duke of Beaufort, one of the best known masters of hounds, frankly admits that he has no objection to motorists attending the fixtures of his pack, as, in his opinion, the more horses see of them the better. He has not the sympathy of all his contemporaries in this attitude, though every one will agree with him when he says he does not care for the cars to be on the move in the vicinity of hounds when they have commenced the business of the day. On the fixture card of the famous Belvoir pack there is the following suggestive sentence: "Everyone using motor cars will send them straight back from the meet, and in no case allow them to follow the hounds." The Master of the Hertfordshire, on the other hand, is equally candid, and says, "I think motors are entirely incongruous in connection with hunting." Captain Forrester, master of the Quorn (one of the most important English packs), says: "It is a recognised rule that during the hunting season motor cars after conveying people to the meet proceed either home or to some convenient place notified by their owners to wait for them, but on no account are they to follow hounds about during the day." This is a country where fields are tremendously big and where the motor car is much used; yet Captain Forrester admits that he has little difficulty in getting his rules observed.

On the whole, masters of hounds have taken an indulgent view of the car and advanced with the times. It must be admitted that those who use cars and hunt have rigorously followed the desires of the M.F.H. of the pack with which they throw in their lot. Nevertheless, the motor car is one more thorn in the side of the long-suffering master of foxhounds, who becomes more and more difficult to find in these days of huge fields, expense, barbed wire, difficulty with shooting tenants, scarcity of foxes, antagonistic farmers, and what not. The pace is too fast, and the sport is now too luxurious for any but a man with the patience of Job, the strength of Hercules, and the wealth of Crœsus to remain very long in a position which Mr. Charles McNeil (the master of the Grafton) said only a fool would take.

At the opening meet near Lincoln of the Burton Hunt. In the car are Captain and Mrs. Wellesley and Captain Gibbs.

"The Autocar League."

More about the Referendum.—Taxation by Unit of Horse-power.

"THE AUTOCAR LEAGUE" HAS NO SUBSCRIPTION. ITS AIMS ARE TO OBTAIN THE SUPPORT OF EVERY MOTORIST IN THE UNITED KINGDOM, SO THAT WHEN MATTERS OF VITAL IMPORTANCE COME UP FOR DISCUSSION A POSTAL REFERENDUM CAN BE TAKEN. WHEN THE REFERENDUM IS COMPLETED THE GOVERNMENT OR OTHER AUTHORITIES CONCERNED AND ALL THE CLUBS AND MOTOR ORGANISATIONS WILL BE NOTIFIED. ON CERTAIN OCCASIONS THE MEMBERS WILL BE ASKED TO TAKE UNITED ACTION, SO THAT INJUSTICES MAY BE REMOVED OR ABUSES STAMPED OUT. IT IS ONLY BY SOME SUCH SYSTEM AS THIS THAT MOTORISTS WILL BE ABLE TO OBTAIN FAIR AND JUST TREATMENT.

Taxing by Unit of Horse-power rather than by Classification.

THE polling in connection with the referendum concerning the taxation of motor cars by unit of horse-power rather than by classification continued for some days after Saturday, October 16th, the date mentioned in our issue of the 23rd October, but the number of voting cards received after that date did not appreciably alter the tremendous percentage in favour of the unit system. The Budget has now passed the House of Commons, and we regret that we cannot point to such a signal success as that achieved by our sister journal *Motor Traction* over the petrol tax concession to users of commercial vehicles and medical men. We append a copy of the secretary's letter to Mr. Lloyd George, in which it will be seen that we also laid special emphasis on the injustice of taxing old cars at the same rate as newer ones of similar dimensions. The views embodied in this letter, we learn, had already been put before the Chancellor by several members of Parliament privately, and it is a lamentable commentary on the lack of unity among the leading organisations devoted to automobilism that the Chancellor of the Exchequer should have been able to tell them that he was convinced that, after all, motorists did not know what they wanted, and that there was no consensus of opinion for or against the system of taxation set down in the Budget. However, we do not give up hope that something may yet be done. There are prominent motorists in the House of Lords who are also members of the League, who may take steps to lay before the Upper House the unanimous opinion expressed by the thousands of motorists represented by "The Autocar League" as to what is and what is not a fair and equitable method of taxing motor cars. Where they lead, others may become less diffident and follow, and the added weight of their support should secure some rearrangement of the schedule on the lines we have proposed. The following is a copy of our letter to the Chancellor of the Exchequer:

Right Hon. D. Lloyd George, M.P.,
Chancellor of the Exchequer,
House of Commons.

Motor Car Duties.

Sir,—"The Autocar League," the membership of which consists of the readers of *The Autocar*, and represents the majority of motorists in the United Kingdom, has recently been discussing the system of taxation proposed in connection with the new car licences.

I have the honour to enclose you two copies of *The Autocar* for October 9th (see page 456) and for October 23rd (see page 622). The matter is so clearly set forth in the issue of October 9th, that I need add nothing to it, except to draw your attention to the overwhelming majority of 94.5 per cent. in favour of taxation by unit of horse-power instead of by classification into the eight classes specified in Part II., Schedule 5 of the Finance Bill.

I should like to point out that, having once settled upon a graduated scale, the steps being of one horse-power each, there would be no difficulty in administration. Whether the taxing be by unit of horse-power or by classification it will be necessary to use a formula, so that if a list of prices for each horse-power were once decided upon it would be as simple to collect and administer the tax as under the present system of division into eight arbitrary classes.

I also beg to enclose you a cutting from the *Daily Graphic* in which another suggested scale of taxation by unit is offered.

I hope you will be able to give this matter favourable consideration, as it will undoubtedly press hardly on many owners of motor cars if the present system of classification is retained, and it will also in the long run adversely affect the taxes in that makers will undoubtedly design cars to come just within one or other of the arbitrary limits.

May I also point out the extreme hardship of taxing old cars at the same rates as new ones. It is very certain that the majority of cars over three years old are less powerful than those of more modern design and manufacture, and a

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Those of our readers who approve of the objects of the League are asked to sign and send in the following form:

THE AUTOCAR LEAGUE.

I am the owner of a .....h.p..... and will undertake to vote by postcard or letter on any important matter concerning the welfare of automobilism.

Name.....

Address.....

To the Editor, "The Autocar," 20, Tudor St., London, E.C.

reduction of one-third would be a fair concession, as not only are the old engines less powerful than the modern ones of the same dimensions, but the transmission mechanism of the car is less efficient, and in this way, as well as by the smaller power of the engine, the actual propulsive power at the road wheels is very considerably diminished.

I have the honour to remain,
Your obedient servant,
SECRETARY TO THE LEAGUE.

We have nothing to add to the above except that we are more than ever convinced that if all the leading motoring organisations had combined and publicly put their views in favour of taxing by unit of horse-power before Mr. Lloyd George he would have granted their request.

Northumberland County Council and The League.

At the last meeting of the Northumberland County Council Ald. H. N. Middleton, in moving the adoption of the Finance Committee's report, commented on the change that had taken place recently with regard to local taxation duties, and said it was most essential that every ratepayer in the county of Northumberland should be fully aware, and he did not believe more than one-quarter of them were aware, that if they chose to go and take out their carriage, dog, and other licences in an adjacent borough or county, it was a loss to the ratepayers of Northumberland, and a loss, more or less, to themselves. The best thing every ratepayer in the county could do was to go to the nearest village and get his licence there, and he might then be sure that the money he paid would go to the credit of the county. He drew attention to a circular, which he stated had been circulated broadcast by "The Autocar League." The circular called attention to the fact that the licence fees payable to the Inland Revenue in respect of motor cars, carriages, etc., went to the reduction of local rates, and it was, therefore, within the power of motorists to benefit local communities which were not hostile to them. Motorists, and especially members of "The Autocar League," were advised to take out their licences for the coming year in those counties "where motorists as a rule receive fair and reasonable treatment," a list of such counties being appended. In this list Northumberland was not included. Twenty-two English counties were mentioned, and eight in Wales, and twenty-three in Scotland. He commented on the unfavourable nature of this proposal so far as Northumberland was concerned. Their county had been black-listed simply because the police had done their duty. [This is not so.—ED.]

Alderman T. Taylor claimed that motorists had not been unduly punished in that county, and quoted figures to show that of 103 motorists detected travelling over the speed limit thirty-four had been summoned, and the average speed of these was twenty-four miles an hour. Of those summoned, only twelve were natives of the county.

The Chairman said this was a matter which had been before the County Councils Association. It seemed to him a very serious matter, because practically the question was not what the proper speed of motor cars should be. It was the duty of the Chief Constable and the police to see that the law was obeyed, and if they did not see to that they would be neglecting their duty. This was a direct attempt on the part of a private association to punish those counties and chief constables who did their duty. It was a most serious thing, and he hoped that public attention would be called to it. He thought it a most monstrous thing on the part of any law-abiding citizen to make an organisation in order to attempt to punish responsible people for doing their duty and for seeing that the law was obeyed.

The League at Olympia.

The steadily increasing membership of the League since it was inaugurated, together with the enormous amount of correspondence which has been published or otherwise dealt with by the Secretary, renders it expedient that it should be represented at the Olympia Motor Show, and that members should have an opportunity, if they so wish, of discussing with the Secretary its aims and the progress made in its activities.

It is also hoped that all those motorists who have not yet joined, whether or not they are members of other organisations, will obtain and sign forms of membership, which will be easily obtainable either from the Secretary himself or from certain exhibitors who have kindly allowed forms to be placed on their stands.

We have previously drawn attention to the fact that there are a large number of our readers who think that by subscribing to this journal they automatically, as it were, become members of the League. We would again remind them that this is not so, and would appeal to such to lose no time in correcting their mistake by sending to or leaving with the Secretary a signed form of membership. The Secretary will be in attendance each day of the show from twelve o'clock to 1.30, and from 2.30 to five in the afternoon, and from seven to nine in the evening. (Stand 104.)

In its numerical strength and its desire for unity and disinterested co-operation the League has its strongest weapons, and we feel quite sure that many of those motorists who attend the show, and who have not already joined, will avail themselves of the opportunity of thus welding together the body politic of motoring into a homogeneous organisation capable of effective action whenever the necessity shall arise.

The Automobile Association. Opening of New Premises.

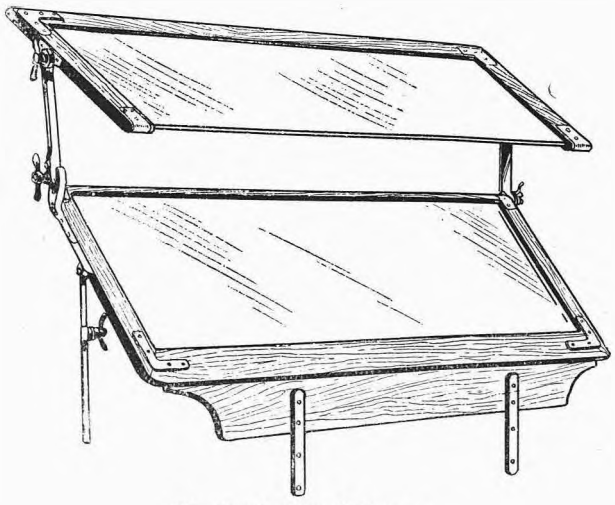
With the rapidly increasing membership of the ever-popular Automobile Association it has been found necessary to migrate into larger premises, where the expanding business in its many phases may be satisfactorily transacted. In its incipient days the A.A. occupied one small office in Fleet Street, and when its success was assured a move was made to more commodious premises in Princes Buildings, where the Motor Club was installed. As both institutions grew more room was required by each, and so the A.A. has crossed the road to Whitcomb Street. Mr. Stenson Cooke, the energetic secretary of the A.A., and his no less energetic staff, have there found a convenient location. The new offices provide for all connected with the A.A. on a most comfortable scale, a large entrance hall with waiting rooms being on the ground floor. On the first floor are the secretary's and assistant secretary's offices, which also serve for a committee room, and a legal adviser's room. Above are the cashier's room, filing room, and offices for other officials connected with the A.A. Col. Bosworth presided at the opening dinner, at which the toasts were confined to "The King," "The Press," and "The A.A."

Body Design and Construction.

Some Novel Screens and a Detachable Canopy.

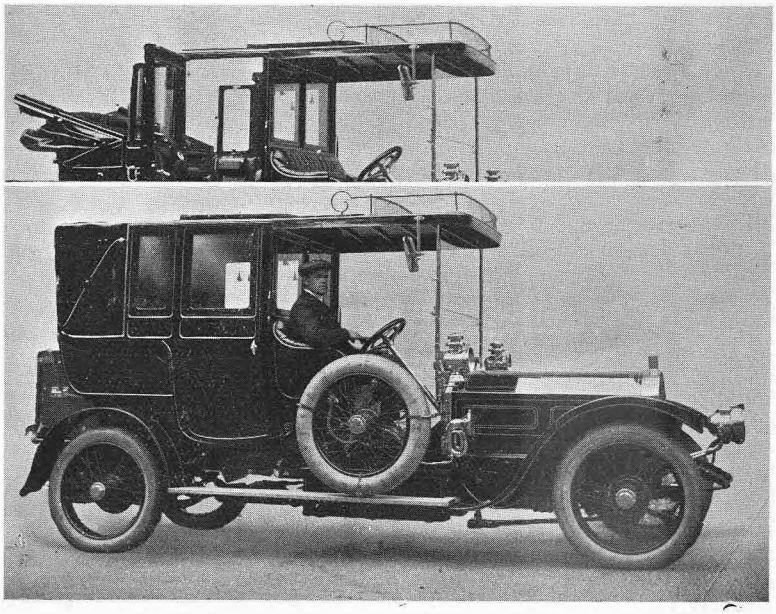
THOUGH the wind screens we are about to describe may hardly be termed novelties, following as they do standard lines, they deserve the attention of our readers for the reason that they are sold at a very moderate price, and yet are well made and easily fitted. Mr. Strachan, of Messrs. Brown, Hughes, and Strachan, coachbuilders and engineers, Netherwood Road, Shepherd's Bush, W., may be congratulated on choosing those forms of wind screens which we have personally found to be best suited to the driver. He has aimed at bringing the glass panel as close as possible to the motorist, thus not only abolishing back draught, but avoiding to a large extent the disadvantages of a glass blurred by rain. Three distinct models were shown to us —the B.H.S. three-fold patent shield designed to allow the top glass, which is usually vertical, to be tilted to an angle for use in rainy weather; the B.H.S. two-fold shield (which is best explained by a glance at the accompanying illustration), and the B.H.S. single-fold shield (which consists merely of a plain glass hinged at its lower extremity). Absolute rigidity is provided by means of the telescopic stays, which totally prevent the glass and framework from being strained, and at the same time allow the angle of the screen to be altered so that, in the case of the first two mentioned patterns, the vertical glass may be brought as near as possible to the steering wheel as circumstances will allow. The chief point about these screens is the type of joint employed, which is of the friction type, allowing of a fine adjustment and a firm and almost instantaneous grip. The makers undertake in most cases to fit these wind screens while the customer waits.

Mr. Strachan has not turned his ingenuity to only one portion of a motor car, as the simple Get Home tyre to which we are about to refer will show. This device is, of course, intended only to be used when the motorist has burst all his covers and desires to get home at any cost. It consists of four wooden blocks shaped to fit the rim of the wheel. Three of the joints are of the ordinary hinge pattern, fastening with pins, while the other is provided with a threaded bolt, at one end of which there is an adjusting disc and at the other a steel block riveted on to the bolt, which slips into a groove in the corresponding wooden block and allows it and the three others to be tightly drawn round the rim. A solid wooden tyre is thus formed, on which the disabled car may be slowly driven home.



The Strachan two-fold screen.

We illustrate herewith a handsome landaulet body fitted to a 40 h.p. Napier, which demonstrates another patent for which Mr. Strachan is responsible. Instead of the roof forming part of the collapsable portion of the body, complicating the manufacture and adding to the weight over the rear wheels, that portion of the roof which covers the space between the two doors is made to slide forward, as the reproductions accompanying this article clearly demonstrate. Messrs Brown, Hughes, and Strachan deal not only with these patents, but undertake coach-building and engineering repairs to all types of cars. Samples of their painting and varnishing satisfied us that their work is of the highest quality.



40 h.p. Napier car, with Strachan sliding roof.

An exciting incident happened during the Birmingham Municipal Election just before the poll closed last week. Two cars, one fitted with Rudge-Whitworth detachable wheels and the other with detachable wheels of another design, each experienced a punctured tyre while close together in the same street. The driver of the car fitted with the R.-W. wheels changed his punctured wheel and got going again in just over two minutes, but the less fortunate individual with the other device was much longer getting away, and by the time he was roadworthy he was too late to be of further service to his party. The affair happened in one of the manufacturing districts of the town, and caused a lot of excitement, particularly as the two cars were engaged on opposite sides.

Motor Union Notes.

(Communicated by the Secretary.)

The hon. correspondents of the Union have been invited to meet the Executive Committee on Wednesday next, November 17th. A statement will be made with regard to the developments contemplated by the committee, and there will be a general discussion upon Motor Union work and policy. It is an open secret that it is proposed to make a forward movement in several directions during the forthcoming year.

◇ ◇ ◇ ◇

Col. Bland, a member of the Dorset A.C., has successfully prosecuted for obstruction the drivers of two hay carts, who for nearly two miles prevented Co. Bland's car from passing them. The Dorchester magistrate, before whom the case was heard, remarked that the bench looked upon these as very serious offences, and imposed fines on both drivers. The magistrate further fined one of them for using indecent language when requested to draw his vehicle to the side of the road. Col. Bland's action in taking up these matters is to be highly commended. On the recommendation of the Highways Protection Committee, the Union has agreed to bear the costs of all prosecutions.

◇ ◇ ◇ ◇

The Union has agreed to contribute £10 10s. towards the costs of stating a case to decide whether the penalties prescribed by the Motor Car Act, 1896, are applicable to offences under the Heavy Motor Car Order of 1904.

◇ ◇ ◇ ◇

Six financial grants have been made this week on the recommendation of the Legal Cases Committee. In each case the points involved were of general importance.

◇ ◇ ◇ ◇

The Union has undertaken the costs of an interesting case which has been won by a member of the Union. The sun blind of a shop overhung the roadway, projecting a considerable distance beyond the kerb, and caught the top of his motor car as it was driven past. An action for damages was brought in the county court, and the member was successful in recovering the amount claimed and costs. The decision is interesting as affecting the rights of motorists and all users of the highway. As a result the offending blind has been removed.

◇ ◇ ◇ ◇

The Austrian Minister of Finance is issuing new regulations with regard to the temporary introduction of motor cars into Austria. At the present time members may avoid the deposit of duty with the Austrian officials by previously obtaining the special Customs card issued by the Motor Union. In addition to having this car endorsed, however, members must obtain an official "vormerkschein" on leaving the country. It is now proposed to adopt the more simple triptyque system, which works so smoothly in other countries. The L.I.A.T. has, through the Austrian Touring Club, been largely responsible for this reform.

◇ ◇ ◇ ◇

The Highways Protection Committee are at present considering the question of approaching school authorities with regard to the erection of small "cattle" gates at the exits of schools in place of those at present in use with a view to preventing the many accidents caused through the children rushing out into the road. These small gates will only permit one child to pass through them at a time. The Committee realise that it will be impossible to take any effective action without being able to instance specific places where such preventive measures are specially required. The Committee will, therefore, be glad to receive particulars of schools where such precaution is necessary.

◇ ◇ ◇ ◇

The L.I.A.T., through the *Danske Touristforening*, is endeavouring to secure the removal of some of the restrictions on motorists which at present prevent many from visiting Denmark with their cars. The road regulations in that country are extremely severe. Motor cars are forbidden to use the roads at night except during the months of May, June, and July, and in case of accident the motorist is held responsible unless he can prove that the other party involved himself caused the accident, voluntarily or through culpable negligence. The Act which regulates the use of motor cars in Denmark expires at the end of 1909, and the influence of the L.I.A.T. is being exerted to bring about a more favourable state of affairs under the new Act shortly to be introduced.

◇ ◇ ◇ ◇

The Union's honorary correspondent at Oswestry recently drew attention to the existence of a dangerous turning at Whittington High Road. Several accidents have occurred through motorists having continued along what is really a blind lane, instead of keeping to the main road, which turns sharply at this spot. The Union communicated with the County Council, and after some delay instructions have been given for posts and rails to be erected, to prevent motorists mistaking this blind lane for the main road.

◇ ◇ ◇ ◇

The Union and the Croydon Corporation are sharing the cost of a "special caution" sign bearing the words "Tram Terminus" for erection at Norbury. The traffic is very heavy at this spot, which is on the main Brighton Road.

◇ ◇ ◇ ◇

A member writes:

"I returned yesterday from spending a week-end at Ramsgate, and I should like to congratulate the Union on the magnificent way the London-Folkestone-Dover road is sign-posted. A few years ago I lost my way between Charing and Canterbury. Now it is absolutely impossible to do so, owing to the signs issued in the name of the Union."

◇ ◇ ◇ ◇

During this week meetings have been held of the Executive, Finance, Motor Cycle, Organisation, and Touring Committees. The Executive will also meet on the 15th and 22nd, and the Signs and Notices and Engineering and Technical Committees on the 16th inst. The ordinary monthly meeting of the General Committee will be held on November 24th.

◇ ◇ ◇ ◇

Included in this issue is a prospectus and form of application for membership of the Motor Union. Those who are already members are invited to kindly hand this leaflet to one of their motoring friends who has not yet joined the Union. The present is an exceptionally favourable time for joining, as subscriptions paid now cover membership up to December 31st, 1910. In addition to the unequalled advantages which are already offered in return for an annual payment of one guinea, extensions of the touring and legal facilities are now being negotiated.

◇ ◇ ◇ ◇

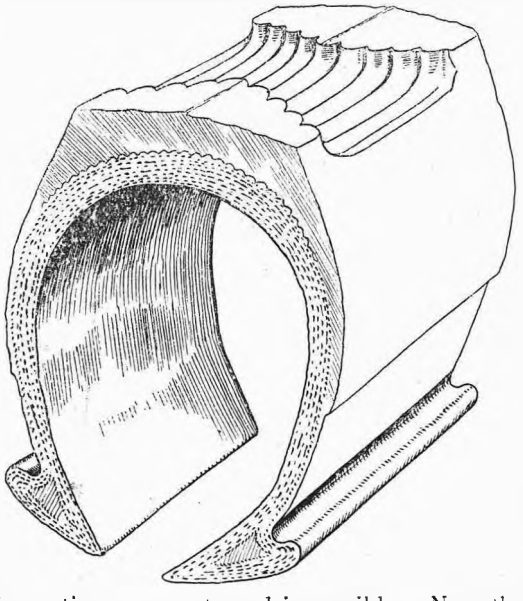
The Motor Union. Chairman: W. Joynson Hicks, M.P.
Albemarle Street, London, W. "Speedway, London." 9099 Gerrard.

The Iris Long Distance Trial.

The 25 h.p. Iris car referred to on page 694 of *The Autocar* of October 30th has successfully accomplished the arduous trial for which it was entered under the strict supervision of the Royal Automobile Club observers. The trial came to an end on Saturday night, November 6th. From start to finish 2,350 miles were covered, during 2,000 of which the engine never stopped, and thus came to a conclusion a road test of unprecedented severity. For more than five days the car and its occupants had to encounter the worst weather ever experienced in recent times in the month of October, while the roads were exceptionally heavy. Day in and day out it rained almost continuously, and when it was not raining it was blowing a gale, and more often than not doing both. On Tuesday week the writer journeyed with the car from Willesden to Watford, where Mr. Hodges, of the Iris Co., whose turn it was to drive, was picked up. Thence the car went across country to St. Albans, and entered the Great North Road at Hatfield. Here the journey north was continued in the coldest of cold rains. Throughout the portion of the journey during which we were on the car the engine ran with great regularity, and apparently it so continued for the rest of the run, as after we left the car it never stopped until more than 2,000 miles were covered.

The Harrod Tyre.

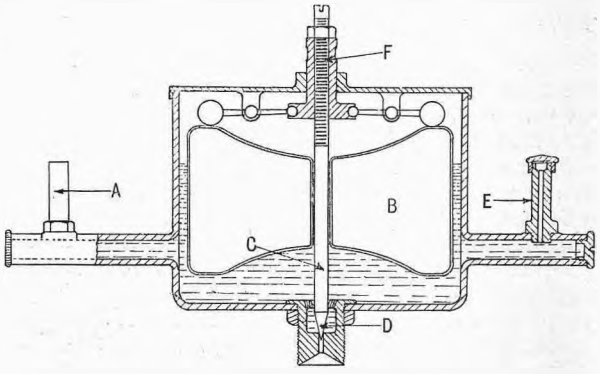
Herewith is a sectional view of the Harrod tyre, which Messrs. Harrods, Ltd., Brompton Road, London, S.W., offer in all standard sizes. These tyres will be shown in their various scantlings at the Olympia Show this week. We desire particularly to draw our readers' attention to the tread of this tyre, which is the outcome of careful consideration and experience. Its non-skidding qualities are remarkable, and by the form of its serrated depressions it will be seen that no



sucker action on a wet road is possible. Nevertheless the projections grip the surface in a remarkable manner and seem to hold up on the worst grease. The prices of these tyres have not been advanced. A generous amount of rubber is found on the tread. In the matter of quality and construction it is only necessary to say that the Harrod tyres are made by the Avon India-rubber Co., Ltd., of Melksham, Wilts.

Petrol Level Adjustment.

We have received from Mr. J. V. Fox, of Accrington, a description and drawing of his patent (Provisional Patent No. 24,553) applying to a means of attaining the correct level of the spirit in the float chamber of carburetters. An examination of the drawing reproduced herewith will leave very little necessary in the way of explanation. Outside the float chamber is a tube or "test jet" E, the overflow level of which is identical with that of the jet or jets A in



Fox's patent carburetter.

A, working jet
B, float
C, float spindle
D, needle valve
E, test jet
F, float adjustment

the mixing chamber. A means of adjusting the collar on the needle valve D is provided at F, and this extends outside and above the cover of the float chamber. By removing the cap of the test jet it is possible to ascertain at any time whether the height of the petrol be correct, and, if it be not, to correct any discrepancy by means of the external adjustment referred to without detaching any part of the carburetter. In the ordinary carburetter testing the petrol in the jet is highly troublesome.

International Motor Traffic Regulations.

Bill to give Effect to Conference Recommendations.

The President of the Board of Trade has introduced a Bill into Parliament under the title of "The Motor Cars (International Circulation) Bill" to give effect to the convention recently concluded at Paris between representatives (in conference) of automobilism from various European powers for the purpose of facilitating the movement of motor cars from one country to another. The Bill enacts that "(1) His Majesty may by Order in Council for the purpose of giving effect to any convention for facilitating the international circulation of motor cars provide (*a*) for the grant and authentication of any travelling passes, certificates, or authorities which may be of use to persons resident in the United Kingdom when temporarily taking their motor cars abroad, or to drivers when proceeding abroad for the purpose of driving motor cars; and (*b*) for modifying the provisions of the Motor Car Act, 1903, relating to the registration of motor cars and the licensing of motor car drivers in the case of motor cars brought temporarily into the United Kingdom by persons resident abroad, and intending to make only a temporary stay in the United Kingdom, and of drivers entering the United Kingdom for the purpose of driving any such cars. (2) Any modifications of the Motor Car Act, 1903, made by an Order in Council under this section, shall have effect as if they were contained in that Act."

