

AUTOSPORT

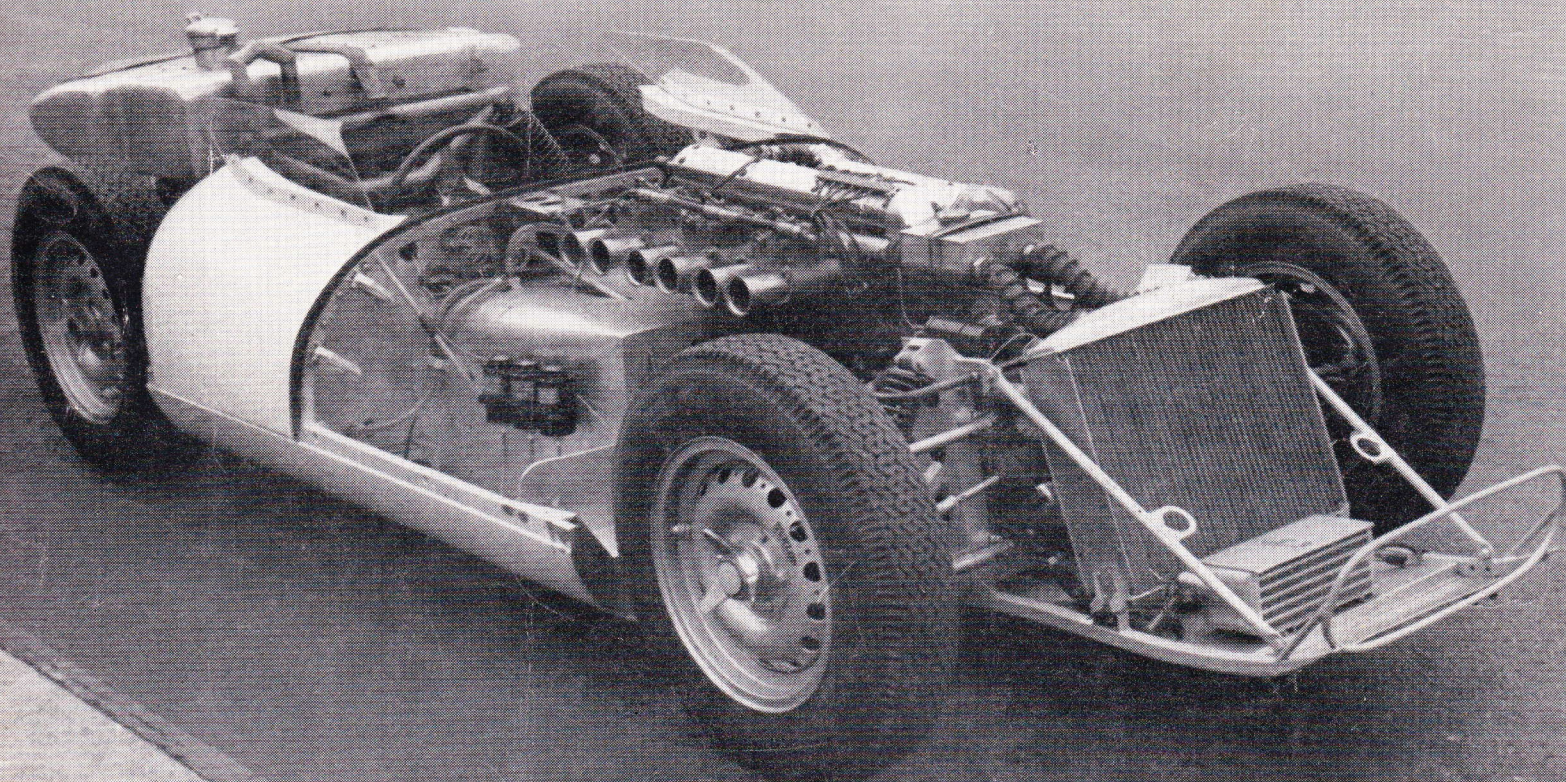
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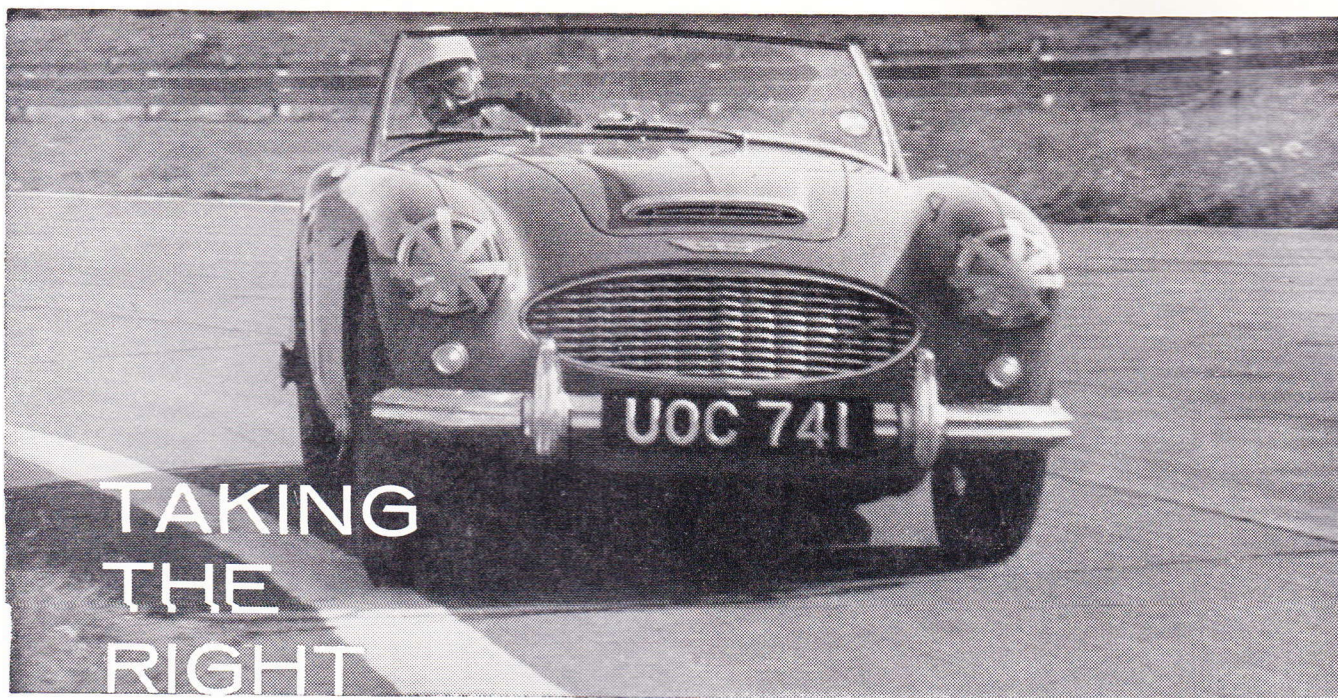
BRITAIN'S MOTOR SPORTING WEEKLY