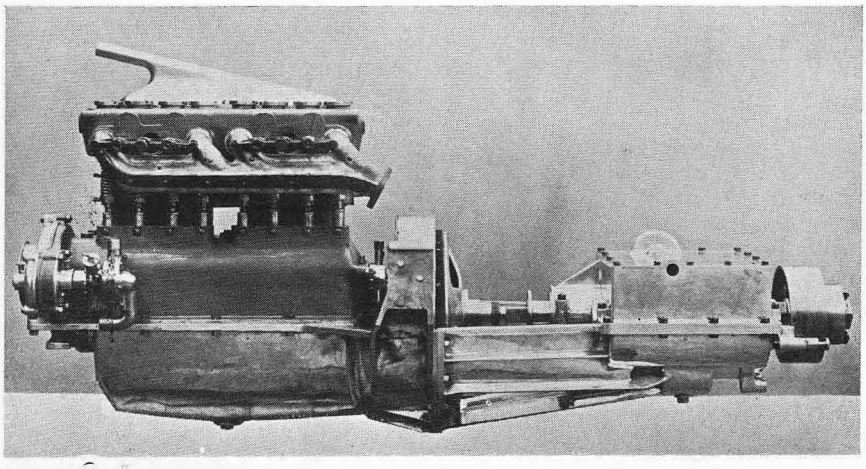
The R.A.C. and the Motor Taxes.

A Report upon the Club's Finance Bill Work.

SINCE the Budget was introduced to Parliament on April 29th (says the *Royal Automobile Club Journal*) there have appeared in the press certain comments, evidently based upon the assumption that by waging relentless war against the proposals for additional motor taxation the Royal Automobile Club might have secured their abandonment. By those responsible for such criticisms the very idea of negotiations, formal or informal, with the Government was regarded as a betrayal of the motorist's interests, which ought to have been upheld, they maintain, by a policy of implacable opposition. Although the Club's reply was a plain and direct one, namely, that it had been ascertained in the very first instance that additional taxation was inevitable, some of the critics seem to continue in the belief that the Club left the motorist to his fate, and surrendered a position that was still capable of being defended.

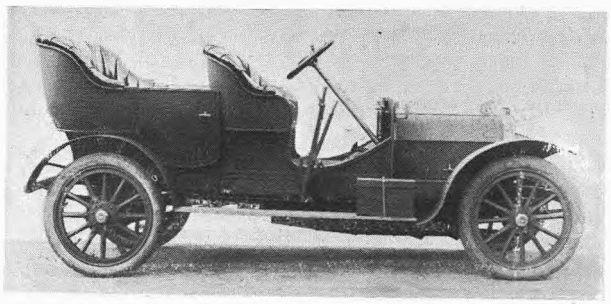
As it happens, the recent debate in the House of Lords on the road clauses of the Development Bill throws some light on the matter, and should cause the motorist to think himself fortunate in getting a *quid pro quo* for his new payments. That his lot might have been a much worse one is clearly shown by the strong remarks contributed to the debate by Viscount St. Aldwyn, who, under his earlier name of Sir Michael Hicks-Beach, was twice the occupant of the post now held by Mr. Lloyd George. Dealing with the subject of the understanding arrived at between the present Government and certain representative motorists, Lord St. Aldwyn protested against the idea that the House of Lords could be in any way bound by any agreement of that kind. He continued as follows: "The additional taxation on motorists has long been due. If the motor industry had been in its present position when I was Chancellor of the Exchequer, and if motorists had then used the roads to anything like the extent they do now, I am quite certain that I should have imposed additional taxation on them without constituting a Road Board or confining the proceeds of the taxation to the purpose proposed in the Development Bill." Had the present Chancellor of the Exchequer desired to lump the motor taxes with the other taxes, and to use them to reduce this year's Imperial deficit, it is evident that he would have obtained an influential backing from a distinguished predecessor.

Fortunately for the motorist, the Government has not taken the line advocated by Lord St. Aldwyn. Instead of sweeping the motor taxes into the National Treasury, Mr. Lloyd George has ear-marked them for the roads. This is not a party question, and it is not entrenching upon party politics to suggest that Mr. Lloyd George's motive has been a desire to mark his term of office with some popular evidences of improved traffic conditions. He has shown himself anxious to learn the views of some of the leading members of the Club, and concessions to motorists have been made, both on the initiative of the Chancellor himself as his scheme took final shape, and as the outcome of the numerous interviews granted to the aforesaid members of the Club.



The engine and gear-box unit of the 15 h.p. Model de Luxe Star car.

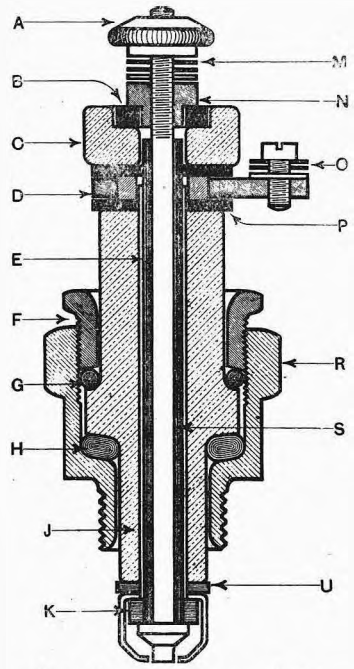
It will be seen from the minutes of the meeting of the Committee of the Club on November 3rd that, in the course of the discussion on the Finance Bill and the Development and Road Improvement Funds Bill, reference was made to the Caxton Hall meeting and to the resolution there passed that the Special (Budget) Committee of the Club should be requested to communicate the resolutions of the meeting to the Chancellor of the Exchequer, and ask him to receive a deputation. It was pointed out that no formal deputation had been sent, as the Chancellor had seen the report of the meeting and had requested that there might be no deputation, in view of the large number that he had had to receive on the various points in the Budget. Nevertheless, the opinions expressed and the resolutions carried at Caxton Hall were duly laid before the Chancellor. As the result of these informal interviews the Chancellor accepted the principle that visitors touring in the United Kingdom should be exempt from taxation for a reasonable period, and that commercial motor vehicles should be temporarily exempt from the petrol tax. In respect of the latter concession, credit must be given to *Motor Traction* for bringing the matter to the notice of the Hon. Arthur Stanley, who, in taking it up actively, had the assistance of Sir Charles Rose. The Chancellor was, however, unable to fall in with the suggestion of the Caxton Hall meeting that the direct taxation should be on the basis of unit of horse-power.



The new 12 h.p. Star, four cylinders, 3¼in. bore by 5in. stroke.

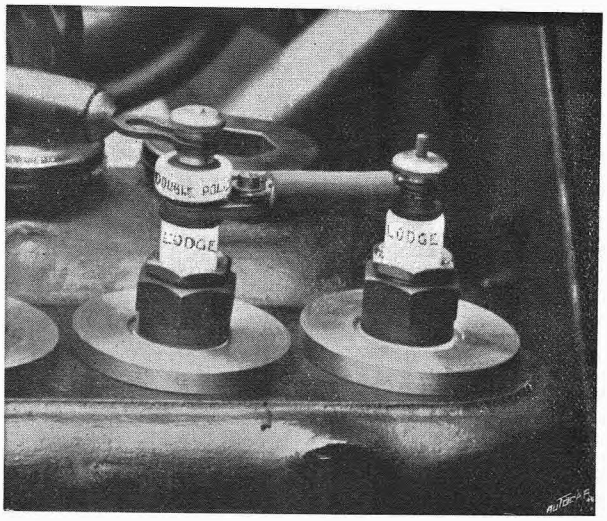
The Lodge Double-pole Plug.

THE Lodge double-pole sparking plug, which is illustrated on this page, consists of two concentric electrodes well insulated from each other and from the metal body of the plug. The *raison d'être* of this novelty is to allow two sparking plugs to be used in each cylinder, an ordinary plug being wired in series with one of the double-pole variety in the same cylinder. With the two in position and correctly wired, as shown in the photograph, it follows that two sparks take place at different points within the combustion chamber, and consequently the charge is ignited at two points simultaneously. Because of this latter feature the makers claim that increased power is obtained, and it would certainly appear that their claim has some justification. We are, however, testing a set of these new plugs in our own car, and as soon as we are in a position to do so from personal experience will give our readers our opinion thus formed.



A section of the new Lodge double-pole plug.

A, terminal
B, fibre washer
C, porcelain
D, terminal plate
E, metal tube
F, brass gland
G H, gas tight packing
J, porcelain
K, mica washers
M, spring washer
N, brass nut
O, spring washer
P, fibre washer
R, coslettised steel body
S, mica tube
U, mica washers



The Lodge two-pole plug connected up to an ordinary plug.

Since "On the Track" in this issue was written we have received information from Major Lindsay Lloyd that the corrected particulars regarding Hémery's flying half-mile record of Monday are as follows: Time, 14.076secs. = speed 127.877 m.p.h.

Birthday Honours.

AMONG the recipients of birthday honours was Mr. Charles Friswell, who receives a knighthood. He is chairman and managing director of Friswell's, Ltd., and chairman of the Standard Motor Co., Ltd. He is quite a young man, as he was born in 1871, but his life has been a busy and eventful one. He was apprenticed to a firm of engineers, and was among the very first to recognise the possibilities of the petrol car. He took part in the memorable emancipation day drive to Brighton on November 14th, 1896, and he and Mrs. Friswell went right through the ever-memorable 1,000 Miles Trial of 1900. He has been a successful man, and no one will begrudge him his success, more particularly as he rendered the motor industry a great service when he fought the Maybach carburetter patents and succeeded in overthrowing

what bade fair to becoming a tremendous monopoly, as the owners of the patents were claiming five per cent. royalties upon the value of each car fitted with a float feed carburetter. Coming to later times, he will be remembered as the provider of a fleet of some thirty odd Standard cars which conveyed the members of the Imperial Press Conference to all parts of the country last summer, and then again we have his public spirited act in giving free tuition to cabmen who had lost their occupation and who desired to become motor drivers. Last, but not least, he has travelled much, and has toured by motor car in India and the Far East, and very soon he will extend his rambles to South Africa, having long since explored Egypt and the remains of the ancient civilisations along the North African coast.

The following members of the Royal Automobile Club were also amongst the recipients of the King's birthday honours: Sir Edgar Speyer, Bart., privy councillor, Mr. W. J. Crossley, M.P., baronetcy, Mr. A. D. Kleinwort baronetcy, Mr. James Roberts, J.P., baronetcy, Mr. Jesse Boot and Mr. A. Trevor Dawson knighthoods. Mr. J. C. Horsfall, one of the new baronets, is a member of the Bradford Automobile Club. Mr. Arthur Nicholson, one of the new knights, is a member of the Derby and District Automobile Club.

The Hewitt Patent Piston Valve Engine.

The accompanying description and drawings will assuredly add to the interest of those who visit Olympia. The new engine will be found on Stand 4.

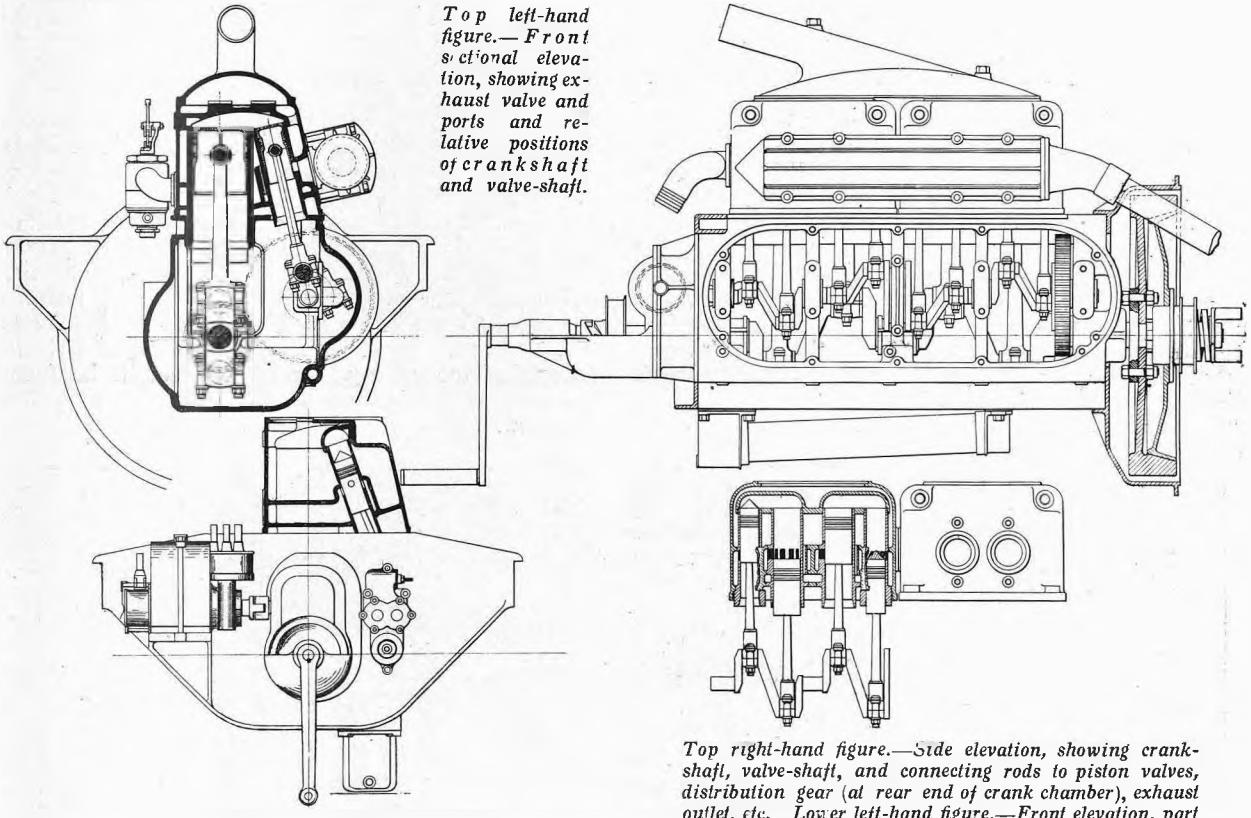
THIS engine, which it is claimed fulfils the desideratum of trouble elimination without any attendant disadvantages, owes its birth to a well-known Manchester consulting engineer, and has now passed the experimental stage, having had both works and road trials. It has piston valves operated by a small auxiliary half-speed crankshaft in place of the usual camshaft. These pistons reciprocate in stationary water-cooled sleeves or trunks, having a ring of ports surrounded by an annular valve chest—also water-cooled—the ports being uncovered by the valve piston at the bottom of its stroke. In a particularly thoughtful and ingenious yet simple manner the exhaust ports are water-cooled, so that any tendency to become burnt or fouled is guarded against. It should also be noted that the valve piston rings are never exposed to the force or heat of the burning gases, but are always surrounded by cooled walls.

An important and interesting point is the fact that the exhaust pistons travel downwards at their maximum speed during the period of combustion, and therefore receive impulse, so that, instead of being driven from the crankshaft in the usual way, they are self-driven and help to drive the crankshaft, with, it is claimed, a resultant increase in power. The inlet valves, which are smaller than the exhaust valves, are neutral as regards power. It may also be noted that the ports are opened and closed in exact proportion to the speed, resultant suction and scavenging action of the main piston.

The little auxiliary crankshaft and the small valve pistons are not regarded as additional complications. In the ordinary petrol engine of to-day the piston is one of the moving parts that gives least trouble, and these small valve pistons work under better conditions than any main piston. They travel at about only a third of the speed, while their passage is water cooled throughout its entire length, including even the port bars as previously noted, and their lubrication is thoroughly ensured. The cylinders, which are cast in pairs, are simple solid headed castings, without joint or valve caps. The valve-shaft is geared directly to the crankshaft.

It is said that as a result of the usual spring-returned poppet valves, with their necessary quick-acting cams and tappets, being replaced by valves having a continuous and even motion without any spasmodic action, the engine gives remarkably quiet and easy running.

The engine, which is made (under licence from Hewitt Engines, Ltd.) by Davy Engineering, Ltd., of Hulme, Manchester, should, owing to its compact form and novel points, be particularly suitable for marine work. Its solid crank case, entire absence of exposed moving parts, and great accessibility all go to make an ideal motor for boat use.



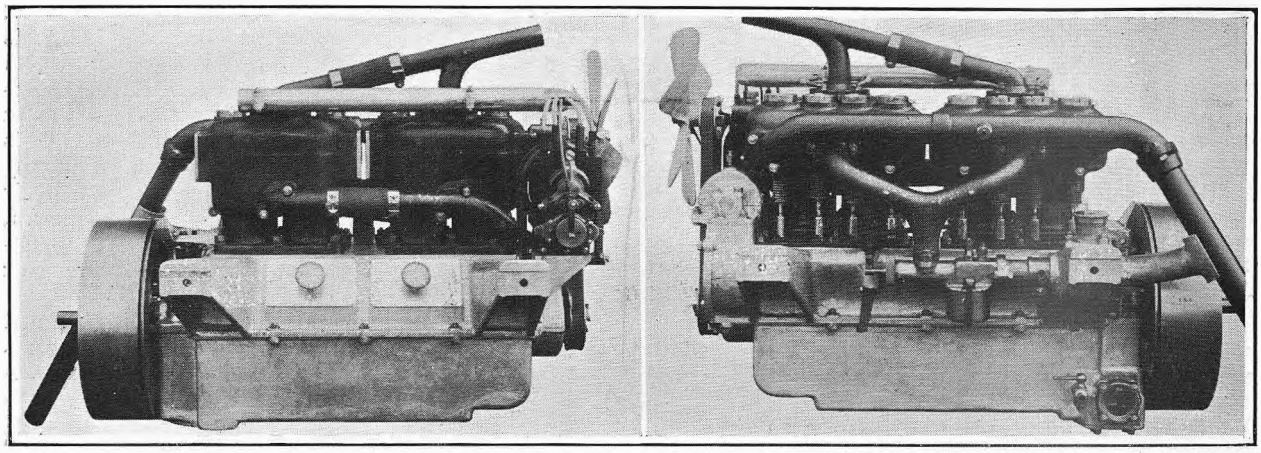
Top left-hand figure.—Front sectional elevation, showing exhaust valve and ports and relative positions of crankshaft and valve-shaft.

Top right-hand figure.—Side elevation, showing crankshaft, valve-shaft, and connecting rods to piston valves, distribution gear (at rear end of crank chamber), exhaust outlet, etc. Lower left-hand figure.—Front elevation, part section, showing inlet valves, inlet ports, and leads to carburetter. Lower right-hand figure.—Part side elevation, with exhaust chamber partly removed, and showing shape and position of both inlet and exhaust ports.

Ninety-five candidates were elected last week to the membership of the Royal Automobile Club, and four were elected to "new" life membership, bringing the membership up to 4,892.

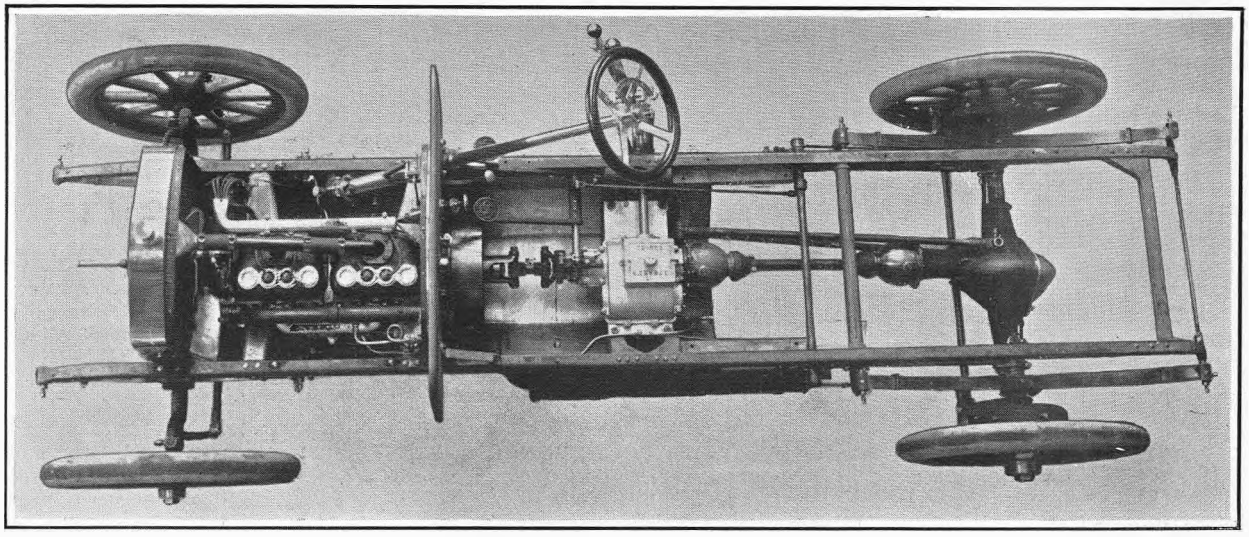
Straker-Squire Cars.

One Model Only for 1910.



The Straker-Squire engine. The accessibility of the magneto and the valves is plainly shown.

THE only model upon which Messrs. Sidney Straker and Squire, Ltd., will concentrate their efforts and to which their experience will be devoted in 1910 will be the 15 h.p. They are anxious that their 15 h.p. model should be one of the best up-to-date cars, irrespective of origin or price. The chassis shown will be found to present several refinements over and above the 1909 model, which has already earned its spurs. The engine is 87 × 100, equalling 18.8 h.p. R.A.C. rating, the valves being operated from the camshaft by the medium of a finger. The crankshaft bearings are in white metal, and the cams are solid with the camshaft. A Ware carburetter is fitted, and a Bosch high-tension magneto provides the ignition. The engine lubrication is by leads to the main bearings, dippers and troughs for the big ends, and splash to cylinders and gudgeon pins. Thermo-syphon cooling is employed. The leather-faced cone clutch has first intention springs under the leather. A double universal joint connects the clutch and gearshafts. The propeller-shaft has two universal joints. Ball bearings are fitted to gear box, back axle, and road wheels. The brakes are protected by an effective mud shield. Altogether the 15 h.p. Straker-Squire will be found to be one of the best-considered chassis of its type in the show.



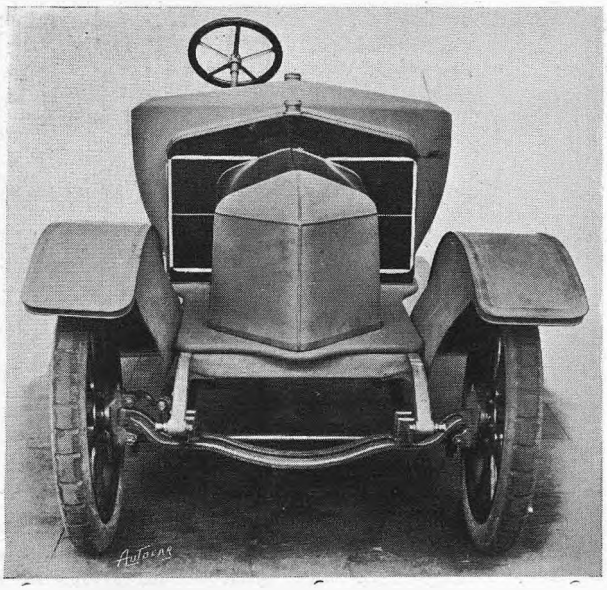
Plan view of the Straker-Squire chassis.

Dr. Stuart Moore, of Bristol Road, Birmingham, has protected an ingenious method of illuminating his rear number plate. This is done by reflection from one of the acetylene head lamps. Although the device was only very roughly fitted when we saw it, it was working excellently, and the rear number was plainly legible in a brilliantly lighted street. Dr. Moore also has a very ingenious double-acting tyre pump, which will be shown on the United Motor Industries stand at Olympia. The action is horizontal, instead of vertical, and those who find the ordinary pump trying will regard it as a great boon. It is made so that it can be used either standing on the floor or bolted to the footboard or any convenient part of the car. When it is fixed to the car permanent piping is fitted to the chassis.

The Two New Deasy Cars.

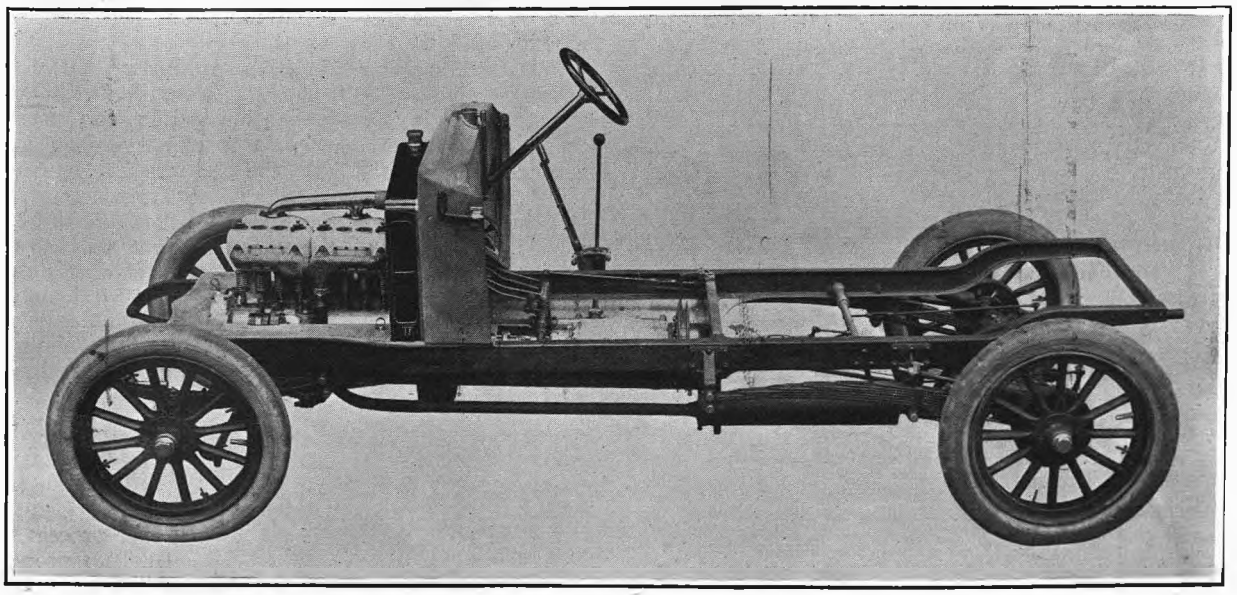
A Unique Combination in Appearance and Springing.