Registered at the G.P.O. as a Newspaper



IN THIS ISSUE

NEW COOPER AND LISTER-JAGUAR MODELS : A NEW BRITISH NATIONAL FORMULA?
JOHN BOLSTER TESTS THE ROLLS-ROYCE SILVER CLOUD : ELEMENTARY TUNING



TAKING THE RIGHT

LINE

ROY SALVADORI
DISCUSSES THE AUSTIN HEALEY 100 SIX
WITH JOHN BOLSTER

Photo Autosport

Scene: Goodwood, where British racing driver, Roy Salvadori was doing a few warming-up laps in an Austin Healey.

BOLSTER *You were having a bit of a go then, weren't you, Roy?*

SALVADORI Well, I was trying a bit, but this is just the sort of course for the 'six'. There's plenty of power throughout the range and, with dig like that, it would be disastrous if you couldn't stop. But, I must say, these brakes are spot on.

BOLSTER *You were obviously doing at least a hundred miles an hour on that last lap.*

SALVADORI Yes. I had well over the ton most of the way down the straight.

BOLSTER *How did she handle?*

SALVADORI I was quite happy however hard I pushed it. The car seems to be perfectly balanced.

BOLSTER *And I reckon there's not a lot of surplus weight, either.*

SALVADORI Oh, no, although the box-section frame is really massive for a sports car. The technical chaps say it's one of the best built cars on the road.

BOLSTER *And one of the best finished.*

SALVADORI Oh, yes. It's racing in style all right. You know, in the sports car business I run, on the Kingston By-pass, I find I sell Austin Healeys to people who'll probably never do much over eighty in their lives. What they go for is the smooth line, the attractive colours and the trimmings—leather upholstery, heater and so forth.

BOLSTER *In fact, a highly desirable motor car — all round.*

SALVADORI Yes. If you buy an Austin Healey, you're on the right line.



AUSTIN HEALEY



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Vol. 16 No. 8 February 21, 1958

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EDITORIAL

LOW-COST RACING

THERE have been many attempts to introduce low-cost racing, but the fact must be faced that the sport in all its varied forms is by no means cheap. As originally envisaged by the Bristol movement, 500 c.c. racing was thought to be the answer, but professional intervention, the twin o.h.c. Norton engine, and the formation of Formula 3, soon put it out of range of the majority of those for whom it was planned. At present, the chief outlet for those with not much folding money behind them, is participation in special "J.A.P." events, mainly with obsolescent cars. True, the amateur can have lots of fun in club events with vintage, and "750" and "1172" formula machines; but single-seater racing is possible only to the favoured few; Formula 2, for example, requires considerable financial outlay. It would appear, therefore, that strong support would be forthcoming for a new British National Class, utilizing the same basic power units, but not necessarily a "one-design" category. There should be complete freedom of chassis design, e.g., front-drive, rear engines and so on. In the interests of safety, a minimum weight limit could be enforced, and to prevent too much influence from bulging pocket-books, the selling-plate plan at race meetings might well be considered. However, before the introduction of such a National class, completely watertight rules and regulations would have to be drawn up. If construction costs could be reasonably controlled, then there would be no need for selling-plates. AUTOSPORT believes that, intelligently organized, this type of single-seater racing could provide skilful amateurs with the opportunity, not only to race, but to produce extremely interesting machinery. It would appeal to spectators, particularly on the average short-distance track as used in Great Britain, and may, in time, form an even greater "nursery" than F3 or sports-car racing. The subject is discussed elsewhere in this issue, and interested readers will have the opportunity to air their views through the medium of the correspondence columns.

STILL GOING STRONG

LAST week-end, two restricted—not National—club rallies, one in the North and one in the South of England, each drew well over 100 entries, and this after woeful voices had said not long ago that with so many events taking place every week-end, lack of entries would soon bring an end to club rallying, even if public opposition did not do it first. It seems evident that really well-run night events need upset no one, and yet draw sufficient enthusiastic support to keep club treasurers happy and refute any suggestion that this most popular branch of the sport is likely to wane in the near future.

OUR COVER PICTURE

POWER-PACKED 1958 version of the Lister-Jaguar, suggested already as one of the world's fastest sports cars, has cleaner, smoother lines, larger brakes and tankage, improved weight distribution and a redesigned cockpit. Its frontal area is as low as most of the current British 1,100 c.c. machines. Production is already at the rate of one per week.



NEW contender for Formula 1 honours is the Gleed, which takes advantage of the 750 c.c. (S) section of the formula. Chassis is a lengthened early-type Cooper 500 c.c. model (left).

PIT and PADDOCK

PETER BOLTON will have Gordon Shanley as his co-driver in the A.C. team for the R.A.C. Rally.

PETER ARUNDELL has sold his famous TC M.G. and, it seems, has now acquired a Lotus Eleven Le Mans, from which we may expect great things.

THE two Rodriguez brothers, Ricardo and Pedro, who are 15 and 17 years old respectively are causing a few headaches for the organizers of the Sebring 12 hours race which takes place next month. The boys have the blessings of the F.I.A. and their parents but unfortunately the insurance companies are not so keen on being involved with minors.

ANNA CHRISTINA SCOTT-RUSSELL arrived on Wednesday, 12th February. Mk. III model of the Scott-Russells.