IN addition to the present 15 h.p. and 25 h.p. Deasy cars which are henceforth to be known as the Deasy Standards, two new models have been got out by Mr. J. D. Siddeley which will be known as the Deasy J.D.S. They are practically sister cars, except in dimensions, the smaller one being of 14 h.p. and the larger of 18 h.p. These are only nominal powers, as naturally the 88 × 120 mm. engine of the smaller car, which is 19.2 h.p. on Club rating, is capable of very considerably exceeding its nominal horse-power, and the larger engine, 100 × 130 mm., 24.8 h.p. R.A.C. rating, is at least equally capable of giving a big surplus over its nominal h.p. The valves are all on one side, and are large. The carburetter is on the right-hand, the same side as the steering box, and the valves are on the other, the induction pipe passing through the cylinder jackets of each pair of cylinders to the induction chambers on the opposite side of the engine, an arrangement which makes for accessibility. The valves on the smaller engine are completely encased by readily removable covers. On both cars the Lanchester system of suspension is employed for the back axle, so that the springing of the car should be exceptionally easy. Mr. Siddeley has always been a great believer in easy springing, and has arranged to use the Lanchester system under licence, because he has come to the conclusion that he can get nothing which will give equal comfort. The front springs are of the ordinary semi-elliptical type, of good length and sufficient stiffness to prevent any tendency to roll which might otherwise exist owing to the exceptional freedom of the back suspension.



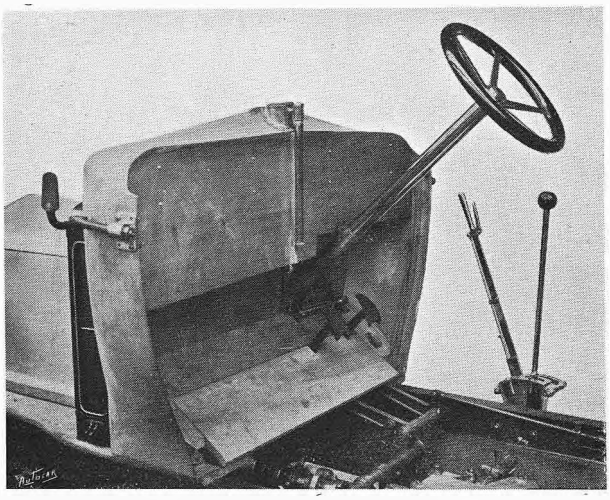
The new Deasy car, front view, showing its distinctive appearance.

On the 18 h.p. car a Lanchester back axle complete with worm drive is used, and on the 14 h.p. bevel drive is employed, but both have the same luxurious system of springing. The clutches are of the single plate type, and they are flexibly connected with the gearshafts. Three speeds and a reverse, with a direct drive on the top, are employed in both types. So far as external appearance is concerned the cars will have a strong individuality, as the cooler is behind the engine immediately in front of the dashboard. The bonnet may be described as a combination of the Mercédès and Métallurgique, as its pointed arch top is closed in front with a bow shaped end. Air is drawn through the cooler (not through the bonnet) by means of a fan behind the engine, just the same as an ordinary fan, but behind the engine instead of in front, and no dust is drawn on to the engine. Behind the radiator is a large high and wide hollow dashboard, in the top portion of which the petrol tank is contained. This box dash is so shaped that it not only makes a splendid dashboard, but it also provides a rigid foundation for a screen and for high side doors to the front seats.



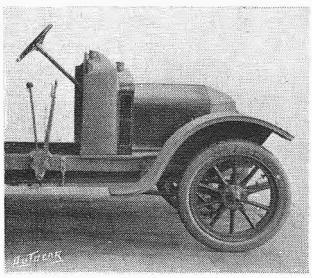
The chassis of the new 18 h.p. Deasy, J.D.S. type, with its radiator and petrol-tank-dash in position.

The combination gives an excellent transition from the bonnet to a comfortably high-sided body, and the effect as a whole is not only distinct but pleasing.



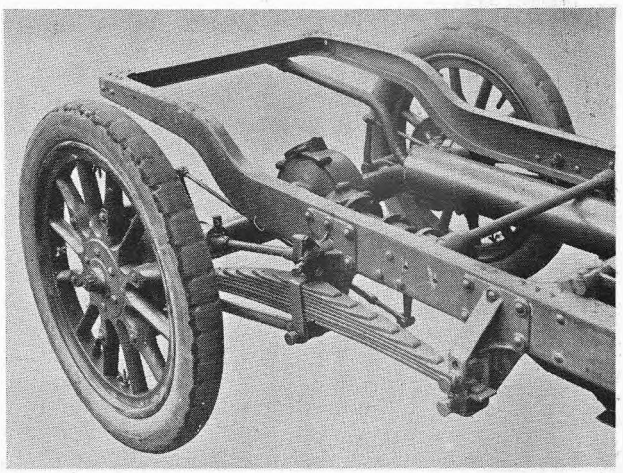
View of dash from back, showing the petrol tank and petrol gauge.

It will be seen that the water filler is in the centre of the front tank, while the petrol filler is immediately behind it, so that when a screen is fitted the water filler will be outside it and the petrol filler inside it. Quite apart from the excellent way in which the wide high dashboard will combine with an up-to-date and comfortable body, there is no doubt that the position of the petrol tank is, all things considered, most satisfactory, as there is no need for pressure feed, and yet there is no possibility of the carburetter being starved on the steepest hill, as in this high position on the dashboard the bottom of the tank is always well above the float chamber, and consequently a good head of petrol is ensured so long as there is any in the tank.



The appearance of the front of the new J.D.S. type Deasy.

There are a number of other interesting features in the two cars, which we hope to deal with at greater length on some future occasion. It will suffice to say at the moment that the 14 h.p. is made in two lengths, one with a 9ft. 5in. wheelbase and the other with a 10ft. 3in., the track in each case being 4ft. With the 18 h.p. the shorter base is 9ft. 7in. and the longer 10ft. 7in., the track in both cases being 4ft. 6in. The two models will certainly deserve to rank high among the cars possessing individual features which will be shown in Olympia this year, and there is no question that they will excite very considerable interest, not only on account of their individuality of design, but by the reputation of their name.



The springing of the back axle of the Deasy J.D.S. This suspension is on the Lanchester system.

A Magneto for Aeroplane Engines.

The Electric Ignition Co., Ltd., will be showing at Olympia an entirely new type of magneto, specially designed and constructed for aviation purposes.

It will be arranged suitably for a twelve-cylinder motor, and will be capable of giving the almost incredible number of 266 sparks per second, which equals 16,000 sparks per minute, or nearly one million sparks per hour.

It has hitherto been necessary with such a large number of cylinders and the enormous quantity of sparks required to employ a number of magnetos so arranged that each magneto shall have control over a certain number of cylinders.

Sometimes in a six-cylinder engine two magnetos will be employed, each working three cylinders, while in a twelve-cylinder engine three or four magnetos may be used.

This articulation of ignition production possesses the serious defect of requiring several distributers, thereby rendering it almost impossible for proper synchronisation, whereas in the new system the twelve cylinders are all fired from the one magneto, and the high-tension current is distributed to the twelve cylinders through only one distributer, so that synchronisation is secured, and the most efficient results are obtained from the engine, which, as everyone is now aware, constitutes the one important and vital matter to the aviator.

Anti-friction Steel Pistons.

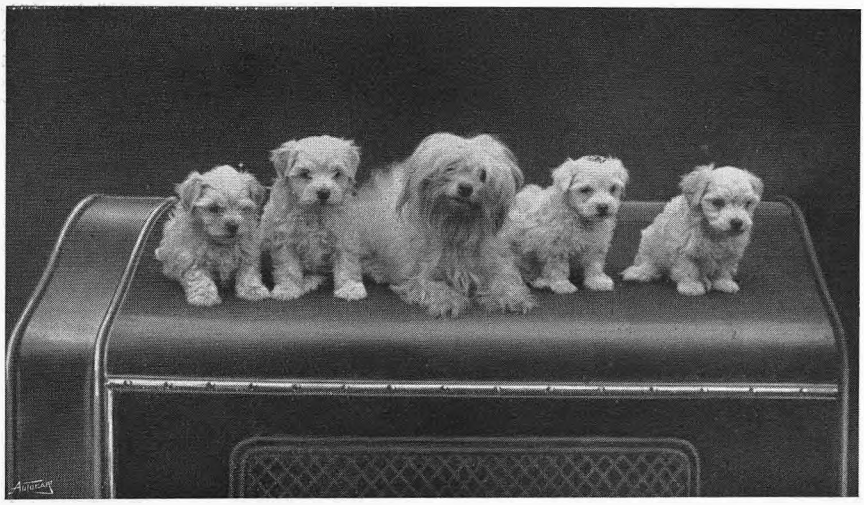
We have received a sample of Mr. C. R. Garrard's patent steel piston. This is stamped clean to the shape inside and out, the bosses for the gudgeon pins being complete, clean, and round, and require no machining whatever externally. We understand that the process of forging is a very inexpensive one, the piston costing much the same as one of cast-iron. Not only is this type of piston much lighter than cast-iron, but admits of being treated to a peculiar anti-friction process, by which the co efficient of friction is reduced very considerably. We understand these piston forgings are produced by Messrs. Rubery, Owen, and Co., of Darlaston. They explain the anti-friction process to their customers, or, if required, complete this process themselves. This should be an admirable type of piston for high speed car engines and aero engines.

On the Road in 1945. By Owen John.

I HAVE been favoured with an advance copy of *The Autocar* for Xmas, 1945, and some of the information contained in it is much too interesting not to let my readers share the benefit of it. It would appear that motorists had at last come to an agreement not to differ, mainly because the distinction between motorists and anti-motorists had ceased to exist by the general adoption of motors by the world at large. Also, the common use of aeroplane and dirigible terms showed that motoring was looked on in the light of rather a slow and ordinary business than anything new and startling, and had I space and memory it would be interesting to quote some of the advertisements of cars and appurtenances in detail. As far as I remember they were of a sedate and serious nature, resembling the present advertisements of real estate and corporation stock rather than the catch-penny and *bizarre* type some agents pin such faith and powers to in these days. A reference to "The Autocar League" showed that it had its own organ quite apart from the journal itself, and I rather gathered that it was the recognised authority existing to look after the best interests of automobilism. Indeed, one paragraph related to a contemptuous reference to it by the Aerocar Association, and concluded with a judicious warning that such comparatively new organisations must study the feelings of their more conservative and old-fashioned fellow-creatures, or else serious steps would have to be taken to keep these flying young fellows in their proper places. I could find no accounts of any races, hill-climbs, club doings, reliability trials, or police court cases, but most of the space was taken up with reports on the state of the roads, where alterations were being made, and as to the opening of new hotels—these last apparently under the management of the all-pervading Motor Board of Control. Attention was drawn to new sources of spirit supply, and a list of convictions relating to persons responsible for animals on the road obtained by local sanitary authorities was quoted towards the end. I was interested to find a column still headed "On the Road," but as it was of so pleasant, kindly, and courteous a nature, finding fault with nothing and nobody, I gathered that its original writer had retired or was dealing with the matter in a higher, if less well-known, sphere.

Idly turning over the pages of matter, now happily uninterleaved, I was pleased to find the correspondence columns still existing—though the numbers of the letters took up more space than there was any need of—and here I came across ideas and names that bridged the years and showed that mankind was just as human as ever. It was evident that in a previous issue a letter [987654321] had appeared, the writer of which had suggested that the jubilee of English motoring was about due, and that a museum or collection of things automobile would be vastly interesting. *The Autocar* had been pleased to take up the idea, and each subscriber of over thirty years' standing had been circularised (Awful word!—O.J.) for his support. And the first fruits of the curiosities proved to be the resurrection of the names of long-forgotten *Autocar* correspondents, and a study of their letters showed that dates only, not sentiments, had altered. Pride of place was given to an epistle signed "A1," offering to lend—if there was any idea of having a Chamber of Horrors in connection with the *musée*—an original R.A.C. badge. The writer quoted a remark of his in the House of Lords the previous year concerning the abominable way certain air-hogs abused their licence, and, quoting the *Judicious Hooker*, demanded to know what right an archbishop had to fly over his park before noon on a Sunday. The next letter offered a wax bust of the original chairman of the famous A.A., guaranteed genuine, and containing, as a core, a brass badge signed "A. Stenson Cooke," and an unspoilt driving licence issued by the county of Surrey. It remarked that America had offered large sums for it, and the Berlin Museum, foiled in its efforts to obtain its desire, had paid a million marks to the hairdresser in the Royal Opera Arcade for the modelled counterfeit of Lord Dumphreys that had so long existed in his window. He would also be delighted to send Mr. Chas. Jarrott's "Hints on Scouting" (first folio, 8 pp.), a policeman's helmet found in a ditch near the Hog's Back, and a copy of the Marquis of Queensberry's lament that he had no gun to shoot the next motorist that ran over him. A note by the Editor informed readers that the offer of the first article had been submitted to the celebrated literary humorist, Sir E. V. Lucas, who was of opinion that, with the assistance of an algebraical formula, a magic lantern, and a steam navvy, a colossal reproduction might be made and set up at the entrance to the Broadway, Hammersmith, and that, if anyone who had had occasion to say "Not guilty, your worships, I don't think," would give the price of a lunch at the Brighton Metropole, the thing was as good as set up.

The following epistle came from a widely-celebrated firm off Regent Street, who would be delighted to give a model of a curious but extinct type of engine of which the ignorant world had been led to expect great



Mr. Frederic Coleman's White steam puppies are fast becoming keen votaries of steam practice. Perhaps they find the White steamer bonnet "grateful and comforting" this November weather. (Photograph by Fall, Baker Street.)

things, they having obtained it in part payment of one of their new type of famous stilly six-cylinders. These latter cars—it went on—will be remembered as having, nearly half a century ago, run for twenty-four hours, etc. The writer concluded with the mutilated quotation, "*Ex America nihil novum venit*," which he translates (rather freely) as "There is an end to every night." After which, by a curious coincidence, comes a letter offering the loan of "The Last of the Poppets; or, Unless you have sliding sleeves you will have sick cylinders!" being a brochure issued in fourteen languages from Coventry (Eng.), and collated by the holder of the annual scholarship for auto designers.

Then an old friend appeared once again under the pseudonym of the "Wandering Worm," who remarked that for a consideration he would be delighted to supply some of his specimen bills, sandwiches, whisky, and tariffs dating from the early part of the century. After which six letters offer M.U. medals granted for unalloyed allegiance, while the writer of the next one claims to be the hero of no less than three of Mrs. Williamson's delightful romances. An "Age-retired subaltern" desired to exhibit the original pair of spurs as worn by the first colonel of the Motor Volunteers, and a letter from a gentleman signing himself "Soldier and Sailor, too," places himself at the disposal of the committee to explain everything or anything that may need to be explained. At intervals he also will be delighted to lecture on "Early Aviation" or "How (I expect) it Feels to Fly." The week's batch of letters concluded with one from the secretary of the S.A.M.D. offering for exhibition several absolutely perfect mechanic-drivers whose qualifications had been so marvellously many and various that, owing to the slump in Dukes and the general shortness of money ever since, no employer had ever been found rich enough to pay the wages—I mean salaries—their skill and knowledge demanded. But it would be necessary to insure the glass cases they were kept in and to admit all members free. The rest of the letters, according to the Editor, were crowded out of that week's issue. There was little else of interest in the journal except that in the "Hints and Tips" page cracked plugs were said to be a frequent cause of misfiring and dirty petrol the reason for occasional stoppages. In the "Queries and Replies" columns several persons signing themselves "Expert," "Engineer," and "Enquirer" wanted to know why certain cars (named) gave them so much trouble, while other writers under the signatures of "J.P.," "(Miss) E. Brownsmith," "Tyro," and "Amateur" could not refrain from calling attention to the marvellous non-stop and faultless behaviour of their respective automobiles (also named).

And, just as I was looking to see if the same firm as ever was advertising on the back page, I woke up.

OWEN JOHN.

The Six-cylinder Vauxhall.

A New Car Embodying Refinements in Design and Construction.

A 27 h.p. six-cylinder chassis is to be added to the range of cars turned out by Vauxhall Motors, Ltd., of 108, Great Portland Street, and Luton, Beds. We drove into the clean county of Bedfordshire on Saturday last, and were able to inspect the chassis then undergoing its special polishing for Olympia. From end to end it is a job of which any automobile engineering firm in the world might be proud, and is certain to become as great a favourite and enjoy as great a reputation as its wonderful precursors, the 16 h.p. and the 20 h.p. The engine casting deserves notice. The six cylinders are cast *en bloc*, and make a very striking appearance. The inlet leads are contained, but the exhaust trunk is bolted on to the left flank of the engine. The bore is 85 mm. and the stroke 102, so that the six-cylinder engine is the 16 h.p. plus two cylinders. Forced lubrication from a sump is employed, the crankshaft and arms being drilled to conduct the oil to the big ends. The engine and gear box are carried on a stiff underframe, so that the supporting brackets are kept as short as possible. Although the general plan follows the 16 h.p. and the 20 h.p., there are several interesting minor points in which divergencies are improvements. For instance, the steering gear box is in aluminium, and is split vertically. The gear wheels in the gear box, which is of similar design to the 20 h.p., are increased in width as the tooth pressure increases. So the driving stress on the first speed wheels is exactly equal per square inch to that on the second, third, and fourth-speed wheels. This, we know, is a refinement of design which is not always considered.

A big aluminium shield is placed over the flywheel and clutch to prevent the ingress of dirt from the footboard. The pedal-applied brake is operated through bevel gear, and a quick adjustment afforded at the short end of the applying lever. The side brakes are balanced and compensated in a simple but ingenious manner. The brake spindle to which the brake lever is attached runs right across the frame, and carries at its further end the draw lever for the near side brake. Mounted on the brake spindle, and running from the off side to the centre thereof, is a sleeve, which has upon its off side end the lever applying the off side rear brake. This sleeve is slotted to the brake spindle at the centre of the latter, with the result that both brakes must be applied with equal tension. The lag of the near side lever behind the off side lever, due to the twist of the brake spindle when both levers are fixed to it, is thus cleverly and simply avoided.

No weight or friction is taken by the spring shackle bolts. The ends of the outer spring leaves are turned over to form two collars, which have a bearing in the spring bracket.

The Bosch high-tension magneto serves all the six cylinders, and to get the correct rotative relation, the driving-shaft from the distribution gear carries an internally-toothed wheel, which meshes with a suitable pinion on the armature spindle.

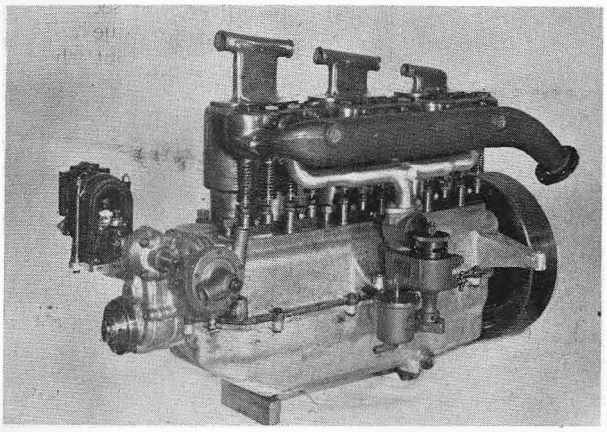
The gear ratios are 3.3 to 1 top speed, 5 to 1 third speed, 7.7 to 1 second speed, and 12 to 1 first speed. A lower set of ratios is used for heavy covered bodies. All parts hitherto brass are now cosletised steel. The dashboard is in aluminium, and presents a very handsome appearance.

The chassis is made in two sizes, the alternate dimensions being: Wheelbase, 10ft. 3in. or 11ft.; extreme length, 13ft. 9in. or 14ft. 6in.; available length of body space, 8ft. 1in. or 8ft. 10in. The ground clearance is the same in both sizes, viz., 10in. All wheels are fitted with 880 by 120 tyres, and the weight of the longer chassis is 18 cwt.

Talbot Cars for 1910.

A New Six-cylinder and a Long Stroke Model.

THE enterprising firm of Messrs. Clément-Talbot, Ltd., are not making any extensive or radical alterations for the coming year. They have however, steadily progressed in the right direction, and have brought their models as near perfection as cars can be. The popular 12 h.p. has been further improved by the fitting to it of a larger sump at the bottom of the crank chamber, so that sufficient oil may be carried to last for over 200 miles, thus eliminating the necessity for a foot pump and an auxiliary oil tank. Radius rods are fitted to the back axle, and the cardan-shaft has been lowered so as to bring it more nearly in line.

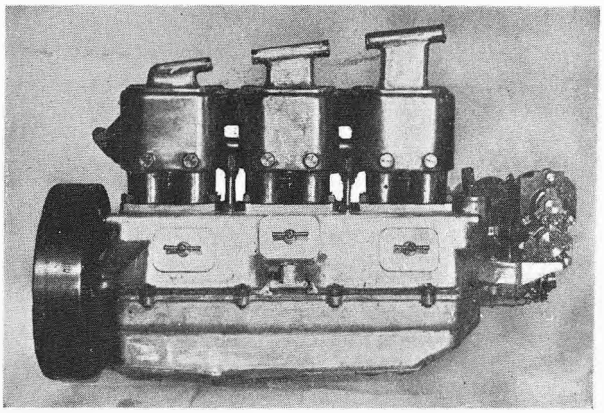


The valve, inlet and exhaust, side of the new six-cylinder 20 h.p. Talbot engine. The carburetter and magneto with its driving gear are also visible.

The 15 h.p. has been improved by the fitting of a new gear box, in which the shafts, instead of being placed one over the other, will be arranged side by side.

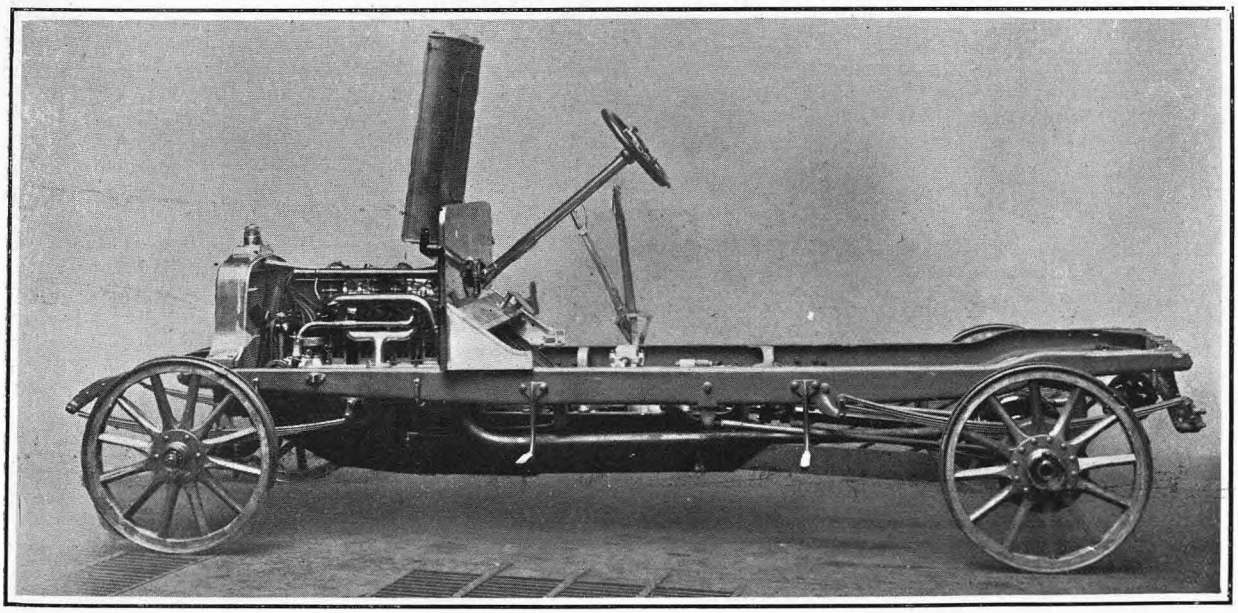
The 25 h.p. is to be provided with a totally new engine, the dimensions of which are 101.5 × 140. Pump lubrication will be fitted, the pump which conveys oil to all the main bearings being carried at the bottom of the base chamber—a system similar to that adopted in the case of the 12 h.p., in which the lubrication has been so satisfactory. 820 × 120 mm. tyres will be fitted.

The 35 h.p. model has been so successful during the past year that its makers have decided not to alter it in any way.



The 20 h.p. Talbot engine from the magneto side.

The 20 h.p. six-cylinder will make its *début* before the public at the Olympia Show. This type has an engine the cylinders of which are cast in pairs, and have 80 × 120 mm. bore and stroke. A four-speed gear box is fitted, and two ignitions.



The chassis of the 12 h.p. Talbot car.

Before members of the Leeds University Engineering Society on October 25th Professor Morgan, of the Bristol University, read a paper on slide valve engines, with particular reference to the new Daimler engine. An interesting discussion ensued, which served to bring out the main criticisms against the engine and the baseless character of the fears entertained as to its mechanical efficiency.

Small Car Advice for Olympia.

By Runabout.

NO potential buyer is in an enviable position at Olympia. Some intending buyers go down to Addison Road with plenty of experience and capital behind them. They have personal experience of half a dozen cars, they have watched twenty or thirty more behaving well or ill in the hands of close personal acquaintances near their homes, and the list of cars they have to select from is by no means so long and bulky as the S.M.M.T. catalogue. Moreover, should they in the exhilaration of show week make a blunder and buy a car which does not live up to their ideals, they can afford to drop a hundred or so in transferring their volatile affections towards Easter. It is far otherwise with the average small car buyer. He may know that two or three small cars which have been on the market for half a decade are good stuff all through; but these are times of transition and rapid development. These very cars may be the last he wishes to buy, because he fancies that more revolutionary makers can offer him equal material and workmanship dispersed over a bigger chassis and a more generous specification at the same or even at a lower price. Of "public form" he knows very little; his acquaintance with mechanics is just sufficient to make the confident statements of the wildcat Show pamphlet seem plausible and sound to him; he feels a dim reverence for the frock-coated "expert" who engages him in pleasant conversation as he peeps timidly at a weird gear box never inspected before save in black and white section; in a word, he is easily duped, and he cannot afford to be duped. From a motoring standpoint, it is life and death to him that his car shall be not only good, but, if possible, the best at the price. Hence I propose to offer one or two pieces of very commonplace advice—counsels known to all who own a car, but oft forgotten by the raw novice when he is intoxicated by vistas of red carpet and the steely glitter of naked mechanism. The entire atmosphere of a motor exhibition is hypnotic to the novice already losing mental balance in pleasurable anticipations.

1. Don't experiment. Some designers do their own experimenting. They personally spend months on the road manhandling a new design, trying to smash it up by every species of misuse. That is why their cars are so small and so dear. Other makers apparently prefer to have the experimenting done for them by purchasers. That is why their cars are so large and cheap. At Olympia new cars of very taking aspect will be seen—a show polish covereth a multitude of mechanical errors. Their makers are, perhaps, making their first bow to the public. It may be a very creditable bow, but—are *you* the man to decide whether the bow is a deceitful smirk or the conscientious humility of good work well done?

2. Just as we must not buy a car because it is new, so we must not buy a car because it is cheap. If a firm that already possesses a world-wide reputation offers you a car that is appreciably cheaper than its rivals, you may don your thinking cap. You will probably find still cheaper and bigger cars tucked away in holes and corners below boards bearing weird and unknown names. Leave these to rich philanthropists, anxious to encourage experiments. You may ask how it is that a certain firm exhibits a small two-cylinder car at about £300 all on when others stage a four-cylinder at £150 or so? Might they not as well put up their shutters at once? That meagre specification at a high price has appeared at the last three shows, and its makers do not live on air. Happy thought! Perhaps it wears the better of the two, and so, in spite of its insignificance, attracts the larger public.

3. Don't buy a car because it is big. I had a dream the other night. I went to Olympia and the first person I met was Mr. ———. He said, "Have you seen our new six-cylinder at £200?" I tore my cheque book in my haste to book an early chassis number, but when I woke I fell into a cold perspiration to think I was saddled with a six-cylinder, and was glad when the housemaid brought my tea, and knew that I had been dreaming. Why? Because I cannot afford to run eighteen miles to the gallon and wear out 120 mm. tyres. I want thirty miles to the gallon, and my back tyres must be small and last a year. So, although I could afford to *buy* that six-cylinder at £200, the prince of salesmen should not make me do so, for I could not afford to *run* it. The poor man should be content with the lowest-powered and lightest car of decent quality that will do his work efficiently.

4. There are several details which you can, and should, insist upon in any specification, however modest. Two ignitions, for a start; thermo-syphon cooling system—the water pump is going out of date, though it may be pardoned on a costly multi-cylinder chassis; three speeds forward, and, if you can get them, four; a clutch that can be dismounted without interfering with the coachwork or the back axle at any rate, not to speak of the engine and gear box (don't be afraid of the leather clutch—it is a good deal better than many cheap samples of the disc or plate types); internal rear brakes; detachable wheels or rims—the fixed wheel with fixed rim is fast fading into the prehistoric mist; control mounted above the steering wheel, not below it; automatic lubrication of a simple character, with a dash indicator, suited for reading by day or night; accessible valves, carburetter, magneto, and contact breaker; a simple form of change speed quadrant; a light car—don't buy a 6 h.p. which weighs threequarters of a ton; a dashboard which affords some slight protection against weather; leather upholstery; a decent ratio of tool and luggage capacity; and so forth.

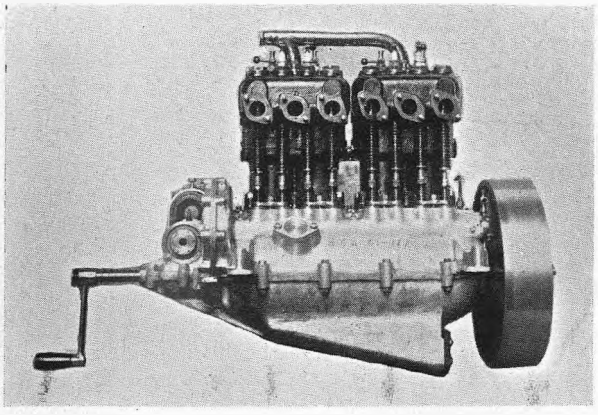
I think a very sound tip for the man who is resolved to purchase, is to postpone decision till he has got back home, and had a quiet think. Coolness and judgment are not at their summit when a fluent salesman is raining plausible arguments into ones's ear amidst a ceaseless bustle, and one is dying to be at peace, and to have a quiet cup of tea in some sequestered nook.

The staff, both administrative and executive, of the Clément-Talbot Co. dined together at the Horse Shoe Hotel, Tottenham Court Road, last Saturday week. The chair was taken by the chairman of the company, the Right Hon. the Earl of Shrewsbury and Talbot, K.C.V.O., the premier earl of England, supported by Viscount Ingestre, Messrs. Frank Shorland, G. P. Mills, J. R. Nisbet, C. G. Grey, Massac Buist, R. T. Lang, and others. The toast of the company was coupled with the names of Messrs. Mills and Shorland, who both replied, and gave very flourishing accounts of the company's progress and prospects. A most enjoyable evening was spent, the function quite partaking of the character of a family gathering.

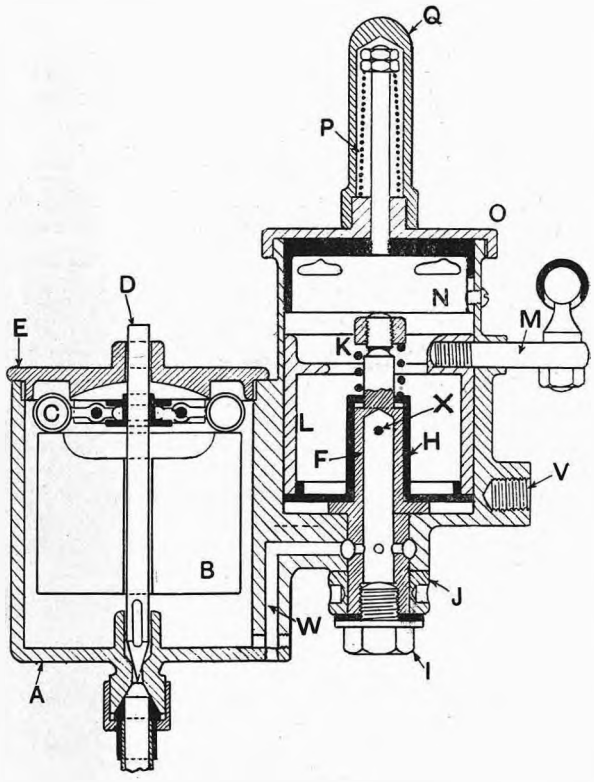
The B.S.A. Cars.

A New Type of Carburetter. A New Car.

THE 14-18 h.p. B.S.A. car as made and sold during the present year has given such all-round satisfaction that save for a modification in the lubrication scheme the chassis shows no vital alteration in design for 1910. The *modèle de luxe* in this power will, however, be made with a longer wheelbase and threequarter elliptical springs to the rear wheels. We are able to give some interesting details of the new 15-20 h.p. four-cylinder B.S.A., the cylinders of which will be 90 mm. × 115 mm. The general arrangement of the units can be gleaned from the illustrations given herewith. The frame is of excellent design, the engine and gear box being very stiffly carried on the flared lower flanges of the side members. The cylinders are cast in pairs set well apart on the crank chamber to afford a central crankshaft bearing of good length. The valves are all on the near side, so necessitating but one camshaft, from which the magneto and pump spindles are driven across the front of the engine by skew gearing. The magneto, Bosch H.T., and the pump are therefore set in most accessible positions. The valve springs are of unusual length and square in section. It will be seen that valve stems and tappets are easily got at. Spring buffers are fitted to the latter

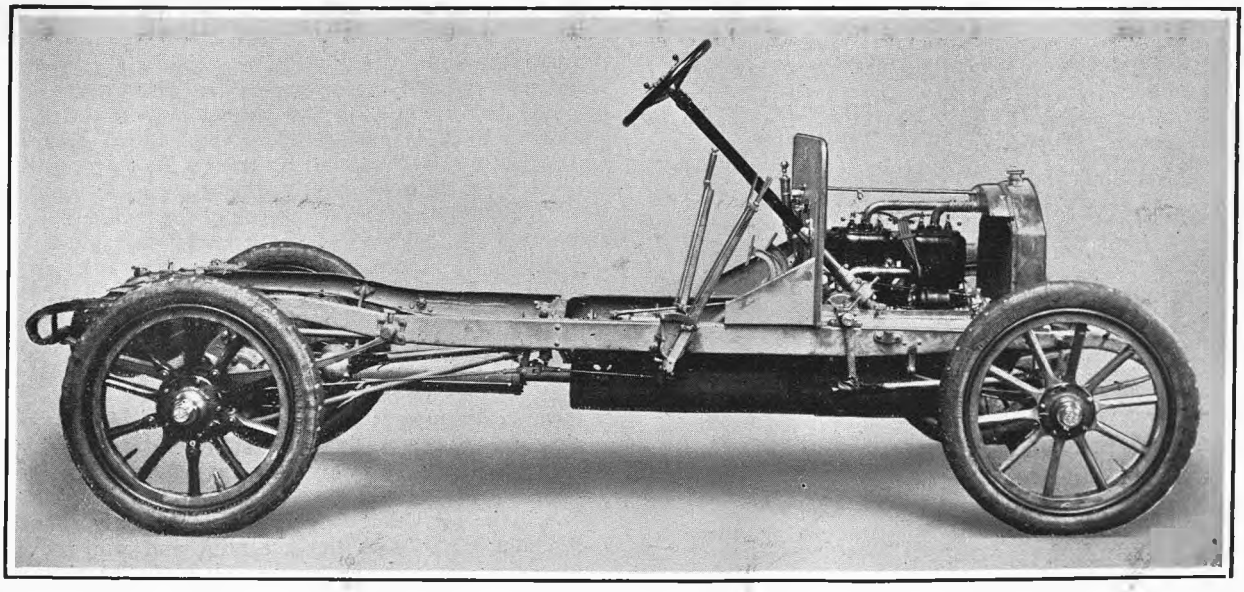


The valve side of the 15-20 h.p. B.S.A. engine.



The B.S.A. carburetter in section.

A, float chamber
B, float
C, float toggles
D, needle valve
E, float chamber cover
F, jet
H, jet sleeve
I, jet plug
J, jet plug collar
K, spring operating jet sleeve
L, throttle sleeve
M, throttle lever
N, automatic air valve
O, cover of automatic valve
P, spring of automatic valve
Q, spring cover
W, petrol channel from float chamber to jet
X, jet orifice



An elevation of the 15-20 h.p. B.S.A. chassis.

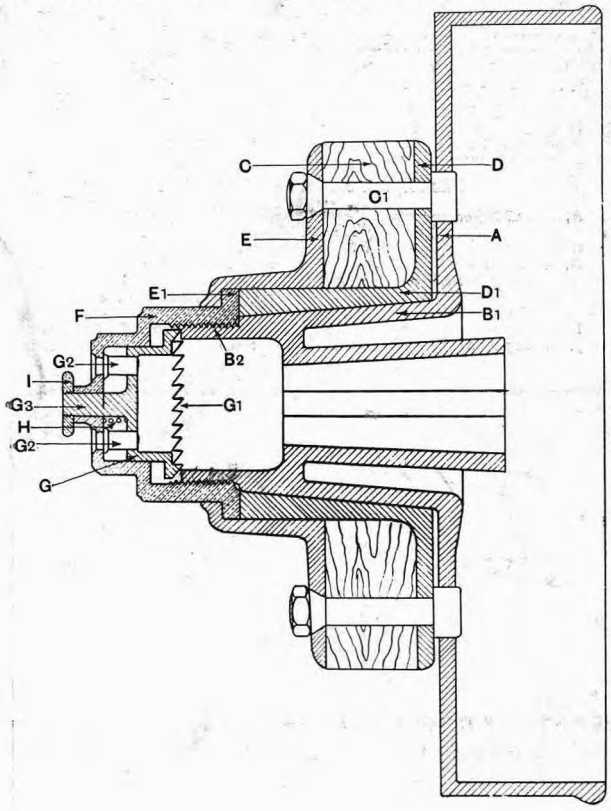
to keep cams and tappets in close contact and so minimise noise. The engine is lubricated from a toothed wheel pump set on the rear face of the crank chamber, and driven by the projecting end of the camshaft. A deep oil sump is formed in the base of the crank chamber, and the oil is pumped therefrom to the crankshaft bearings and to the channels formed across the crank chamber into which scoops fitted to the big ends dip. The inspection doors to the crank chamber are on the right-hand side, and are of large size. Provision is made for the drive of an alternative ignition system if required. The socket with cap thereon to take the skew-driven shaft is seen in left-hand view of the engine.

The accompanying vertical section of the B.S.A. carburetter fitted to the 15-20 h.p. car is interesting. By its use the Birmingham Small Arms Co. claim to run their engine as low as 150 r.p.m. and to be able to increase the engine speed up to 3,000 r.p.m. in a few seconds. In this carburetter the delivery of petrol and air is automatically and proportionately varied as follows: Petrol flows to the jet chamber A, being controlled in the usual way by the needle valve D, the float B, and the weighted rocking levers C. It then gains access to the jet by the duct W, and is admitted to the throttle chamber by the hole X, the area of which is varied by the jet sleeve H, which has a spiral slot, not shown, cut upon it. When running slowly the throttle, air opening, and jet orifice are nearly closed, but by rotating and opening the throttle, and consequently the jet sleeve, more air and petrol are admitted. The air valve N controlled by the spring P is adjusted to give the necessary volume of air at all speeds.

The N. & B. Detachable Wheel.

A Self-centring and Rigid Construction.

A SIMPLE and effective form of detachable wheel has been designed by Mr. R. O. Harper, of Messrs. Newton and Bennett, of 35, King Street W., Manchester, and is to form a feature of the well-known S.C.A.T. cars which this leading Manchester firm handle in this country. The especially remarkable point in the construction of this wheel is the conical mounting of the detachable hub in the permanent hub. This arrangement has been adopted in order to make the wheel absolutely self-centring and laterally rigid, the jamming effect of the taper fitting making the wheel as secure as the non-detachable type. The locking device is quite foolproof, and complies with the requirements of that most exacting authority, Scotland Yard.



The N. & B. detachable wheel (Harper's patent).

A, permanent hub
B1, conical boss of hub
B2, screwed part of hub
C, spokes
C1, bolts clamping spokes and transmitting drive
D, flange of detachable hub
D1, detachable hub
E, clamping ring
E1, annular channel
F, hub cap
G, ratchet plate
G1, ratchet teeth
G2, guide spindles for ratchet plate
G3, ratchet spindle
H, spring
I, head for withdrawing ratchet

Any form of wheel may be used, that shown in the drawing being an artillery wheel with the spokes C clamped between a rear face plate D formed in one with the hub D_1 and a clamping ring E. The hub D_1 has a coned interior according with the conical exterior B_1 of the permanent hub A. The clamping ring E retains a hub cap F. The latter can be rotated, but is confined in an annular channel E_1 presented by the disposition of the hub D_1 and the clamping ring E. The reduced cylindrical part B_2 has an external screw thread, and the hub cap F an internal thread to engage therewith.

The bolts C_1 clip the spokes C between the plate D and the clamping ring E, and the heads of these bolts form drivers for the wheel by engaging in the holes in the flange of the permanent hub A. In the hub cap F a circular ratchet plate G is located, cut with ratchet teeth G_1, and this device, which slides on guide spindles G_2 G_2, can be retracted against the action of the spring H by a spindle G_3 passing out through the hub cap F. The spindle G_3 is provided with a head I as a means for withdrawing the plate G. In applying the wheel the tapered or conical hub D_1 is pushed on to the conical boss B_1 and the hub cap F rotated on thread B_2 to force the conical faces into contact. As the cap is rotated in a forward direction by turning the spanner, the ratchet teeth lock, and backward movement is impossible. To withdraw the wheel the spanner is applied, and a device on it engages at the back of the head I of the spring pressed ratchet spindle G_3, and so takes the ratchet teeth G_1 out of gear. The hub cap F is then free to unscrew, and, by reason of its flange acting on the plate E and the bolts C_1, it forcibly disengages the cone fitting B_1. The wheel is thus readily removed, the whole operation of taking off or replacing the wheel occupying less than ten seconds.

It will be seen that this wheel is extremely simple, embodying as it does the accepted and well-proved engineering method of fitting a wheel on to a shaft, viz., by means of a cone.

A New Dashboard Map Holder.

A Device in which Strip-maps are Unrolled as Required.

AN accessory has recently been designed and patented in the shape of a roller map case for use on motor cars. The system of signposting the country is as yet by no means perfect in England, and in many parts of Scotland and Ireland such assistance to travellers by road is lacking altogether. A large number of motorists therefore are accustomed to travel by the aid of maps; but many must be deterred from this method of finding their way, owing to the amount of trouble involved. A driver requires an exceptional memory, when on a strange road, in order to remember the various turns and landmarks from a preliminary study before starting. It is inconvenient, in fact almost impossible, to drive with one hand and fold or unfold the ordinary map with the other, when going near the legal limit. The third alternative is for the driver to avail himself of the services of one of his passengers to direct him, and this plan also is not without its objections.

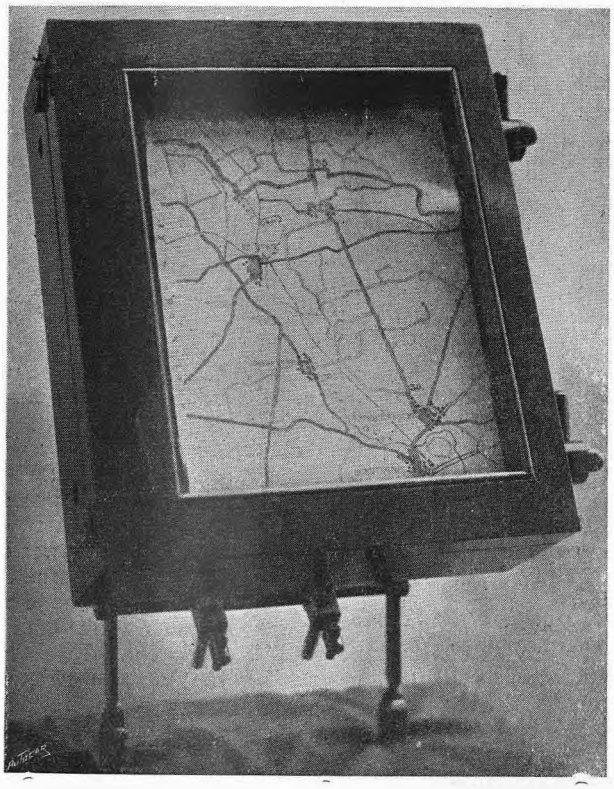


Fig. 1.—Front view of the map case showing (below the case) the thumbscrews securing the angle adjustment.

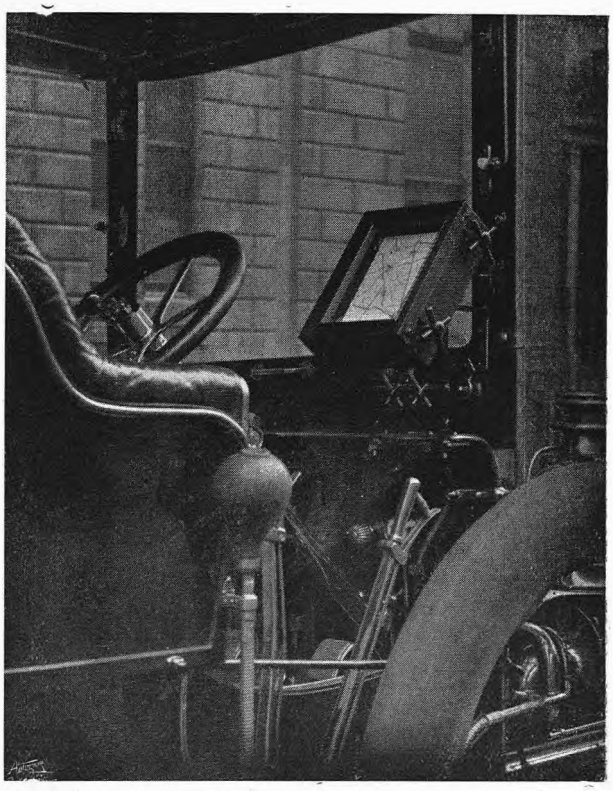


Fig. 2.—Showing the map case in use on a Dennis car taken from the off side.

The object of the accessory here described is to provide a driver with the means of being perfectly independent of such assistance, by placing before him a clear map of the road, which will be visible to him at all times by day or night, without in any way hindering his driving.

The device consists of a mahogany glass-fronted case, measuring 10½in. by 8¾in., in which are contained two hollow metal rollers, slotted to take the two ends of the map, and moved easily by handles on the right-hand side. Strip maps are employed of various design, but those most suitable are the ones of the principal main roads in Great Britain, published by Messrs. Gall and Inglis, 25, Paternoster Square, E.C. The limit of width for the maps is 6¼in., and at two miles to 1in. rather more than 200 miles can be included on one strip, or rather more than 100 miles at a scale of 1in. to one mile. The rollers are fitted with strong coiled springs to keep the maps always stretched taut.

Inside the case are four small electric lamps for night work connected in parallel and fed either from the spare accumulator or from a small dry battery which can be carried on the dashboard. The switch is fitted convenient for the driver's hand on the right-hand side of the case.

The device is attached to the dashboard quite easily, and can be canted to any desired or convenient angle. Removal of the whole case or replacement of a map is also easily and quickly accomplished.

The weight of the model at present made is 6 lbs. 11 ozs., but a second model is at present being constructed, in which certain modifications will be introduced to reduce the size and considerably curtail the weight.

The accessory has been for some weeks in use on the car of the designer, with satisfactory results. It is not as yet on the market, but it is hoped that it may be on view at the forthcoming exhibition at Olympia.

The 12-16 h.p. Hotchkiss.

A New Small-powered Car of Eminent Associations.

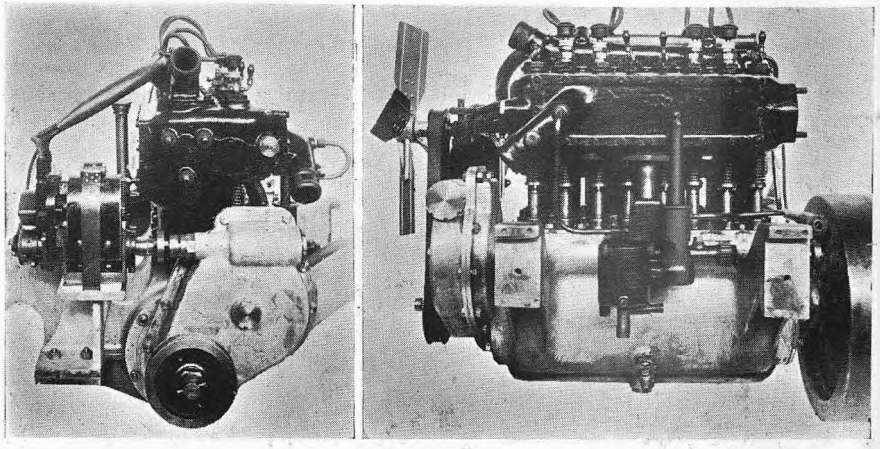
THE London and Parisian Motor Co., Ltd., of 87, Davies Street, Oxford Street, W., are conforming to the popular taste and showing a Hotchkiss of 12-16 h.p. This make of car in higher powers has achieved so much success and gained so much favour in this country that the latest type is sure to attract attention. It is constructed throughout of the same excellent material and finished in the same careful manner that has always distinguished its more powerful predecessors.

The chassis elevation given herewith affords a very clear idea of the general arrangement. The frame is upswept at the rear to clear the back axle, and inswept at the dashboard. The cross members are well splayed and gusseted at their junctions with the main frame. The chassis is made in two lengths, the shorter being intended for a two-seated body only.

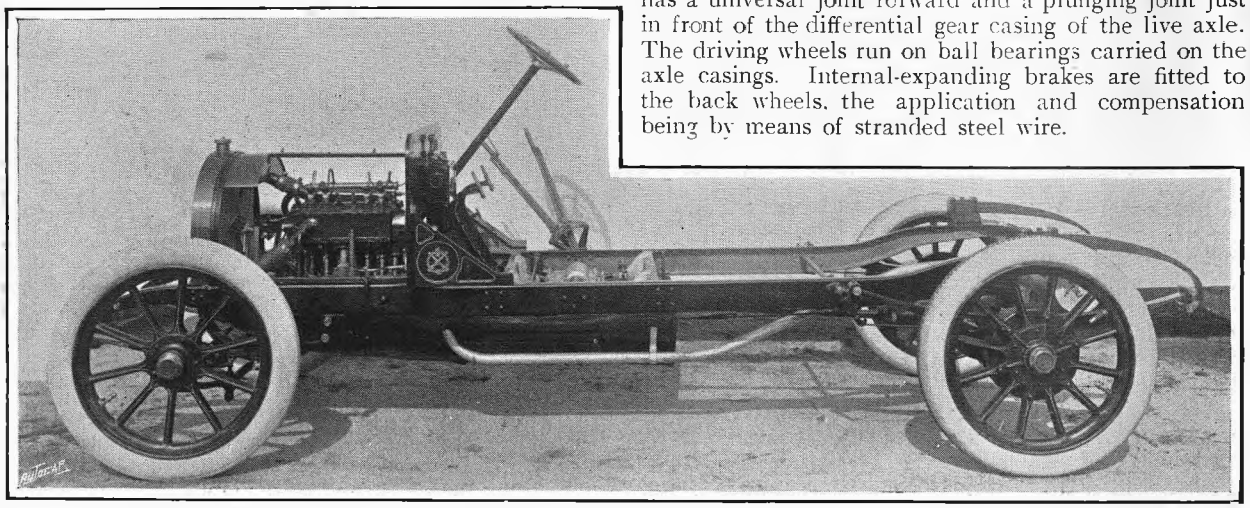
The four-cylinder engine, 80 mm. = 3.15in. × 110 m.m. = 4.33in., is cast *en bloc*, as in the 16-20 h.p. car. The exhaust outlet is part of the cylinder casting, and is amply water-jacketed. The valves are all placed on the left of the engine, the sparking plugs being set over the induction valves and the compression taps over the exhaust valves.

Valve tappets and stems are, as can be seen from the accompanying left-hand-side view, particularly accessible. The valve tappet guides are of unusual position. The magneto sits upon a table cast on the crank chamber, and provision is made for fitting an entirely independent system of ignition. Thermo-syphon cooling is adopted, an efficient fan being belt-driven behind the radiator off the forward end of the crankshaft. Forced lubrication is provided. A leather-faced cone clutch, completely enclosed, conveys the drive to the gear box, which is strongly carried on two cross members, and affords three speeds forward operated by a neat gate change. The propeller-shaft has a universal joint forward and a plunging joint just in front of the differential gear casing of the live axle. The driving wheels run on ball bearings carried on the axle casings. Internal-expanding brakes are fitted to the back wheels, the application and compensation being by means of stranded steel wire.

The distribution gear case is separate from the crank chamber, the magneto spindle being set across the engine forward and skew-gear driven off the single camshaft. This, as shown in the end and right-hand views of the engine, puts the distributer and contact breaker faces of the magneto in an eminently accessible length.



Front and near side views of 12-16 h.p. Hotchkiss engine, showing method of mounting magneto and carburetter.



12-16 h.p. four-cylinder Hotchkiss car.

At the Taunton Police Court a man was charged with having committed damage to a motor car, the property of Mrs. Coxen, of Burnham. The damage consisted in writing a word in the dust on the back of the car, thereby scratching the paint, which cost £1 2s. to be revarnished. Defendant admitted writing the word, but denied that he meant to do any damage. On his behalf it was contended that he only did it as a joke, and, as there was no malicious intent, that court had no jurisdiction to deal with the case. The bench took this view of the matter, and dismissed the case.

Gearing—Its Importance.

The Results of Some Experiments with a Popular Type of Car.

THE recently published table of the gearing of certain makes of cars which appeared in *The Autocar* was exceedingly interesting, but probably more instructive and of more interest to manufacturers than to the public, as, naturally, each manufacturer is more or less interested in the gears adopted by his competitors, whereas the ordinary motorist has only a small idea of what gearing really means. He may notice that a certain car is geared 2, 4, or 5 to 1, as the case may be, on the different speeds, but this does not convey much to him.

When an intelligent cyclist is ordering a bicycle he will generally state how he requires his bicycle geared, knowing from the power he has at command the ratio of gearing that will give him the best results; but this is very far from being so with motor cars, as probably not one salesman in twenty knows what the cars he is selling are geared to, and, even if he did, he would not be able to help an intending purchaser who required a different ratio of gearing than was already fitted to the car which he contemplated purchasing. The question is one of extreme importance, as there is no doubt whatever that a car can be good or bad, entirely in accordance with how it is geared. When a car is chain driven it is not a very difficult matter to alter the gearing by means of substituting different sprocket wheels, and this entails no great amount of extra work or complication to the manufacturer; but in a gear-driven car the matter is altogether different, any variation of gearing necessitating a good deal of expense, for, as every manufacturer knows, the slightest deviation from making more than one size increases the cost enormously. To the layman, of course, this sounds absurd. He cannot understand why a slight alteration should be looked upon with abhorrence by the manufacturer. We will admit that it is difficult somewhat to follow, but where a manufacturer is turning out one standard car with one set of gears, and making nothing else, works of this kind can be conducted on the most economical lines, as the machines when once set require no alteration, no trial trips are required, and no scrap is made. It is the constant alteration of machinery to achieve some trivial alteration in design or gear which upsets the entire routine of a factory, and causes the cost to mount up and the output to be decreased to an alarming extent.

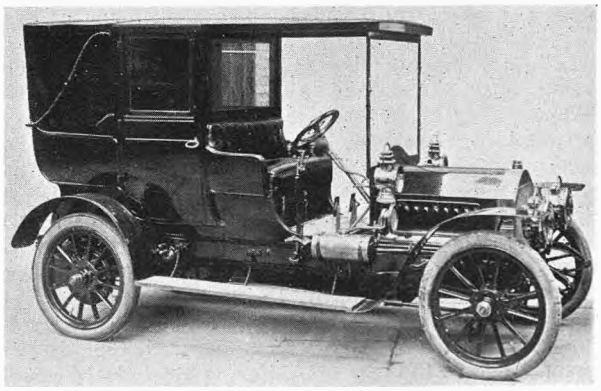
Practical Tests.

We think it may be safely contended that the engines as made to-day are pretty much alike as regards efficiency, and an engine, say, 3⅝in. by 4¾in. stroke will under ordinary decent conditions give off a certain power, no matter by whom it is made, so long as the maker knows his business, and yet we see different cars fitted with similar sized engines give widely different results on the level and uphill, and it is pretty safe to say that good or indifferent results achieved by these cars depend entirely on whether the car is suitably geared. Consequently it behoves intending purchasers to see that they are getting a car which is suitably geared for the district in which it is to be used. Some people have an idea that to increase the speed of the car all they have to do is to increase the gear. It is difficult to find a greater mistake, as it is easy to increase the gear of a car to such an extent that it is practically useless.

The writer recently had a very excellent opportunity of thoroughly investigating and comparing the various gears as applied to a modern four-cylinder car, having an engine 3⅝in. by 4¾in., weighing complete 24 cwt. This car has a direct drive on the top speed and two lower changes of gear.

Direct Gear Results.

Now we will first deal with the direct drive, and to make the matter clearer we will not refer to a ratio of gears, but to miles per hour at a thousand revolutions of the engine. We will take the top gear direct driven. At a thousand revolutions this car would do thirty miles an hour, and for ordinary touring conditions is most excellent, as it would take on top speed all ordinary hills that one encounters in touring, and still be low enough to allow the car to be driven at five or six miles per hour on the level without any staggering, and when the engine was fully accelerated it was capable of doing forty-five miles per hour on the flat with a full load. When this gear was reduced to twenty-five miles per hour, the results were not so satisfactory, as the engine sounded under-loaded when running upon level roads, and, owing to the great number of revolutions, the petrol consumption was materially increased. The gear was then raised to thirty-five miles per hour, but the ability to take steepish hills and to crawl along slowly on the flat was destroyed. Consequently, we think it may be taken that a car as before described, with a gear of thirty miles per hour at a thousand revolutions, is a good one, and will give all round satisfaction. We now come back to the second gear, and it must be distinctly borne in mind that in all gear boxes where there is a direct drive, and where the power on a lower speed is transmitted to a lay shaft, and from there back again to the direct shaft, an enormous loss of efficiency takes place—probably twenty-five per cent. Consequently, for the sake of illustrating our argument, if a car is geared to forty miles an hour on the direct drive, and geared to thirty miles per hour on the second speed, it would probably climb hills as well on the top gear as it would on the second, as, although the gear is reduced twenty-five per cent., there is the loss of power in transmitting the power through the gear, which neutralises the effect. On the car above referred to a second gear, giving a speed of twenty-five miles per hour, was tried. With this gear the car was less efficient than on the direct drive, or, in other words, it would mount hills on the direct drive, but it would not



A special model 20 h.p. Brown landaulet, which will be shown at Olympia by Messrs. Brown Bros.

take them on the second speed. When this gear was reduced to twenty miles per hour, a somewhat similar state of things existed. The car would go uphill on the direct drive, until the engine showed signs of pulling up; the driver would then change back to the second gear, but the engine would barely respond, and would crawl up the hill at eight or ten miles per hour. When the gear was altered to eighteen miles per hour, distinct gain was immediately witnessed, but still the running was sluggish. A gear of 16½ miles was then tried. The adoption of this revolutionised the running of the car, and when a change down from the top gear was necessary on a hill the engine would immediately respond and take the rise at twenty miles per hour. When this gear was further reduced to 13½ miles per hour, the running of the car was completely spoilt. To get the same speed up the same gradient, the engine seemed to be racing, and it was excedingly difficult to believe that a reduction of only two miles per hour had been made. The 16½ miles per hour gear seemed to be so entirely satisfactory that it was not considered worth while to experiment further.

We have now to consider the first gear, and in respect to this it must be considered from rather a different standpoint, as the car must be so geared that it will practically go up anything. Consequently, if one comes to a hill of one in five one's car must be geared so that it will surmount this, although it may be only once in twelve months that it is called upon to tackle a hill of this gradient. Consequently, to fulfil these requirements one must have a lower gear than would generally be most satisfactory, provided the one in five gradient hill did not exist.

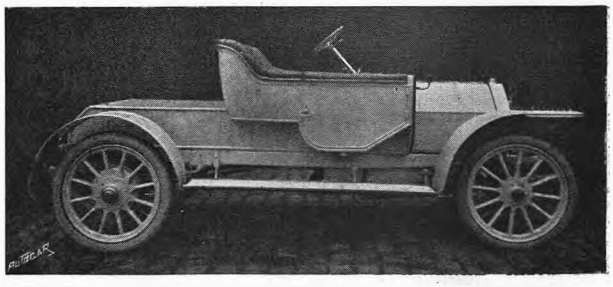
The Results of Experiments.

The result of a series of experiments led us to believe that a seven miles an hour gear was the most satisfactory all round. When geared to eight miles per hour the car would not take the one in five rise, and would only just take it on the seven-mile gear, though when this was reduced to five and a half miles the car would take it without the slightest difficulty with a full load on, but an attempt to climb a hill of one in seven with this speed showed the car to be much under-geared.

We therefore decided that if an intending purchaser can obtain his car with this sized engine and of the same weight, geared to thirty, sixteen and a half, and seven miles, he will obtain a car that will be thoroughly satisfactory for ordinary touring purposes.

We have observed that a good many of the foreign cars, particularly French makes, were a short time ago geared much too high for the English roads, and we have under our notice now a particular car of a well-known make in which the lowest gear is ten miles per hour, and this means that on many of our English roads it would be unable to take the gradients without having to go up backwards, which is an exceedingly undignified and annoying procedure. In this particular case the car was geared to about five miles an hour on the reverse, and one can easily imagine what the state of the cooling water would be after ascending a hill, say, a mile long of one in seven on a hot day. It may be said that there will be a difficulty in ascertaining the actual gear of a car which is being purchased, owing to the ignorance of the salesman, but surely it is not an unreasonable thing for a man who is going to spend three or four hundred pounds, or perhaps more, to insist upon having a tabulated statement of the gears contained in the car which he is purchasing. The result of hill-climbing competitions seems to prove that a certain car, if it win, is geared to suit this particular hill either by a careful testing beforehand on the part of the manufacturer or by happy accident, and a much fairer test of a car's capabilities at hill-climbing would be if these competitions were divided into classes apportioned to cars having engines of equal capacity and the same ratio of gearing. The winning car would then be the most efficient by reason of better carburation, or better engine proportions, or less friction. Of course, it may be urged that a competition of this kind, except by manufacturers, would be out of the question, owing to the impossibility of obtaining sufficient entries of cars having engines of equal capacity and the same ratio of gearing.

For a doctor who wishes to use his car entirely for town work a much lower gear can be advantageously adopted, as with a similar car a gear of twenty miles per hour enables the car to be started and run practically anywhere on top gear, and except for starting on a hill the speed lever would rarely be used during a day's round. But a car so geared would be most unsatisfactorily for touring; the driver would be constantly longing for a fourth speed, in order to relieve the engine of needless revolutions. It would also be excessively extravagant in petrol, although for town work the petrol consumption would be considerably reduced, for it should be remembered that the higher the gear the lower the petrol consumption, provided the gear is practicable, enabling one to keep on the direct drive pretty generally; but if the latter is so high that one has constantly to be changing down, the petrol consumption is considerably increased. A large number of 15-20 h.p. cars are made with three speeds, and if these be correctly proportioned there would be less need for a fourth; but as there are no doubt occasions when a much higher gear than thirty miles per hour at a thousand revolutions is possible, an indirect fourth might be adopted with some gain to suit specially flat districts. On the other hand, if no high speeds be required, a fourth gear, of, say, eight miles an hour between the sixteen and a half and the five and a half would be most useful, as there are a good many hills just too steep for the sixteen and a half miles per hour gear, which are a good length, and which would drive one down to the lowest gear of five and a half miles per hour, which means either slow climbing or a long spell of engine racing, so that the ideal for all-round work is four speeds of thirty, sixteen and a half, eight, and five and a half miles an hour at 1,000 engine revolutions per minute for a car of the power and weight we have been discussing. The question of weight of body and carrying capacity should undoubtedly be taken into consideration; it must be said, therefore, that the foregoing tests were made with an open body.

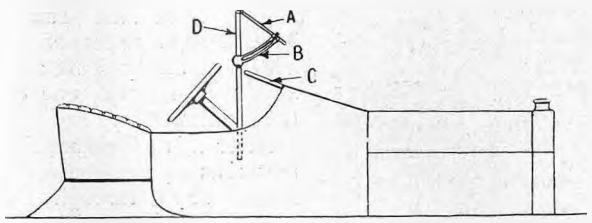


A smart high-sided body fitted to a 14-16 h.p. Belsize car. The pleasing lines of this vehicle are somewhat marred by the triangular recess between dashboard and footboard.

Small Car Talk. By Runabout.

A Cheap Screen for Semi-racers.

MY correspondence makes it plain that many small car owners are on the look-out for a good cheap wind screen of the type described herewith. Dozens of us own semi-racing voiturettes with the scuttle dash. The trade as a whole have not yet realised that this type of vehicle lends itself to a very simple and low priced wind screen, devoid of complicated and expensive joints. Such a car demands a three-position screen, viz., (1) screen left behind in the garage, (2) screen closed in the face of violent headwinds, and (3) top panel swung forward and outward to give clear vision in rain and to keep the rain as far as possible off the driver's face. Now the scuttle dash partly serves the purpose of a wind screen. An efficient scuttle dash is so large that its top lip is not more than 6in. below the front rim of the steering wheel and not more than a foot in front of it. The driver has ample vision over his wheel, so that the lower half of the wind screen may be of opaque material, painted to match the car, and serving as an extension of the scuttle, *i.e.*, it will slope up to a horizontal rod set across the car just in front of the steering wheel and set a few inches above or below it, according to the rake of the wheel. The material of this back sloped panel C may be anything from tarpaulin to wood, painted grey or what not. So far, so cheap. All that is wanted to complete a most efficient screen is a pair of vertical side rods D, one at each end of the rod forming the top edge of the sloped panel. A rod across their tops carries a simply hinged frame enclosing a glass panel A. The swing glazed panel opens forward and upward at will in case of rain, being locked by two slotted metal arcs B working over threaded studs with winged nuts, the arcs being fixed to the side posts and the studs to the frame of the screen. It strikes me that I have not seen a screen of this type in any maker's catalogue, that it should be very cheap to make and sell well, and that, especially if quickly detachable, it would rapidly become very popular amongst the owners of semi-racing voiturettes. Which considerations lead me to ask if anybody makes such a screen, and what he wants to charge for it?



A Defective Cleanser.

In my bathroom there reposes a huge can—"tank" my wife calls it—of a special motorist's soap, such as the man who is his own chauffeur can never dispense with, would he keep his self-respect. It is, alas! too big to carry when on tour with a 3¼ h.p. four-seater, and I was ill-advised enough to purchase in a strange town a neat little canister of an unknown cleanser. Its verbose label informed me that this cleanser removed the natural oil from the skin, and that therefore it was well to follow up its use by smearing myself with a patent "skin cream," cheaply procurable from the patentees of the cleanser. Being rather sturdily than cosmetically minded, I ignored the kind advice, and the removal of the natural oil from my cuticle and epidermis was presently succeeded by the peeling off of both in great flakes. Therefore, with my never failing consideration. I advise all and sundry to be sure and follow up the cleanser with the skin cream, or avoid that cleanser as you would broken bottles.

Declutching v. Air Brake.

I suppose most of us rejoice in throttles which really close, though at one time traders thought it a great talking point that when their cars' throttles were "shut" they really passed sufficient gas to keep the engine "purring." The corollary of the throttle which really shuts is the habit of ignoring the clutch pedal in ordinary driving and slowing down for bends, short declivities, etc., by closing the throttle and running against engine compression. It is obvious that engine compression is pretty powerful, for if not it would be useless as a brake. If the throttle be shut, engine compression and suction cannot waste their tug on the inlet pipe; they exhaust that space into a vacuum almost as soon as the throttle is shut, and then seek fresh fields. Generally it is pretty true to say a good deal of this suction operates on the crank case and drags up lubricant past the rings into the combustion chamber, where it is apt to carbonise and presently reveal its maleficent presence by knocks, overheatings, pre-ignitions, and other appropriate symptoms. Consequently all our cars ought to have what comparatively few cheap cars at present possess, a "swish throttle," which is no sooner closed than it opens up a by-pass into the air and gives the engine cold air to suck at and compress when it is braking, instead of working on a noisome mixture of sprayed lubricant, tepid vacua, and crank case vapours. 'Tis a small refinement, but it makes for efficiency, and cannot cause any trouble. Luckily a little ingenuity can add this convenience to most modern carburetters.

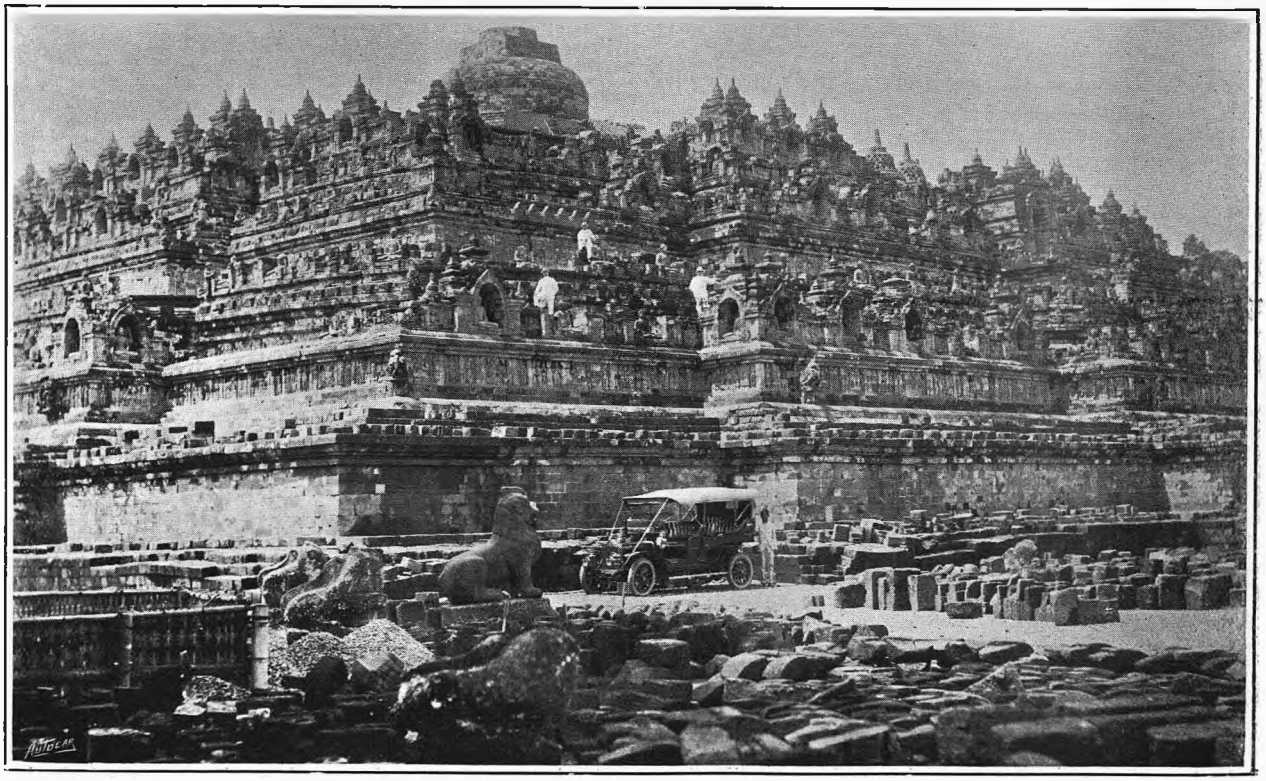
Winter Lubrication.

At the last Olympia Show I heard an eminent engineer asserting that the thermo-syphon systems then seen for the first time on many small cars would be a failure. He did not give his reasons for the assertion, but I fancied he was considering the high rate of revolutions at which small engines are normally run, and the generous throttle opening on which most of their work is done. I had occasion during last summer to sample three small thermo-syphon cars. Two of them I tested in the few hot days of the midsummer season in very hilly country, and neither car evinced the slightest inclination to steam. The third sample is my own car, and I found a distinct difficulty in getting its engine warm enough for efficiency when the first cold snap set in. In fact, it was not till I had removed the fan and used a much thinner lubricant than the normal that I got the engine to turn over satisfactorily when frost was in the air. In summer I use a fan and the thickest "air-cooled" oil I can get. But now, with the fan removed and thin water-cooled oil in the crank case, I can, in the course of a run, bring the car up a hill like Sunrising without a curl of steam. These three experiences justify the assertion that the thermo-syphon cooling system is as efficient on small cars as it is on large ones, and I recommend small car buyers at Olympia to avoid the complication and annoyance inseparable from a forced water circulation. Even with the thermo cooling a thin lubricant will be found desirable during winter, especially in the interests of easy starting up.

Motoring in Java.

IT is not for everybody to explore the far distant regions of Java, still less to investigate those remote territories in a six-cylinder Standard car. Such was the luck, however, that came the way of Mr. C. Wearne, of Singapore, whose experiences and photographs we have received, and some of which we publish. The journey commenced from Batavia, and the villages subsequently passed through were remarkable for their weird nomenclature. Such places as Tamboen, Tjikarang, and Gedonggede were on the route, not to mention Tjiboengoer, and other such difficult names. After leaving Garoengsang the road began to undulate, and after Bandong a formidable hill had to be encountered. The travellers knew that the hilli country of Java had been reached. Here an exciting incident occurred. A buggy drawn by two ponies came into sight just as a sharp turn had been negotiated. The ponies on sighting the car began executing war dances, but, fortunately, there was no great danger, although the syce, or native coachman, had not the remotest idea of what he was doing. The car was at once stopped, and the driver's companion rushed to the ponies' heads; but too late, for the outspanning pony reared up and fell back on the shafts, and the buggy was turned over on its side. The bewildered syce, however, beat a hasty retreat to safer quarters, and the motorists were left to unharness and extricate the buggy from the ruins. The damage amounted to a broken buggy shaft and a skinned knee to one of the ponies.

After this adventure the motorists proceeded on their way through a plantation, the road being of a rich chocolate colour, and in front were the formidable-looking mountains Tangkoeban Prahoe and Boerangran. For-



The remains of a Javanese temple, and a typical Javanese road above.

tunately, the road skirted these prominences, which were very awe-inspiring. Swampy ground, such as would have delighted the sportsman in search of snipe, appeared after the crater of the volcanic Tangkoeban Pahoe had been passed. Gradually the road began to get worse here, and far from ideal for motoring. Cheribon, a seaport town, was reached, and the road lay between the Tjiremai Mountain (9,950 feet above the sea) and sugar cane and paddy fields.

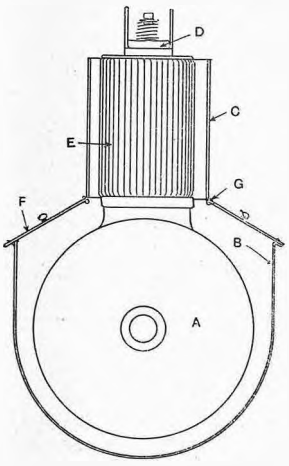
Soon after the trip nearly ended for good. At the bottom of a hill a bridge across a stream had been carried away and a temporary one erected, to cross which a right angle turn was necessary, and it was only the excellence of the acetylene lamps that saved the car from a 20ft. drop. During the trip varied country and scenery were passed through, and amongst the many interesting things seen was the temple depicted on the previous page.

The Franklin Air-cooling System.

A Severe Test.

WE are indebted to Mr. Ernest H. Arnott for the following description of the latest Franklin system of air-cooling, which hails from America. Mr. Arnott has personally tested an 18 h.p. four-cylinder model and a 42 h.p. six-cylinder model very severely, and writes that the system of cooling seems perfect, though we think a trial of longer duration is wanted to form a definite conclusion.

Briefly, the idea is a pipe round a cylinder (having a conical dome and concentric valves in the centre), with radiating flanges cast vertically. The undershield fits close up to the flywheel, which contains a very powerful Sirocco fan throwing 6,000 cubic feet of air at 1,800 revolutions. The front of the undershield is closed up tightly. A tube or pipe fits closely round each cylinder, open at the top and fitting at the bottom on to a plate as roughly sketched below (with inspection doors running full length). The effect is that in conjunction with the undershield this plate forms a chamber to which the pipes round the cylinders can conduct air. When the engine rotates the flywheel fan causes a vacuum in the chamber and a resultant rapid flow of air down the pipes and through the flanges of the cylinders, thus keeping them cool.



A diagram of the Franklin air-cooling arrangement.

A, engine crank case
B, air-tight casing
C, casing enveloping cylinders
D, concentric valves
E, vertical flanges on cylinders
F doors hinged at G

A powerful suction fan is in communication with the bottom of the pipe, and thereby causes a draught down the pipe. Franklin's pay $25 per car royalty on the Sirocco fan construction of their flywheel. Their adaptation of the principle makes their carburetter and other fittings very inaccessible, but this is no fault of the principle itself, which certainly, as far as can be judged from the description, seems effective and simple.

In regard to the test referred to, there is about

The Franklin air-cooling system. The six-cylinder Franklin on a severe test near Spokane, Washington, U.S.A.

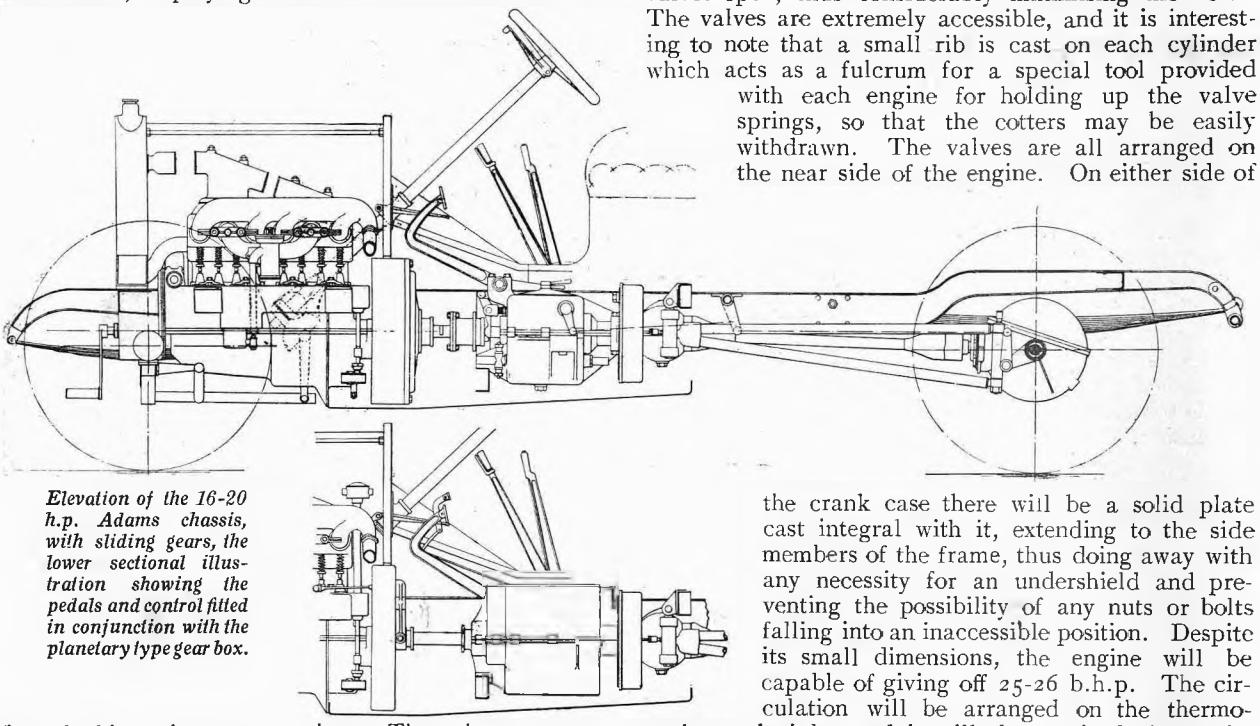
fifteen miles from here (Spokane, Washington), a narrow, loose, and dangerously steep climb to an old granite quarry, and the road is now disused. The state of the road and the steepness thereof can be judged from the fact that the first attempt failed through the wheels not being able to get a grip, and a return to town was made in order to get chains for the wheels. The two miles were then covered on low gear all the way with the throttle wide open, and at the top the engine was perfectly normal. The object of the test was to see if under any circumstances the engine could be made unduly hot. About seventy miles were covered, including the hill-climb. Mr. Arnott says he does not believe it possible to overheat the engine, and says he does not see why on this principle Franklin cannot build engines with 8in. cylinders if he wishes, and keep them cool too. The Franklin engine has an auxiliary exhaust port (and valve) at the bottom of the expansion stroke, and out of this about seventy per cent. of the exhaust gas escapes.

We are informed that the bridge on the road between Maidstone and Harrietsham has collapsed, but that a temporary bridge has been constructed sufficiently to carry motor traffic until the damage is repaired.

The New 16 h.p. Adams Cars.

Sliding or Planetary Type of Gearing.

FOR 1910 the Adams Manufacturing Co. will confine their attention to two standard types. The first will be the well-known 10 h.p. single-cylinder, horizontal engine, with three speeds forward and reverse, employing as before the well-known Adams inter-locking planetary gearing. The other type, an interesting model, which from its drawings and specification shows promise of being a really successful vehicle, will be a 16 h.p. four-cylinder, 85 × 120 mm. bore and stroke (17.9 h.p. R.A.C. rating).

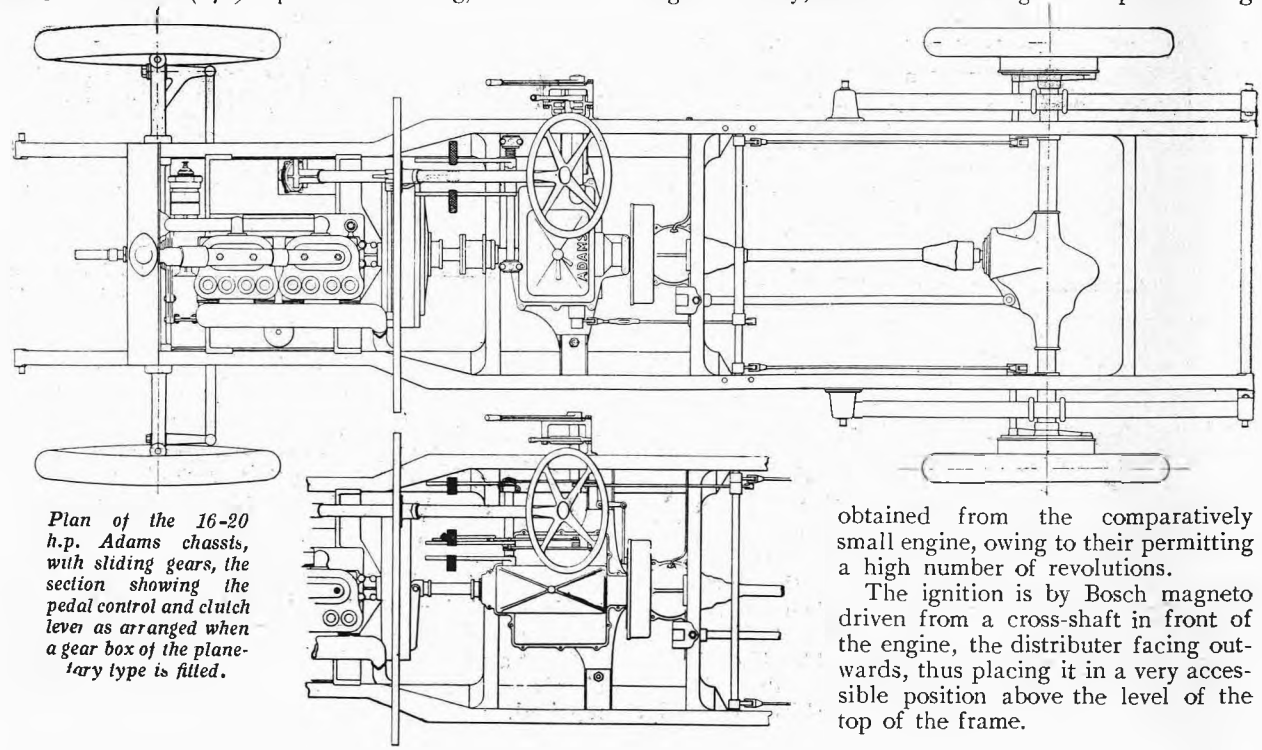


Elevation of the 16-20 h.p. Adams chassis, with sliding gears, the lower sectional illustration showing the pedals and control fitted in conjunction with the planetary type gear box.

The engine will have four cylinders, which are off-set in relation to the crankshaft, as are also the cams relative to the valve push rods, which reduce side pressure on the guides at the moment the valves open, thus considerably minimising the noise. The valves are extremely accessible, and it is interesting to note that a small rib is cast on each cylinder which acts as a fulcrum for a special tool provided with each engine for holding up the valve springs, so that the cotters may be easily withdrawn. The valves are all arranged on the near side of the engine. On either side of the crank case there will be a solid plate cast integral with it, extending to the side members of the frame, thus doing away with any necessity for an undershield and preventing the possibility of any nuts or bolts falling into an inaccessible position. Despite its small dimensions, the engine will be capable of giving off 25-26 b.h.p. The circulation will be arranged on the thermo-syphon principle, and it will be noticed from the drawings that the delivery pipes are of ample dimensions, as are also the water spaces.

The extremely large valves should make towards a high efficiency, and allow of a large horse-power being obtained from the comparatively small engine, owing to their permitting a high number of revolutions.

The ignition is by Bosch magneto driven from a cross-shaft in front of the engine, the distributer facing outwards, thus placing it in a very accessible position above the level of the top of the frame.



Plan of the 16-20 h.p. Adams chassis, with sliding gears, the section showing the pedal control and clutch lever as arranged when a gear box of the planetary type is fitted.

The lubrication is effected by means of a positively driven gear pump, continually circulating the oil from the reservoir under the engine to all the bearings. The pump is driven by spiral gears off the camshaft at the rear of the engine, and it maintains a constant level of

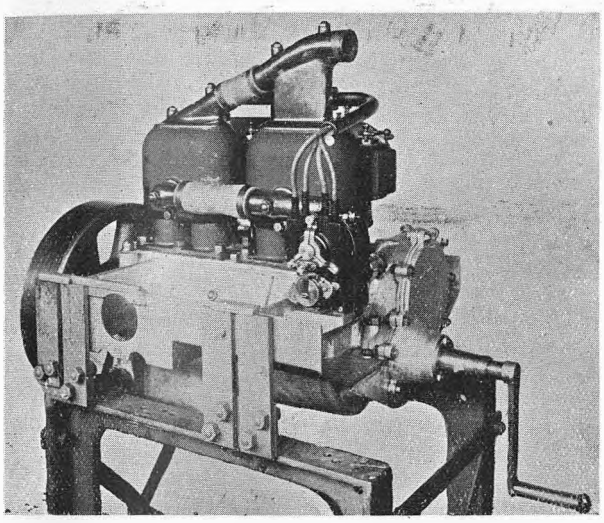


Fig. 3.—The engine of the 16 h.p. Adams car. The manner in which the aluminium base chamber is cast to afford an undershield is shown. The accessibility of the magneto contact adjustment is evident.

oil in four troughs placed under each connecting rod, the latter being provided with a small scoop for picking up the oil. The oil pipes are cast or drilled in the crank case, with the exception of one oil pipe to the indicator on the dashboard and one short return pipe back to the engine.

A large inspection door on the off side of the engine enables the level of the oil in the reservoir to be seen at a glance. A large oil strainer, 50 mm. in diameter and 200 mm. in length, is provided, through which the oil has to pass on its way to the pump, and by the removal of two nuts it can be easily removed for cleaning purposes. It is interesting to note that the timing gears are also lubricated from the oil pump.

The carburetter, which has been designed and is manufactured by the Adams Company, delivers the gas in the form of a very strong mixture through a narrow pipe to the large mixing chamber close to the inlet parts, and at the top of which there is an automatic air valve.

The clutch is of the leather to metal type, the inner member of which runs on ball bearings, and is entirely self-centred, there being two universal pot joints of large diameter between it and the gear box. We now come to the gear box, and in this we find one of the most interesting points concerning the 16 h.p. Adams car. Either a gear box with the sliding type gears or the well-known Adams type of interlocking planetary gearing can be fitted at option of purchasers. The former has four speeds forward, with direct drive on top, and gate change. A special removable door is fitted to enable easy inspection of the gears.

In the sections showing the planetary type gear box, it will be seen that adjacent to the brake lever and the gear quadrant is a side lever, which when pushed forward operates the friction clutch, and when drawn rearwards the reverse. The right-hand pedal operates the foot brake. The central pedal when the lower portion is operated engages the first speed. To engage the second speed the small pedal on the top is pushed forward, while pressure on the innermost pedal of the three disengages the second and engages the first speed. At any moment when it is desired to get into neutral the side lever may be drawn slightly forward. This in no way interferes with the gears in operation. From the gear box to the back axle power is transmitted by means of a propeller-shaft provided with universal joints of somewhat novel design, inasmuch as the joint cover is stationary, the object of this being to allow the joint itself to revolve in an oil bath, whereas if the cover and the joint revolve together the centrifugal action tends to throw the oil and grease out of the bearings. In this case, with the aid of special washers, no oil can possibly exude.

It will be noticed that, whether the planetary or sliding type of gear box is used, an expanding internal foot brake is fitted, the shoes of which are interchangeable with those in the rear wheels. Referring to the drawings, it will also be seen that an oil pipe runs from the stationary universal joint cover to the off side of the frame, whence oil can be introduced into the latter in a particularly easy manner. The rear axle is of ample strength and of particularly clean design, the axle casing not being split across the centre, yet at the same time a large inspection door is fitted. The rear axle bearings are of the patent conical roller type which the Adams Company have so successfully used during the last four years. The torque is taken by a separate torque rod, the forward end of which is mounted in the most approved manner, the rearward ends being fixed to the axles by means of a long vertical pin free to work in the axle casing. A lubricator to this is provided at the top. The front axle is of H section, and ball bearings are fitted not only to the road wheels, but also to the pivots. In accordance with modern practice, the tie rod is behind the front axle. Altogether the design of the 16 h.p. Adams impresses us in a most favourable manner.

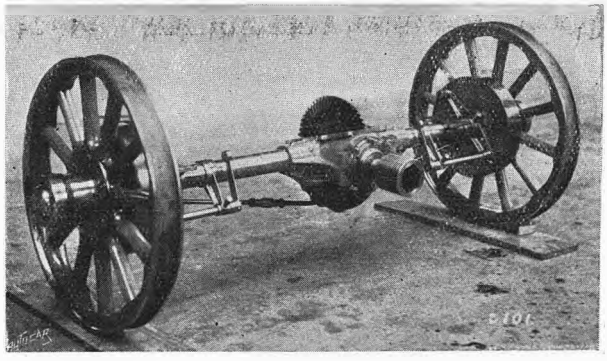


Fig. 4.—The back axle of the 16 h.p. Adams car. The design of the differential casing is interesting, illustrating a method of securing strength by making the weight-carrying portion in one piece and yet securing accessibility for the bevel wheel and differential.

Dr. Hopkins Walters, of Reading, a well-known pioneer motorist and an active member of the Associate Committee of the R.A.C., has been elected on the local council. The *Berkshire Chronicle* says that he was well aided in his polling by the motor cars of his friends. He is a member of "The Autocar League."

On the Track. By H. C. Lafone.

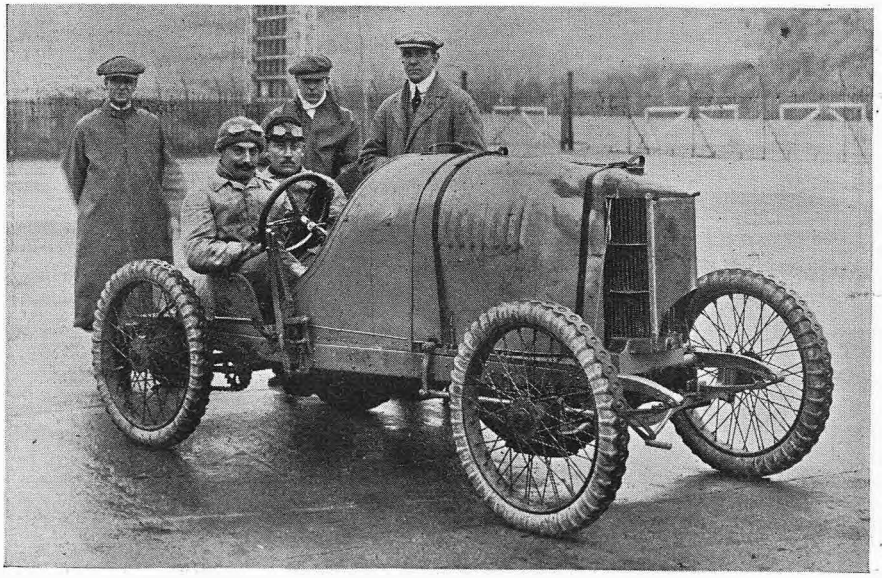
ON Wednesday last week some amazing speeds were put up by the little 4in. single-cylinder Lion-Peugeot voiturette under the auspices of Charles Jarrott, who organised a series of record attempts for MM. Les Fils des Peugeot Frères. The little racer had a single-cylinder engine with bore 100 mm. and stroke 250 mm. There were three exhaust valves and three inlet valves, and the noise of the exhaust resembled that of a quick-firing gun. Quite a number of enthusiasts turned up to see the fun, and most of them went away in the evening simply astounded at what they had witnessed. The French driver Boillot was in charge of the Lion-Peugeot. He appeared to have a good deal "up his sleeve" most of the time, and his face was always wreathed in smiles whenever his friends signalled him to increase the pace. It was just what he wanted to do, and he did it from time to time in a manner which made us gasp. The car was out for the voiturette records over the flying half-mile, the fifty miles, one hundred miles, and one hour, the previous figures having been put up last year by another French machine. To cut the matter short, there was never a doubt as to what would be the result. The Lion-Peugeot had the records in hand from the start, and at the finish there was not the least sign of trouble—in fact, the last lap was covered at a faster speed than were any of those which preceded it. I give the old records and the new for purposes of comparison:

Old Records.	Lion-Peugeot Record.
FLYING HALF-MILE.	
27.07s. = 66.48 m.p.h.	24.8s. = 72 m.p.h.
50 MILES.	
45m. 54.2s.	43m. 35.9s.
100 MILES.	
91m. 53.4s.	87m. 48.5s.
DISTANCE COVERED IN ONE HOUR.	
65 miles 755 yards	68 miles 688 yards

On Friday the 60 h.p. six-cylinder Thames car completed a three hundred miles speed trial, the results of which were amazing, especially as the car was in no sense of the word a racing machine. In fact, the main points in which the car differed from the standard Thames touring models were the provision of a 7in., as against the usual 5in., stroke and a specially high gear. Otherwise the car was absolutely standard. C. M. Smith, who drove the Thames, had frequently, to my certain knowledge, covered laps at over one hundred miles per hour, but on the day of the trial he decided to drive as nearly as possible at 90 miles per hour throughout. That he succeeded in doing the whole journey at an average of 85.6 miles per hour, in spite of two stoppages for tyre replacements (one of which occupied almost six minutes), speaks well both for car and driver. Again I give the old and new records:

Old Records.	Thames Records.
50 MILES.	
35m. 7.36s. = 85.413 m.p.h.	32m. 50.99s. = 91.32 m.p.h.
100 MILES.	
1h. 10m. 20.31s.	1h. 6m. 53.49s.
150 MILES.	
1h. 46m. 6.17s.	1h. 44m. 30.16s.
200 MILES.	
No previous record granted	2h. 17m. 56.36s.
300 MILES.	
No previous record granted	3h. 30m. 17.54s.
DISTANCE COVERED IN ONE HOUR.	
85 miles 555 yards	89 miles 892 yards
DISTANCE COVERED IN TWO HOURS.	
169 miles 615 yards	173 miles 810 yards
DISTANCE COVERED IN THREE HOURS.	
207 miles 800 yards	261 miles 1,653 yards
AVERAGE SPEED FOR 300 MILES.	
69.15 m.p.h.	85.6 m.p.h.

It is rather interesting to note that Smith, after lowering the 100 miles record by nearly 3½m., only succeeded in beating the figures for 150 miles by 1¾m., the explanation being that a tyre tread stripped just after the hundredth mile, and a stop to change wheels had to be made.



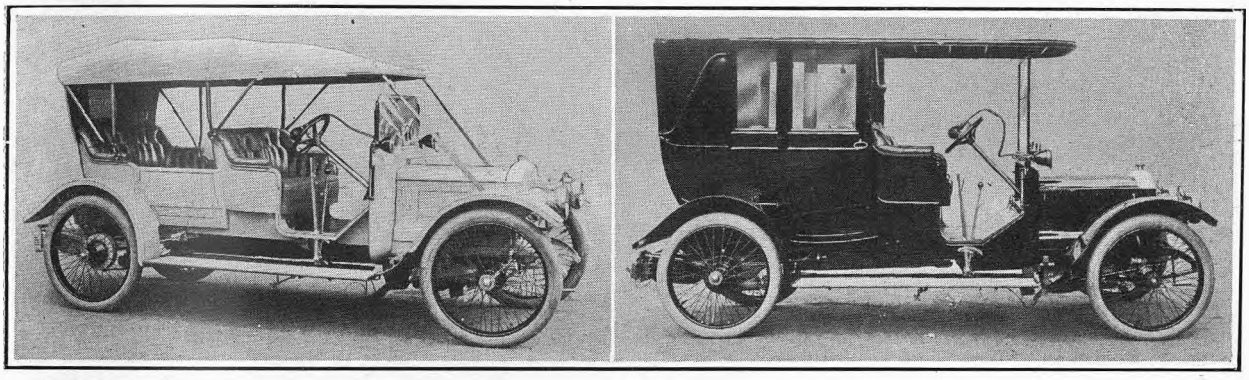
Boillot on the Lion Peugeot car with which he broke several records last week at Brooklands. Standing by the side of the car is Mr. Charles Jarrott, who arranged for the record breaking attempts.

On Monday last the 90 h.p. Benz, with the redoubtable Hémery at the wheel, went for the flying and standing half-mile, mile, and kilometre. Unfortunately, he did not care to go for the ten laps, as he seemed unable to keep his car steadily on the course at a speed of 120 miles an hour. Certainly we have never at Brooklands seen a car with such marvellous accelerating capabilities. It never appeared that the Benz was driven fast on approaching the measured distance, the pace always being cracked on just as the starting line was crossed. Hémery much preferred to drive the "wrong way" round the track, all his half-mile attempts being made in the reverse direction. However, he seemed quite incapable of negotiating the banks at top speed whichever way he drove. Had he

been able to drive "all out" Hémery would have wiped every speed record off the face of the earth. As it was he did so well that every record for the short distances, with the exception of the flying mile, fell to his attack. Here, again, a tabulated summary will best enable my readers to understand what occurred. The car's engine dimensions were, I believe, 185 by 200 mm. (four-cylinder).

Old Records.	Benz Records.
FLYING HALF-MILE.	
15.083s. = 119.34 m.p.h.	14.106s. = 127.605 m.p.h.
FLYING KILOMETRE.	
18.4s. (steam car)	17.741s. = approx. 126 m.p.h.
FLYING MILE.	
28.2s. (steam car)	31.057s. = approx. 116 m.p.h.
STANDING HALF-MILE.	
Not previously recorded	25.564s. = approx. 70.4 m.p.h.
STANDING KILOMETRE.	
32.6s.	31.321s. = approx. 71.4 m.p.h.
STANDING MILE.	
45.4s.	41.262s. = approx. 87 m.p.h.

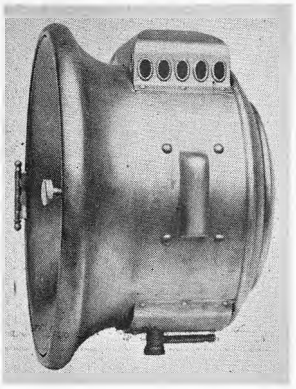
The flying mile record was not broken because while Hémery changed his sprockets the mile timing strip was removed, and darkness prevented its being replaced and another attempt made. All the Benz records were made on Palmer cord tyres, which stood up wonderfully well, and did not show any sign of overheating, notwithstanding the abnormally severe punishment they received.



Two of the new 15 h.p. Daimlers with slide valve engines and worm drive.

Seabrook-Solar Headlight and an Excellent Exhaust Horn.

The accompanying photograph illustrates the new Seabrook-Solar acetylene headlight, which is similar in construction and design to the lamp of this make which came so successfully through the R.A.C. headlight trials.



The Seabrook-Solar acetylene headlight.

There is no question that these Seabrook headlights give a very long range of light. That in the R.A.C. trials with a 7in. lens mirror had, according to the official report, a range of 187½ feet. The model we illustrate is used in conjunction with a separate generator, and has a 9in. lens mirror. The latter is of concave form, 2½in. deep, and is specially annealed to withstand great heat. The Seabrook Company's claim to have been successful in the manufacture of a deep concave lens which will not crack in fair use is borne out by the assertion that not one extra lens has been supplied during the whole of 1909.

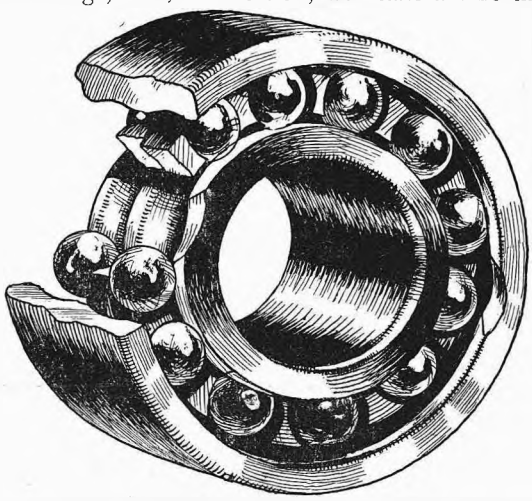
The width of the front "door" of the headlight shown in the photograph is 13in., the glass in the centre being 8in. in diameter, and surrounded by a plated reflector 2½in. wide.

These lamps have several features which commend them to us. One of these is in the fact that they are free from serious exterior projections, which are so annoying when cleaning is in process. The lugs for the lamp bracket, for instance, have closed tops, and the locking bolts are screwed from inside the lamp.

Another useful accessory emanating from the same firm is known as the Seabrook Auto-chime. For some time past we have been using one of these instruments fitted to our car. It is a most satisfactory form of exhaust horn, as a slight pressure on the pedal causes it to give a beautiful persuading *alto* note which is most useful in traffic, and which for some reason or other is invariably noticed by dogs, though no regard be paid to the ordinary horn. On the other hand, if one comes up behind what a friend of ours calls a deaf traction engine, full pressure on the pedal will release a stentorian roar such as a tug boat gives, and the driver of the traction engine, despite the fact that his machine is making a most deafening noise, hears it in an instant. Altogether it is a great convenience, and, properly used, never causes the least annoyance to anyone. It is also useful for testing the engine in the motor house; any misfiring is instantly detected, as the note, instead of being constant, becomes intermittent. Recently we were adjusting a carburetter for slow running, and found the horn quite useful, as the car was not provided with a cut-out, and we were doing the job single-handed, and could not go round to the back of the car to listen to the beat of the exhaust without leaving our delicate adjustments.

A Double Row Ball Journal Bearing.

The Tormo Manufacturing Co., of 67-68, Bunhill Row, E.C., are putting a double row ball bearing upon the market in the place of the existing single row bearing, for the purpose of allowing heavier loads to be carried without any alteration being necessary to either shaft or housing. It is claimed that these bearings will carry about 60% heavier load than the single row bearings, and, in addition, will take a side thrust



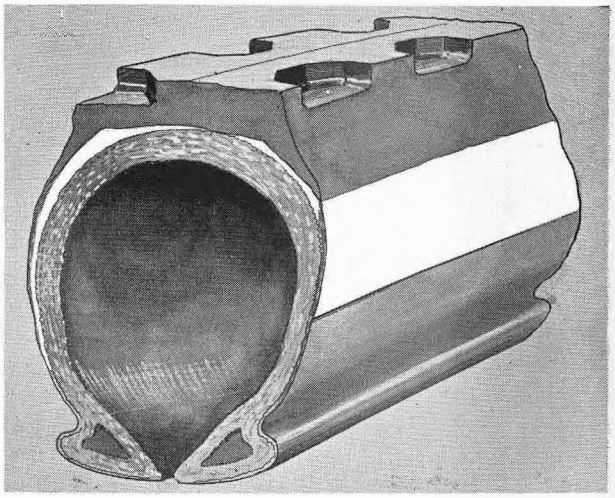
Sectional view of the F.S. ball race showing the double row of balls.

equal to about 20% of the journal load. The F. and S. ball bearings are guaranteed to be correct to $\frac{1}{1000}$ in. We learn with interest that several well-known English and Continental motor car manufacturers have already provided for this double row bearing in the 1910 models, and we think they are well advised. Any of our readers desirous of further information with regard to these bearings should write the above firm for a copy of the F.S. catalogue.

We are asked by the secretary of the Society of Auto Mechanic Drivers to announce that no meeting of the Society will be held during show week, and that members are requested to wear their badges at the exhibition. The secretary is Mr. G. T. Clarke, Rawlings' Garage, Halkin Street, S.W.

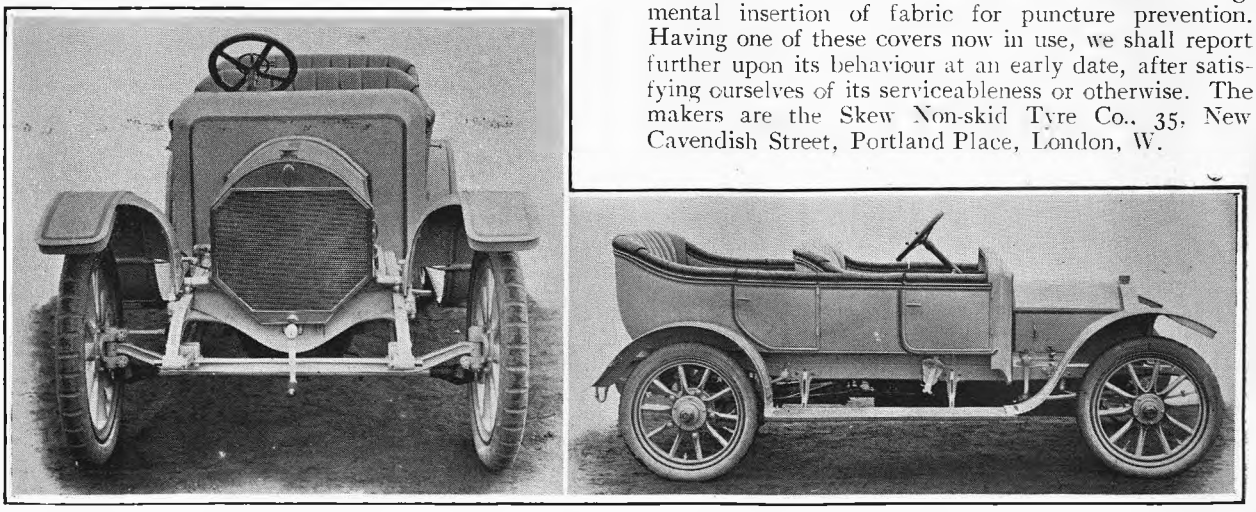
The Skew All-rubber Non-skid.

When such time arrives, as we fear it will arrive, when steel-studded tyres come under prohibition, motorists will turn to the best descriptions of rubber non-skids to preserve them from a failing of the modern motor car. At the same time there are large numbers of tyre users who even to-day look askance at steel-studded tyres, and prefer all-rubbers from the point of view of wear and cost. Now the grip of rubber non-skids upon greasy surfaces depends very largely upon the character of the tread, and the shape or position of the studs, grooves, or orifices formed thereon for the purpose of affording grip. In the Skew tyre, a sketch of which we present herewith, considerable



A cross section of the Skew tyre.

thought has been given to the conformation of the tread. While superficially broad and flat, its outer edges are cut out in a series of five-sided depressions, some 3/8in. deep, on both sides of the tread. The two rows of out-cuts break joint with each other, as shown in accompanying sketch. The resistance offered by these out-cuts to lateral movement of the tyre is obvious, and they should, and do, offer most stubborn resistance to side-slip. In addition, the covers are particularly well made, and have a most generous provision of rubber on the tread, with an additional segmental insertion of fabric for puncture prevention. Having one of these covers now in use, we shall report further upon its behaviour at an early date, after satisfying ourselves of its serviceableness or otherwise. The makers are the Skew Non-skid Tyre Co., 35, New Cavendish Street, Portland Place, London, W.



A smart Hewer body fitted to a B.S.A. chassis. This is a good example of a flush-sided body fitted to a short wheelbase chassis. The dashboard also affords adequate protection.

Correspondence.

EDITORIAL NOTICES.

No letters from members of the motor industry will be published when they deal with subjects which may be regarded as advertisements for the writers' or their business interests. At the same time as many of the most practical suggestions come from those engaged in the motor industry, their letters will be inserted when possible, though the names of the firms they represent may be expunged, and the initials of the writers substituted.

Letters of a personal nature will be withheld.

The Editor, although accepting no responsibility for the opinions expressed by correspondents, reserves the right to publish a portion of a letter, and to omit any part which he does not consider interesting or essential.

All communications under a *nom de plume* should be accompanied by the name and address of the writer, not necessarily for publication, but to assure the Editor as to good faith.

Enquirers who ask for the experiences of private owners with specified cars, parts, or accessories, are requested to enclose a stamped addressed envelope, so that replies which space will not permit us to publish may be forwarded to them. Circulars or letters from interested parties will not be forwarded.

HEROIC REMEDY FOR POLICE PERSECUTION.

[14925.]—May I beg the favour of a little space in your columns to make a suggestion by which motorists, owners, drivers, and those employed in the trade alike may rid themselves once for all of the persistent police persecution.

Until recently I had rather been of the opinion that, while there might have been some occasional hardships inflicted, there must have been some other reason for the trouble than that assigned by them. This view I supported by my own freedom from molestation of any kind over a period of eight years, although always on the road. I had a rude awakening the other day (to the joy of my friends), and I have now gone over bag and baggage to the majority. "A fellow feeling makes us wondrous kind."

It is of no use, however, to grumble and help to keep a body of men posted on the road to warn us; this only means setting public opinion against us, as it is presumed that our object is to break the law. What is required is to strike at the root cause of the persecution, viz., the desire of the local authorities to replenish their funds. While fat fines are paid fat fines will be imposed. Let us rather (whisper it softly) go to prison. It may seem an heroic remedy. It will involve much inconvenience, but it will soon bring to an end the present intolerable situation, and we should be unworthy of the name of Britons if we showed ourselves incapable of making sacrifices for the common weal.

The British taxpayer would soon get tired of paying for the keep of a large number of motorists, and he would then begin to *think*, which would be our salvation.

I suggest that we form ourselves into a society, the members of which, paid drivers and owners alike, would pledge themselves to go to prison for any offence under the Motor Car Act instead of paying a fine. The drivers would, of course, be guaranteed wages during such holidays and employment afterwards. Every owner would pledge himself to employ only drivers who had joined the society. In any case anti-motorists could not say that it would make us more inconsiderate in the use of the road. A. W. BURCH.

THE AMENITIES OF THE COUNTRY SIDE.

[14926.]—I note that occasionally, in the midst of your correspondence urging the abolition of police traps, and the destruction of all that is beautiful on our country roads, someone writes pleading moderation and sanity. Traps would be unknown if scorching and reckless driving were less frequent. There are black sheep in every district of England, and their disregard for other users of the highway makes the trap the only possible, but not very effective, means of enforcing the law. Unfortunately, the innocent suffer with the guilty, perhaps more frequently, as they may not belong to associations which render violation of the law possible.

Probably, if the police were instructed not to prosecute in the case of speeds not exceeding thirty miles an hour in spots free from danger, and all intimation of traps by the motoring associations absolutely prohibited, we should get on better.

I wish most emphatically to protest against the suggestions in your issue of the 23rd ult. for cutting down trees or hedges at corners, the widening of lanes, or any other work affecting the amenities of the country, and fostering recklessness. The beauty of English lanes exists in their high banks, overshadowing vegetation, and luxuriant hedgerows. Already in many parts, notably in Dorset, the hedges are cut down, leaving the roads bare and dusty in summer, bleak and ugly in winter. No one who has observed the English counties during the last few years can fail to perceive the lamentable results of the ever-growing use of motors. Delightful agents as they are for seeing the country's charms they bring with them the virus for the extinction of the beauty that is one of our national assets.

Hideous black roads, advertisement boards and signs, wayside gardens choked with dust, are familiar evidence, and one would wish that the Motor Union and other clubs would confine their funds and influence to tracking down the inconsiderate motorist and notifying and assisting the authorities on the surface condition of our main roads. One cannot reiterate too frequently that people who drive eighteen or twenty miles an hour in narrow lanes with many corners (and I have often witnessed this) will not always have the chances in their favour. If suddenly confronted with sheep or a team of horses the inevitable accident occurs, and recommendation to widen and cut down follows. I myself, in common with others, frequently come upon unexpected obstacles when driving in lanes, and have seen how essential it is to habitually assume that there is always something round the corner.

EUSTACE CALLAND.

ROADS AND THE DEVELOPMENT FUND.

[14927.]—Would it not be possible to extend the system used by the Board of Education of paying grants to schools according to their efficiency to the maintenance of roads?

For instance, in many counties road sweepings and earth are systematically used as binding. To such counties one would say, "So long as you continue to use such obsolete dust-and-mud making methods you shall not have a penny in the way of grants from the fund."

Judging from the keenness shown in getting the school grants the effect would be instantaneous. The authorities would make their roads with brains instead of mud.

L. G. HAMILTON WILLIAMS.

COUNTRY HOTELS AND GARAGE ACCOMMODATION.

[14928.]—A great boon to motorists will be effected if the admirable suggestions of "Manchester" [14799] and "N. Devon" [14823] can be realised by the compilation of a list of comfortable hotels and well appointed garages (specifying where there are private "lock-ups") with an approximate estimate of the charges made at these establishments.

The miserable accommodation and exorbitant charges made at some of the wretched hotels which are recommended by the various motor clubs considerably mar the attractions of motoring, and the knowledge that one's car is, in many instances, practically unprotected from the weather, thieves, and mischievous boys, is the last straw which keeps many motorists on the beaten track and deprives them of the pleasure of visiting other places of interest which would otherwise be included in the itinerary of one's tour.

I am sure that there would be no difficulty whatever in obtaining information from members of "The Autocar League" with regard to the hotels and garages in the neighbourhoods in which they reside, and a most valuable touring book could thus be compiled which would be of the greatest assistance to motorists.

I would suggest that one or more first and second-class hotels in each large town should be mentioned and classified whenever possible, that the charges at these hotels should be specified, and that the garage and lock-up accommodation should be noted. When no first or second-class hotel can be recommended in any town or village it should be so stated, and the nearest place where one can stay in comfort should be added.

In order that the list may be absolutely reliable, it would be necessary to adhere strictly to the classification standard and freely reject anything below second-class, so that when a motorist sees that there is second-class hotel and garage accommodation he can be certain to find a clean, well-managed hotel, with reasonably large and well-ventilated bedrooms, and be charged a reasonable price for the comforts he receives.

This would mean that at least one-half of the hotels recommended by the touring clubs would be eliminated from the list, and quite a number of first-class inns in out of the way places would need to be added.

The advantage gained by motorists would be considerable. They would arrange their tours so that they could always rely on being comfortably housed and garaged each night, and it would induce hotel proprietors to improve their

Correspondence.

hotels and garages, and moderate their charges, in order to get on to "The Autocar League" hotel list.

I do not think that all this information should be given to members of the League, but that a charge to cover expenses and show a profit should be made for the book, which would command a large sale and be a remunerative venture.

I trust that this suggestion will meet with your approbation, and that, by the aid of the members of the League, this valuable book may be obtainable before the beginning of the next touring season.

P. J. ATWOOD BEAVER.

A FOREIGN CAR.

[14929.]—The following experiences may be the means of saving some of your readers a great deal of expense and very much annoyance, especially as there are sure to be a number of practically unknown cars by Continental makers shown at Olympia for the first time. Last year a friend of mine and myself decided each to invest in a small two-cylinder car (not a low-priced one by the way) made by a French firm and shown by them at the Paris Show. We bought and paid for two of them. When the cars were delivered there were a number of small parts missing. Some of these were eventually supplied. After about six weeks my friend's car developed a strange noise in the back axle, and it was taken to pieces, when it was found that the teeth of the small bevel pinion were practically like the blade of a knife. This was sent to the makers, who said there had been a mistake, it had not been hardened, but they were sending a new one in its place. When this came it was found to be useless—being of a different type and pitch. The result was the complete axle had to be returned to the factory, and, of course, carriage and packing paid beforehand—the makers asked for this to be done. After some six weeks it came back and was fitted again into the chassis. Some three weeks after this the gear box gave a lot of trouble and became quite useless—so much so that the manufacturers said they would have to fit a new gearbox and clutch, and for this would require the chassis at the works. They promised to return it in a week or so. The chassis was duly sent and a bill of about £11 paid for carriage and customs dues. After waiting about two months the chassis was returned in a dirty rusty state with no less than £35 to be paid before my friend could get possession. This had to be done before the makers would allow it to be handed over. The chassis was then fixed up again, and after running about two months with continual small repairs the pin by which the half-time wheel was fixed to engine shaft got loose and smashed up both wheels entirely. A new pair was ordered from the manufactory, and after waiting three or four weeks a pair was sent which was almost useless—quite a different fitting. However, they were altered and fitted up, and now my friend is wanting to sell the car for less than half the cost, and I pity the man who gets it. The one that I purchased gave exactly the same trouble with the gearbox and back axle, and had to be returned to the makers a few weeks after it was delivered, and had not done more than fifty miles, but they agreed to reduce the charge to £10, as in this case it went wrong so quickly. Besides journeys to the factory, and endless expense, carriage, etc., we both have lost a year's motoring, have had to sell the cars at half their cost, and our only redress is to sue the makers in the French Courts. Possibly this lesson, although bought so very dearly, will save someone else from getting in the hands of such unscrupulous people, and I am sure there are now plenty of respectable English firms giving as good, if not better, value for money.

BADLY BITTEN.

EAST SUSSEX.

[14930.]—You cannot be aware of how motorists are treated in East Sussex, or you would certainly have it black-listed immediately. I have lived and motored in this part of Sussex for over eight years, and therefore know.

Only a few months ago the Chief Constable of Lewes applied for ten extra policemen for the sole purpose of trapping motorists, but I am glad to say he could not find ten men willing to do his un-English work.

In East Sussex we have also the notoriously prejudiced, unfair, and anti-motoring bench of Haywards Heath, whose preposterous prosecutions and enormous fines have caused a question to be asked in the House of Commons as to what has become of the money so collected.

Again, the whole county is seething with ten mile limit villages, and police traps of all kinds, which are practically always placed on deserted and straight roads, where there is no suspicion of danger to anyone.

I feel sure that if a law were passed by which all fines gleaned in this scandalous manner, and inflicted by these so-called justices of the peace, who sit on the bench, and who are supposed to dispense justice in an unprejudiced and fair manner, were to go to a central fund for, say, the upkeep or improvement of roads, one would find that quite half the police traps throughout the United Kingdom would be discontinued, as they would no longer be providing an easy and immediate source of income and profit to the counties or districts in which these outrageous proceedings exist.

Could not you, through "The Autocar League," get up a petition to the Government to this effect?

I also notice that "M. P. T." in his letter [14907] says that if motorists who live in "black" counties take your advice and take out all their licences in "clean" ones, the rates and taxes of the unclean ones will no doubt have to be raised so as to meet the deficit caused by all this money going out of their county. I agree with your correspondent that in all probability he is right, and go further in saying that I hope he is right, as in all counties there are far more ratepayers who do not own motor cars than those who do, and it will hit the former very hard, and so hard, I trust, that they will see the advisability of making their presence felt to such effect that police traps and persecution towards motorists will be stopped, and that their policemen in future will not be allowed to pass the greater part of the week in ditches or behind hedges, for the sole object of catching motorists, and thereby getting promotion, but will have to attend to the ordinary duties of a police constable, or at least to the ordinary duties that a police constable had to attend to before the absolutely un-English, outrageous, and despicable system of so-called "police controls" came into existence.

SOMERSET GOUGH-CALTHORPE.

TYRE MILEAGE.

[14931.]—It might interest Mr. Holcroft [14915] and your other readers to know that at least one car can better his tyre record.

I have a Humber in my possession which I have driven 16,950 miles since April, 1907. It is four-cylindered, 95 × 114 mm.; weight, 24 cwts. (unladen); tyres, 820 × 120 mm.

The following are my best tyre performances:

Cover.	Make.	Wheel.	Dist'nce	Remarks.
5	Dunlop smooth	Near front	4763.4	
		Off back	3162.7	
			7926.1	Canvas burst.
8	Dunlop groove	Near back	4794.0	
		Off back	640.2	
			5434.2	Canvas burst.
9	Dunlop groove	Near front	8994.5	Never been touched except for pumping, still in good condition.
10	Dunlop groove	Off front	9310.6	Now transferred to Stepney wheel.
11	Dunlop groove	Off back	6625.1	Canvas burst.
12	Dunlop groove	Near front	2100.3	
		Near back	4365.6	
		Off front	1024.2	
			7490.1	Still running on off front wheel.

The tyres 9, 10, 11, and 12 were all purchased during 1908, and have behaved magnificently. Since the autumn of 1907 I have had scarcely any punctures, and only three bursts due to worn-out covers. For the last two years I have kept tyre pressure down to 60 lbs. back and front, testing with S. and M. gauge every week, and I think this has had a great bearing on tyre performance.

ALAN W. F. SMITH.

UNDERSHIELDS.

[14932.]—In your issue of the 30th October, page 661, "Grumbler" complains that he has never seen an undershield that is quickly and easily detachable and replaceable. He can never, therefore, have had the pleasure of owning or inspecting a Grégoire chassis. This firm fits the undershield fastened to the car by spring catches, precisely the same in action as the Bonnet Catch. So far as I can learn, no patents cover this idea, and it is one which could be

easily and very cheaply copied and fitted to almost any car, using a fairly plain undershield. Any tinsmith could do the work with ample satisfaction.

I recommend "Grumbler" to inspect one of these excellent little cars, and to steal this undershield design and have it adapted for his own car. T. T.

MOTORISTS AND INLAND REVENUE LICENCES.

[14933.]—"M. P. T." [letter 14907] is right so far as he goes in saying that motorists in refusing to pay their motor taxes in their own unclean counties run the risk of having their county rates increased, but I do not think he goes quite far enough.

In the first place, an unclean county like Surrey (to which I also belong) collects, say, £1,000 in motor taxes and another £1,000 in motor fines. It is not reasonable that Surrey should get its tax twice over, once legitimately and again through prosecution. Let them take the fines if they are set on having them, but for goodness sake do not let us force our taxes on them as well.

Again, even if the rates do go up, they will be borne by all the ratepayers in the county including the motorphobes (who will not be pleased), and it is surely worth the motorist's while to put his hand in his pocket to a small extent in such a good cause.

This scheme of payment in clean counties, which has my hearty support, will only be effective if carried out on a large scale, and I would recommend everyone who is putting it into practice to write to the clerk or postmaster in the clean county, and also to the clerk of his own county council stating the reasons for his action.

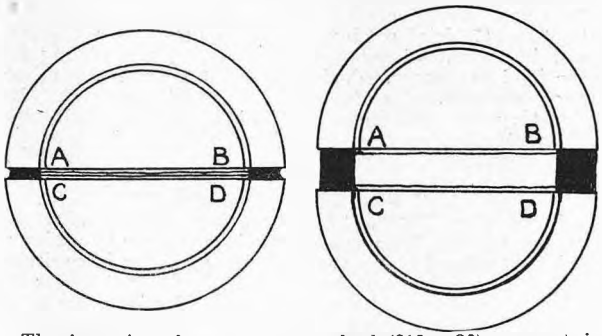
In Surrey in particular I anticipate the clerk will be so deluged with these letters that it is sure to make a stir, and once the subject is properly ventilated among the fossils who are set over us there will probably be some improvement. At present Surrey is a disgrace to any fair-minded community. LEAGUER.

[14934.]—In reply to letter 14907, signed "M. P. T.," I quite agree that if all Surrey motorists were to take out their licences for cars, game, dogs, etc., in a clean county, the Surrey County income would considerably decrease, and possibly result in the rates being eventually raised. But the point is this. Any increase in the rates would have to be paid by *all* the ratepayers in Surrey, and not by motorists only. Should such an event occur, it would possibly have the effect of convincing the general body of ratepayers in that county that it was distinctly not worth their while to permit the authorities to persecute careful and considerate motorists. LUTTRELL BRUCE BLAKE.

TYRE PROBLEMS.

[14935.]—On the 13th of October I read a paper before the Royal Automobile Club on "Tyre Problems," and endeavoured, among other things, to show, chiefly from theoretical considerations, that a motor or bicycle wheel receives its support from above. It is not carried by the pressure of air below the rim of the wheel, but by the lifting pull of the tyre walls above the rim. The paper and the discussion which followed it were published in the *Royal Automobile Club Journal* for October 14th and 21st.

Since then I have performed the following experiment, which conclusively proves the views I then advanced, and which I had already presented to *The Autocar* in my letters last year [Nos. 13410, 13523, and 13666].



The iron rim of a motor car wheel (810 × 90) was cut in halves, and the free ends of each half joined by a stiff flat plate of iron equal in length to the diameter of the rim. By this means two separate and rigid half rims, or half wheels were obtained. These were then tied together to again construct a complete hoop or wheel. An old cover was now cut in halves, and the half covers mounted on the half rims. A complete air tube was also placed on the rim hoop, and enclosed in the usual way by the two half covers.

The whole was then stood on the ground as shown in the first figure, and air was slowly pumped into the air tube.

When the air pressure reached to about four or five pounds per square inch the upper half wheel began to rise, and the plate A B to move away from C D.

This at least shows how the upper half of a motor wheel (as distinct from the tyre) is lifted; it is not pushed up, but pulled up by the tyre. By the time the air pressure in the air tube reached fifteen pounds per square inch the plate A B was an inch and a half above C D, and the upper half wheel had correspondingly risen, as shown in the second figure.

About an inch and a half of the rubber air tube was exposed on each side, bridging the gaps between the two half covers, and this exposed tube was strapped round at one or two points to prevent its bursting.

At this stage it was found that the upper half wheel was pulling upwards with a force of over a hundred pounds; for a Salters spring balance hooked on to plate A B and pulled down registered a pull of over a hundred pounds before it could appreciably depress it. Clearly therefore if the under half wheel had been tied to the upper, or completed it, it would have been pulled up with the same force which pulled up the spring balance.

If the tyre were pumped to seventy pounds per square inch instead of fifteen, which was impossible in the experiment, the upper half wheel would have pulled up with a force of several hundred pounds.

The theory of this experiment I have given with quantitative values in the paper referred to.

I have further pointed out that the portion of a tyre least subjected to strain is that immediately between the wheel and the ground. This ought to require no proof, as it is obvious theoretically, but for those who think with their thumbs it is only necessary to take a piece of tape, and after jacking up a wheel, measure from one rim margin round the tread to the rim margin immediately opposite—the measurement to be taken round the lowest possible position of the tyre. Now lower the wheel on to the ground, still holding the tape as before. It will be found to have become slack, being now at least a quarter of an inch too long. But what is happening to the tape is happening to the canvas fabric beneath it, whose tension determines the variation in the tape measurement. Putting the car on the ground has therefore eased the fabric and the tension within it, so that the portion of a tyre least strained and least likely to burst is that immediately between the wheel and the ground.

D. W. SAMWAYS.

R.A.C. ASSOCIATES.

[14936.]—I have several times noticed in letters addressed to your admirable journal such remarks as "having to slink in by the back door of the R.A.C., as I am only an associate."

These remarks appear to me uncalled for, incorrect, and in extremely bad taste. Most things in this world are practically a matter of money, and the self-styled "slinkers" have only to get themselves proposed and seconded by members, and to sign a cheque, when they will be able to prance up the front steps of the club with the best of us.

I imagine most of us became members because it suited us to do so. It certainly suited my convenience or I should have become an associate and saved the difference between one guinea and twenty-one guineas, which is the difference on joining between a member and an associate. Though if I were the latter it would not occur to me to "slink." I have never heard of anyone complaining that he could not enter the "pit" at a theatre through the same door as the stall-holders, nor that he had to sit in a different part of the house, nor have I noticed much "slinking" done by "pittites." Why on earth should there be? The fact is some people want to get everything for nothing.

The only formality demanded by the R.A.C. besides the signing of a cheque is the proposing and seconding of a candidate by members. This is an eminently reasonable and desirable one, and is demanded by every club that I have ever heard of. A MEMBER.

India.

MISUSE OF PETROL CANS.

14937.]—Seeing an article in your correspondence columns *re* misuse of petrol cans, the following is interesting, in view of the great care (?) taken when petrol is sealed in the cans. Recently on opening a can of a well-known brand of petrol I found the body of a bird (size of a sparrow) half decomposed. This does not point to a very close inspection of cans before use. A. C. WRIGHT.

Correspondence.

AVIATOR'S PETROL.

[14938.]—With reference to the article appearing in your issue of the 6th inst., on page 718a, kindly note that your correspondent, Mr. H. C. Lafone, has entirely misrepresented facts. I quote the following from his notes:

"On Saturday morning the petrol vendors, ever ready for a 'scoop,' beguiled Paulhan into being silly and making a lot of changes in his jet and air valve. Luckily, he did not waste too much time on spirit merchants, and went back to his old love in the shape of petrol with a density of .760. Then all was well."

Briefly, MM. Paulhan and Farman, who both used the same machine in Blackpool, used ordinary Shell motor spirit, the specific gravity of which is .715. M. Paulhan was so satisfied with this that at his request arrangements were made for supplying him with exactly the same quality for his flights at Brooklands. As you are aware, on the first day there was no flying. On the second day M. Paulhan made two preliminary flights, and discovered that the atmosphere had changed considerably, and in consequence required a heavier spirit. Needless to say, this caused the undersigned some surprise, but upon M. Paulhan's assurance that the colder the atmosphere the heavier the fuel required, and that, as a matter of fact, in the event of intense cold the Gnome engine was capable of being run upon heavy fuel, a supply of .760 spirit (which the British Petroleum Co. market under the brand of Crown) was obtained for M. Paulhan. This operation took a matter of two hours, and in the meantime M. Paulhan had decided to make a further experiment on .715; the cold weather, however, brought him down with a frozen jet. The .760 spirit was then taken on to the field, and the aeroplane tank was filled up with it, and his record shows that a magnificent flight took place on .760 spirit; in fact, so pleased was M. Paulhan with this that he requested me to provide him with a still heavier spirit for use on the following day. This was done, and a spirit with a gravity of .780 was brought along. The following morning (Saturday) M. Paulhan decided to use .780 spirit; and with regard to the statement that the petrol vendors beguiled M. Paulhan into being silly and making a lot of changes with his jet and air valve, I may say that the statement is absolutely without foundation whatever, and that Mr. Lafone is simply romancing.

For your information, from the arrival of M. Paulhan in this country to his departure, he only used ordinary Shell motor spirit, which, as previously stated, has the density of .715, with the exception of Friday afternoon. He certainly tried .780 on Saturday, but all concerned had nothing whatever to do with it; it was entirely at his own wish.

All other flights at Brooklands and Sandown took place on ordinary Shell motor spirit.

I shall be glad if you will give full publicity to this statement. J. CATES.

A POLICE TRAP SIGN.

[14939.]—I have thought a good many times that it would be a good idea if local motorists could give strangers a sign with the hand while in or near traps. As I run through them often, I always try to give warning to others, and I often wonder if my signal is understood. I am sure if the suggestion were made through your paper and a signal agreed upon, it would not be long before it became general throughout the country, and the police would not have so many chances as they have at the present time of trapping motorists. SHELL.

[It has been suggested before that motorists should adopt a universal sign, so that the one who has discovered a police ambuscade can warn any other motorist he meets. It appears to us that the most unmistakable sign would be for the motorist who desires to give the warning to hold either arm straight up above the head. A sign of this sort would be unmistakable, and unlikely to be misunderstood. Unless our readers can suggest a better sign we should advise all members of "The Autocar League" to adopt it. The sign should be given as early as possible, so that the approaching motorist may see it and slow up and stop for further particulars if the warner is disposed to give them, as no sign can do more than indicate that there is an ambuscade somewhere in the vicinity, and the motorist who would like to keep out of trouble would be glad to know more.—ED.]

LUBRICATION OF CRANKSHAFT AND BIG ENDS.

[14940.]—The question of lubricating the crankshaft and big end bearings of motor car engines seems to be one of the features of the present time, and is undoubtedly one of the greatest importance. I notice that in several of the new engines which have been illustrated in various journals provision is made for oiling the big ends by scoops fitted to the bottom half of the bearing which dip in a trough of oil. I would like to ask the designers of this system how they can possibly expect oil to get into the bearing? It would also be interesting to see a drawing of the interior of a bearing so constructed, as I have an idea that this class of big end, if it were started revolving in a dry state at 1,000 revolutions a minute, would be pretty nearly as destitute of oil at the end of a quarter of an hour's running as it was when it was started. To my mind there seems only one method of efficient lubrication, and that is a hollow crankshaft with oil fed into it under pressure. This system, of course, is expensive, but it seems to me to be the only system if real efficiency is required, and any engine made without it cannot possibly be considered to be thoroughly up to date. I have seen engine bearings with a thirty-second slack in the big ends running at 1,500 revolutions a minute in absolute silence with the oil fed into the bearing at a pressure of 50 lbs. per square inch and giving a high rate of h.p., but directly the pipe conveying the oil under pressure to this bearing was cut off the engine began to knock horribly, and the power gradually fell away, although a stream of oil an inch thick was directed on to it.

CHARLES BINKS.

THE LLANRWST BENCH OF MAGISTRATES.

[14941.]—My attention has been drawn to the letter [No. 14916] from "L. H. D.," and I regret to observe that the publicity I have given to the case in question has raised anger in the hearts of the interested parties.

I feel greatly relieved to receive the assurance of your correspondent that I was fortunate not to have killed the girl he refers to, but, as I was not on the road at the time, "L. H. D." must strain his imagination to a still greater degree in any additional literary composition he may concoct.

Under normal conditions I ignore such letters from persons ashamed of appending their signatures, but as I appear capable of identifying the writer, I consider an exchange of views with our Cymric friend may be of mutual advantage.

Detailed particulars of the prosecution appeared in the issue of *John Bull*, August 7th, page 170.

E. H. WHEELER.

DISCOURTESY ON THE ROAD.

[14942.]—On Saturday, October 30th, I was driving in the direction of Kenilworth, and overtook a large covered car. This car was emitting smoke to such an extent that it was positively objectionable to drive behind it. Although the chauffeur could not only see me by the aid of his mirror, but also heard me, he refused to allow me to pass. It was only by driving at some risk on to the soft grass that I finally got by after nearly a mile and a half, continuous requests from my horn being ignored. The occupants of the car, which included some ladies (?), apparently seemed to enjoy the fact that they were behaving in a most discourteous manner—in fact, they were, in the eyes of the law, committing an offence. If this letter should come before the notice of the driver or owner of the car in question I shall be pleased to give them the private opinion of the owner of O4349.

[The number of the car complained of has been communicated to the secretary of "The Autocar League."—ED.]

KINGSTON (SURREY).

[14943.]—With reference to the paragraph at the foot of page 671 of *The Autocar* of 30th October, I beg to differ from your correspondent Mr. J. E. Withers as to the fair treatment (?) doled out by the Kingston (Surrey) magistrates, and in support of my statement I enclose a cutting from our local newspaper, which shows that when two gentlemen swore on oath, with the evidence of reliable speedometers, that they were well within the limit they were heavily fined. Then your correspondent associates fairness with the Kingston magistrates. Impossible! MOTORIST.

SUMMARY OF OTHER CORRESPONDENCE.

LIGHT CAR TRIAL.—"Suburban Motorist," writing with reference to the large number of light motor cars which are being introduced at the show this year and the large demand that is arising for them, says "undoubtedly a light car road trial, confined to touring machines, not disguised racers, must call for serious consideration."

ADDRESS WANTED.—We have a letter for Mr. T. Summers in reply to his query No. 1098. Will this gentleman kindly favour us with his present address so that the letter may be sent on to him?

THANKS.—The Turner Motor Manufacturing Co., Ltd., of Wolverhampton, desire to thank the author of a letter sent to them signed "Observer," who omitted his name.

The Spencer-Moulton Detachable and Divided Rim.

DETACHABLE rims exist in considerable numbers, but there are few, if any, in which steps are taken to facilitate the labour of fitting a tyre cover to an ordinary unmounted rim. Only those who have performed this purgatorial task can realise the exhausting struggle which so frequently ensues. Now, in addition to devising a detachable rim which centres itself upon the felloe in truly mechanical fashion, this rim is also divided into two halves circumferentially, with the result that one bead of the tyre is just thrust into one half of the rim, and the other half pushed on to the other bead of the tyre. The two rim halves are then bolted up together, as shown in the section, and the rim with tyre mounted is ready for placing on the wheel. In fig. 1 we have a section of the tyre and rim in position on the wheel felloe, showing also the wedge-shaped rubber security band and the coned bonding band of the wooden felloe. Both rim and the bending band are made conical or tapered, so that when the rim is drawn hard up on to the bonding band by the bolts it is absolutely centred on the wheel without relying upon the skill of the operator.

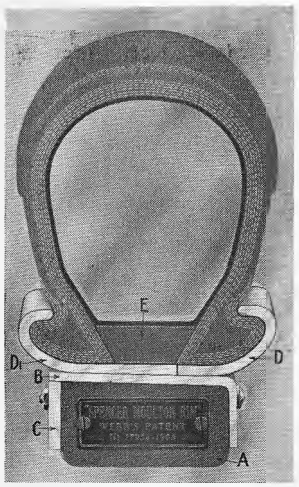
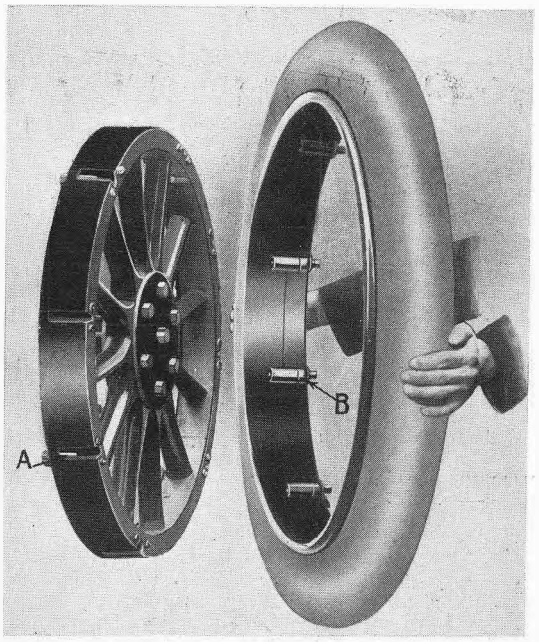


Fig. 1.—Section of S-M. tyre and rim.

A, wooden felloe
B, coned or tapered bonding band
C, back flange carrying rim attaching bolts
D D1, outer and inner portions of circumferentially divided rim
E, flexible security band

The two circumferential halves of the rim are quickly bolted together by eight bolts, which screw into the same lugs, but on the opposite outside to the bonding band bolts.



Showing the rim detached from felloe.

A, rim attachiug bolts. B rim assembling bolts.

The mounting and dismounting of the rim is a simple and rapid operation, a special ratchet spanner being supplied for the job, while the operation of mounting a new cover on the rim is equally quick and easy. The presence of the flexible security band absolutely precludes any possibility of nipping the inner tube.

How British Trade is Discouraged.

From information which has reached us we should imagine that British motor car manufacturers have good reason to complain of the action of those responsible for the administration of the Central South African railways. It is anticipated that petrol cars will play an important part in connection with the future feeding of these railways, and it would naturally be expected that preference would be shown to British manufacturers, or at any rate that they would be asked to tender, when vehicles of this kind were being purchased, even though they might be required only for experimental purposes. We understand that three petrol vehicles have been purchased, but none of them are of British manufacture, two being of American and one of French origin. It seems an extraordinary thing that those in authority should overlook the claims of their own mother country when orders have to be placed, for we have no doubt that a good many British firms would have been glad of the opportunity of supplying these vehicles had they been asked. The aggregate value of the orders was somewhere about £4,600. We trust it is not yet too late for the railway authorities in South Africa to consider the claims of British manufacturers in connection with the supply of any further motor cars that may be required.

The Argyll 1910 Programme.

Besides the models described last week there will be three other new Argyll models, the frames of which are all of similar design, but vary in strength and dimensions to suit the weight carried. The 10 h.p. engine has the crank casing cast in one, with end plates in halves, and a large inspection door below. The clutch is of the leather-faced cone type. The gear box gives three speeds and reverse, and the road wheels are fitted with 760 × 90 mm. tyres. The 20 h.p. crank casing is of the same design as the 15 h.p., but larger, and, in addition to the high tension magneto, accumulator and coil ignition is fitted with the commutator mounted above the front end of the camshaft. The gear box is larger, and the road wheels are fitted with 875 × 105 mm. tyres. The 10, 15, and 20 h.p. cars easily negotiated the stiffest hill of the Scottish Reliability Trials route.

The 10 h.p. chassis will be provided with two-seat and four-seat side entrance bodies. The 12-14 h.p. with Brooklands model two-seat and four-seat side entrance bodies. The 14-16 h.p. with five-seat side entrance and limousine or landaulet bodies. The 15 h.p. new model with two-seat and five-seat side entrance and single landaulet bodies. The 20 and 30 h.p. will have full touring bodies seated for five, as well as covered bodies.

Reviews.

Deportmental Ditties and other Verses.

By Harry Graham. (Mills and Boon, 49, Whitcomb Street, W.C.) We are fain to marvel just why this ravishingly funny book of verses has been sent to us for review. In three instances only is motoring touched upon, although poem No. XII., "On the Road," is well worth reading. Certain it is that in Mr. Harry Graham there has arisen one who in his own particular line can rhyme and fool with the best. If there is one quality more than another which may be said to characterise his verses it is that of robustness. As we have said automobilism is not frequently visited by this rollicking rhymester, but in "The Proposal" he describes the passage of the lover to his loved one as follows :

He does not hire a coach and four,
To bear him to his lady's dwelling,
A motor lands him at her door,
Strident and evil smelling;
Disguised in coonskins like his "shover,"
He seems more Golliwog than lover.

Then again, in a delightfully funny poem entitled "Presence of Mind" he admonishes the motorist, among others, as follows :

If your motor runs over some chickens,
And the villagers gather in groups,
You should ask them at once why the dickens
Those damthings aren't kept in their coops?
If the owner arrives at this juncture,
You must simulate virtuous ire,
And accuse him of trying to puncture
Your tyre!

"On the Road" presents the two aspects of motoring. It opens—

When seated in a motor car
Upon the King's highway,
It often gives me quite a jar
To find how selfish people are,
How rude the things they say.
I censure the pedestrian classes
Who hold their noses as one passes.
Old yokels deaf and nearly blind
Plod stolidly along;
When I come scorching up behind,
They pay no heed, they do not mind
My hootings loud and long;
But if I squash them flat as bloaters,
Their next of kin disparage motors.

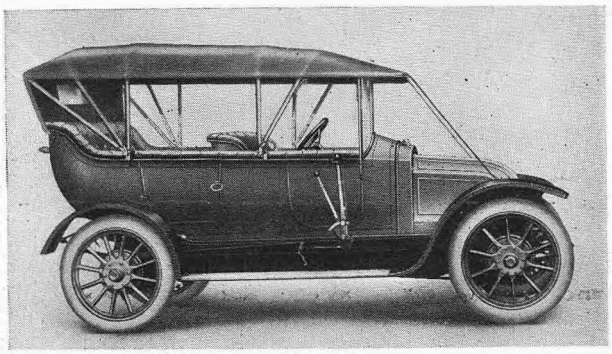
We more than yearn to quote the two remaining verses preceding the moral, but must leave them for those who buy the book.

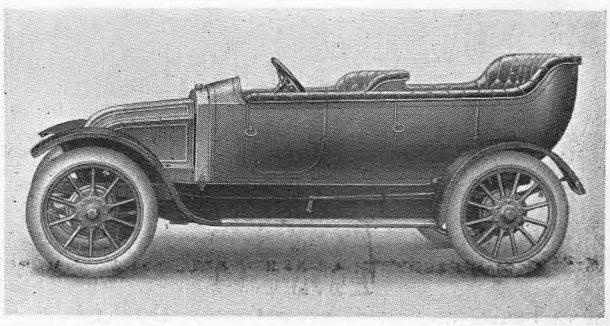
MORAL.

Of ye who walk the road like slugs,
No more impede your betters!
Chauffeurs, desist from being Thugs!
Kind hearts are more than sparking plugs,
And Tact than Carburetters!
Live and let live, my bounding brothers
And recollect that *there are others!*

"Carburetters, Vaporisers, and Distributing Valves," by Ed. Butler, M.I.Mech.E. (Chas. Griffin and Co., Ltd.)—This book will have interest for automobilists by reason of the special section which deals with surface and spray carburetters for petrol and alcohol motors, nearly every well-known carburetter representing special types being illustrated and described. The subject of vaporisers for use with heavy oils is profusely and elaborately dealt with. Chapter V. is valuable as dealing in a carefully-considered manner with admission and exhaust valves used on petrol and other engines. "Two-cycle and Camless Engines" is the title of the succeeding chapter, and by it the average reader will be astonished to find how much thought and ingenuity have gone to the design of this class of internal combustion engine. The Knight valveless motor with ported sliding sleeves is well described and illustrated in this section. Rotary and liner valves are carefully discussed. This book should be on every automobile engineer's shelves.

Messrs. E. J. Arnold and Son, Ltd., of Butterley Street, Hunslet Lane, Leeds, are issuing a large wall chart entitled "Rules and Courtesies of the Road," 5s., mounted on cloth with rollers for the purpose of exhibition in schools, etc. The publishers point out that there is such a lack of knowledge as to the etiquette of the road, or those amenities which make for the comfort and convenience of every road user, that it has been frequently pointed out how desirable it is that children should be taught how to use the road, whether footpath or highway. A few simple rules are all that is necessary, and if these were taught in our schools children would obtain knowledge which would be useful to them throughout life. Such teaching would tend very materially to lessen the number of serious accidents, and of less severe injuries, such as are chronicled almost daily in the press, whilst the chaos, risk, and disorder so frequently found in our traffic would be much lessened. The unnecessary anxiety and difficulties which many users of the road so often meet with, would be almost absent if everyone were thoughtful and considerate, taking reasonable care for the comfort of others, as well as for his own safety.





The new 15.9 h.p. Arrol-Johnston. We described the chassis of this car last week, and the above illustration gives a good idea of its outside appearance. We must congratulate Mr. Pullinger on the lines, which are very fine, as the curvature of the plain sides is most pleasing. It may be urged that the height of the rear seat back is rather more than necessary, but with a hood which laid flat when furled this would not be noticeable.

We understand that, although motorists have asked the Legal Committee of the Royal Automobile Club to investigate the question of police controls on the open roads, the information supplied by motorists to that committee has been of a meagre character, and further facts are wanted as an assistance to the committee's investigations.

The Motor Cars (International Circulation) Bill, which was introduced by Mr. Burns in the House of Commons last week to enable the Government to give effect to any arrangements that may be made by the various Governments for touring "internationally," is under the consideration of the Executive Committee of the Royal Automobile Club.

PUBLISHERS' ANNOUNCEMENT. An Index to Advertisements in this issue will be found on page 66.

Flashes.

In our article last week dealing with the new Argyll cars we inadvertently referred to the 14-16 h.p. model as "the 12-16 h.p." This is probably the most widely known car which is issued from the Argyll factory, and it is therefore important that it should be clearly understood that the new models which have been introduced do not mean a suppression of the present 12-14 h.p. or 14-16 h.p. cars.

* * *

At a meeting of the Committee of Management of the Society of Motor Manufacturers and Traders on Thursday, November 4th, several matters connected with the Show were discussed. A letter from the owners of Olympia was read with regard to improvements they had effected in the road leading from Hammersmith Road to the main entrance. These will have the effect of making the entry and exit of cars more convenient. The arrangements made by the Entertainment Committee in connection with the dinner were reported and approved, and the seating plan was settled. It was reported that Prince Francis of Teck, chairman of the Royal Automobile Club, has consented to propose the principal toast.

* * *

General complaint is made at Lewisham and Lee of the speed of the trams, particularly at night. Yet the police are regularly timing motors on the Eltham Road from just past the tram terminus to Eltham village. Motors are also being timed on the Bromley-Sevenoaks Road from the Catford tram terminus. Query: Why are the traps laid just outside the tram boundary?

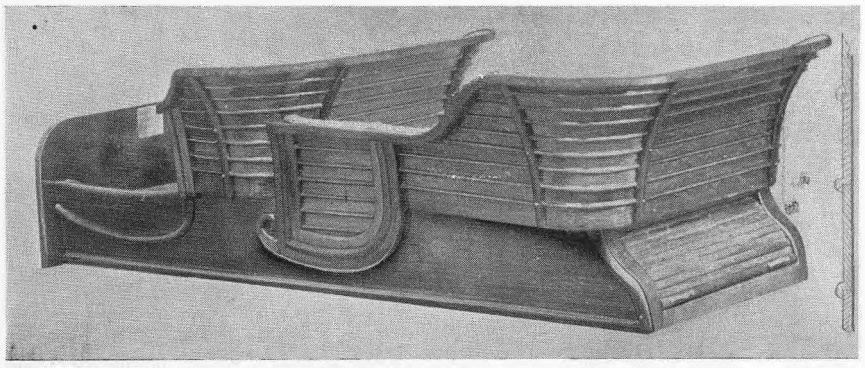
* * *

The Coventry graduates of the Incorporated Institution of Automobile Engineers had the pleasure of hearing a lecture from Mr. Baskerville-Cosway, of the London Section, on Monday last week, the subject being "Cylinder Design." About sixty graduates were present, including several from London and Birmingham.

The firm which have taken over the assets of Weigel Motors (1907), Ltd., will be known as Crowdy, Ltd. It is their intention to continue the manufacture of the existing Weigel cars, namely, the 25 h.p. and 40 h.p., which have always borne a good reputation. The firm will also produce a small four-cylinder car of about 90 by 120 mm., a six-cylinder of the same bore and stroke, and possibly a small two-cylinder van of the same dimensions.

* * *

The Voiturette Cup Race, which was to have been held last September by the Kaiser Automobile Club and the German Automobile Union, will now take place in the early part of next May. The scene of the event may be either Nuremberg or Rothenburg, whichever place is selected by the German Union for its 1910 Congress. The maximum h.p., which had been fixed at six, will be raised to eight by reason of the fact that the Prince Henry Cup regulations preclude anything below that power.



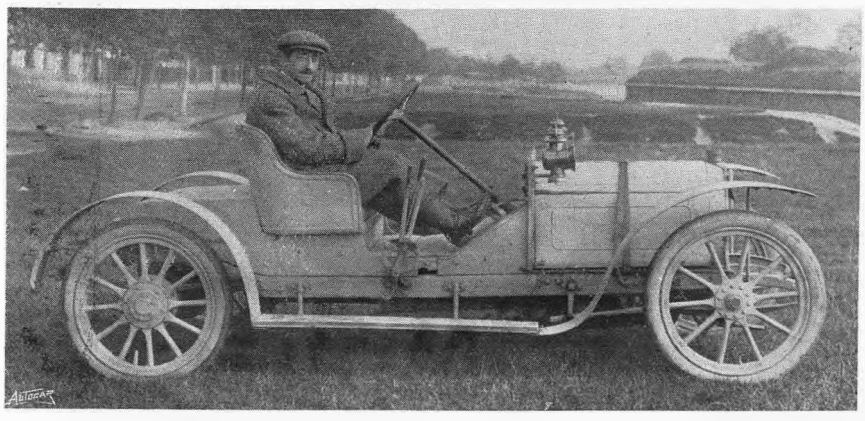
BODY DESIGN AND CONSTRUCTION. A system of body construction has been protected by Messrs. F. T. Robinson and T. F. Lewis, of 29, Bramble Street, Coventry, in which the ordinary panels are replaced by a species of weather boarding laid on to the ordinary framework of the body. The small section shown in the illustration gives an idea of the arrangement, which we cannot say we admire

* * *

The Commercial Vehicle Committee of the Society of Motor Manufacturers and Traders has passed a vote of thanks to *Motor Traction* in connection with its deputation which had been instrumental in obtaining the remission of the tax on petrol for commercial vehicles.

* * *

The administration of justice in motor car cases is almost invariably topsy-turvy. Whenever a really serious charge has to be dealt with the penalty is light, but whenever a merely nominal or technical offence is committed an excessively heavy penalty is imposed. Contrast the £10 and £15 fines which are often inflicted on motorists for merely exceeding the speed limit without the slightest suggestion of danger to anyone, with the paltry fine of 40s. upon a chauffeur who while very drunk and driving his master's car (which, by the way, he had taken out for his own purposes unknown to his employer) ran amok at Willesden Green and did considerable damage, besides endangering the lives of people who were about at the time.



M. Paulhan, the famous aviator who broke the world's record for a high flight at Sandown Park on Saturday, November 6th, attaining a height of 977 feet. He is seated at the wheel of his four-cylinder Gregoire car.

Recent Patents. By Eric W. Walford, F.C.I.P.A.

A Mercedes Rotating Valve Engine.

IT is interesting to note that the designers of the Mercédès car have given their attention to slide valves, as is shown by a French patent recently granted to them. We give a short abridgment of this, and it will be seen that the valve is of the rotary type arranged in the cylinder head in a similar manner to a valve which we recently described.

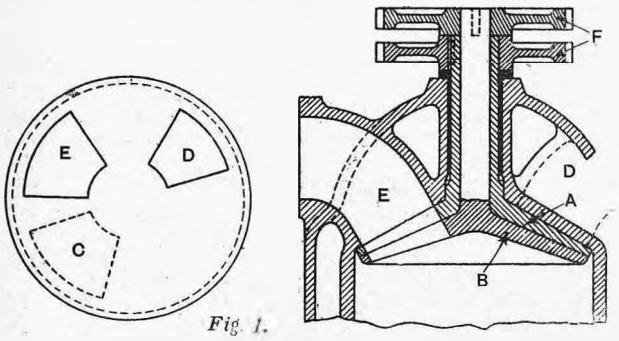


Fig. 1.

In the construction illustrated there are two valves A B, in each of which is arranged a port C. These valves rotate in opposite directions, and the ports C are adapted to register with an inlet port D and exhaust port E. Each valve is provided with a spindle, and the spindles carry gear wheels F rotated by an overhead shaft. It will be clear that as the valves rotate their ports come opposite one another and the inlet and exhaust ports D and E. The valves are held firmly in place by the pressure within the cylinder, and are rotated in opposite directions to give rapidity of opening and closing. The French patent specification, which is numbered 397,408, and was applied for on 14th December, 1908, describes a number of constructions, in one of which a single valve is used. In another the single valve is arranged between two water-cooled surfaces, whilst in a third there are two rotary valves, one for the inlet and the other for the exhaust. The idea of this disc valve is, of course, not a new one, but the question of lubrication of the valves still remains unexplained.

A Double-acting Petrol Engine.

The compact engine illustrated in the second drawing is the invention of Mr. J. D. Roots. There are two sets of double-acting pistons A B C D working in cylinders of the usual type, the valve boxes being arranged at the corners as at E. Each tandem piston carries a gudgeon pin F, which is linked to a rocker G mounted on a rockshaft H. This rockshaft carries a crank J coupled by the link K to the crank pin L on the flywheel-shaft M. The lubrication is effected by injecting oil at N, which passes down through the top piston, over the bearings of the links, and so over the lower piston. Apparently the engine would run in either direction, except, of course, as regards the timing of the valves and ignition, inasmuch as, with the parts in the position shown in the right-hand view, the crankshaft M could move either side of dead centre when a pull is set up through the link K.

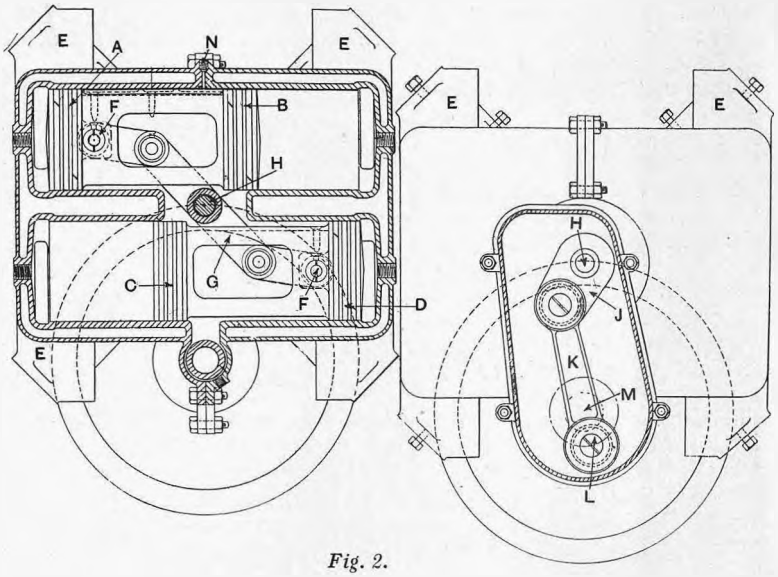


Fig. 2.

Concentric Piston Valves.

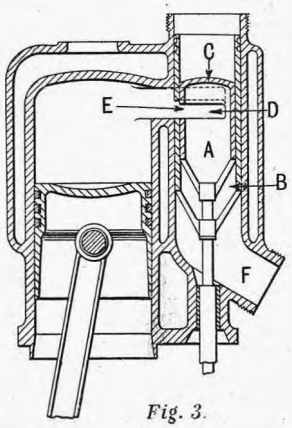


Fig. 3.

The piston valve engine has two piston valves A and B, one within the other, and both arranged in a valve chest. The valve B is open at the top, whilst the valve A is closed by the cap C, which has in it a port D, whilst the outer valve has a port E, both of which ports communicate with the cylinder. When the inner valve C is lowered, gas can enter the cylinder over the top of the cap. When, however, it is raised into the position shown in the figure the exhaust gas can find its way out downwards through the two hollow valves and out through the passage F. In an intermediate position of the two valves the ports are closed. This is the invention of S. W. Hiscocks and A. L. Reeves.

The rotary valve engine shown in fig. 4 has a single rotary valve for each cylinder, each valve taking the form of an inverted cup A closely fitting the top of the combustion chamber B, which is similarly formed. The valve has a port C, which registers with the inlet port D and the exhaust port as the valve is rotated. The pressure within the cylinder maintains the valve in contact with its seating, and it is rotated by any suitable mechanism. There is a distinct resemblance to the Mercédès valve given above, and to yet another described in a recent issue. The inventor is Mr. D. A. Stephens.

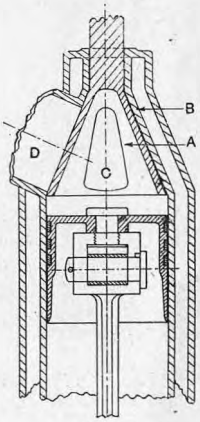


Fig. 4.