I. E. RABY has now disposed of his well-known car "Puddle Jumper", an 1100 Cooper-Climax.

FIVE Fiat-Abarth cars are being prepared for Sebring. Briggs Cunningham is having one and Harry Shell may be sharing another with Baron de Grafenried we hear.

IN a recent postal ballot conducted by the Motor Accessories Manufacturers' Association, Ltd., 83,839 replies—97.2 per cent.—considered that the motorist was best served by garages which offered a choice of makes of lubricating oil, rather than the "tied house".

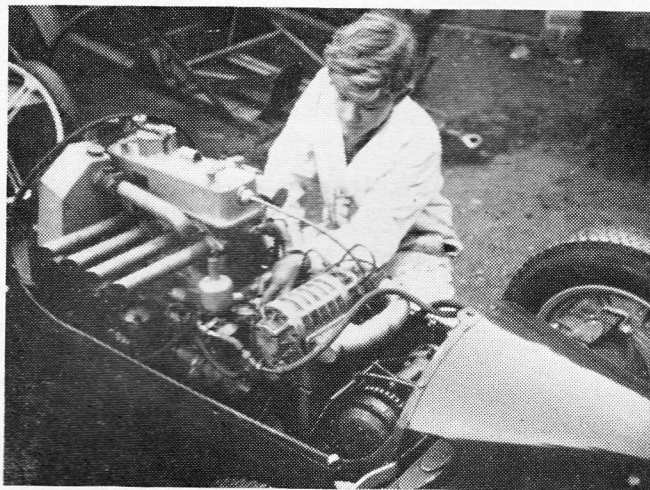
THREE Scottish Jaguars will be competing in the Monza 500 miles race on 29th June. Two of these cars, it is hoped, will be Indianapolis style, single-seater cars. B.R.M. have been asked to enter a 16-cylinder car but so far have not given a definite answer.

JIM MCMANUS was married to Peggy Schofield, of London, at West Hampstead, on Saturday, 15th February. He is seen in most rallies, and is competitions secretary of the Healey D.C., and a founder member of the Navigators' Club.

LOCKHEEDS announce that very shortly all their hydraulic brake hoses will be of a terylene/rayon reinforced type, which has been tested up to 12,500 p.s.i. as against 8,000 p.s.i. of the old cotton reinforced hoses. This figure is well over twice the required S.A.E. standard and the new hoses have the additional advantage of expanding less under pressure, thus giving a firmer "feel" to the brakes.

"Well, I'm not coming down there, so it's deadlock!"

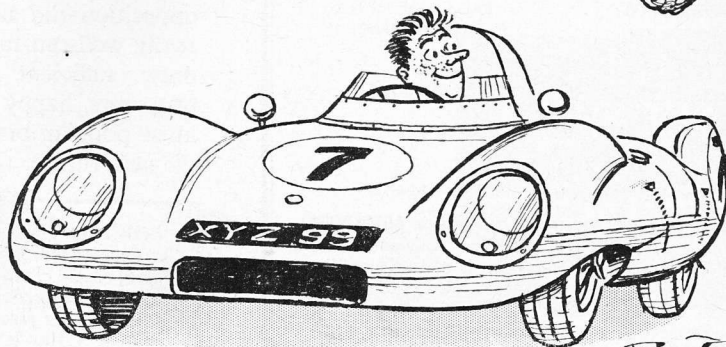
POWER unit (right) is derived from the "R"-type M.G. supercharged 750 c.c. engine.



DUTCH Grand Prix at Zandvoort will be held on Monday, 26th May and not 8th June as announced earlier by some sources.

ENTRIES for the 11th Lyon-Charbonnières Rally close on 10th March, with the Association Sportive de l'Automobile Club du Rhône, 7 rue Grolée, Lyon, France.

FERRARI line-up for Sebring will be Collins/Hill, Musso/Trintignant Gendebien/von Trips, and Hawthorn/Gregory. All the cars will be of 3 litres capacity, three being the 12-cylinder models and the fourth a new type making its first appearance.



JUST OFF to Sebring are these three Lotus Eleven Le Mans models, seen awaiting transit to the States.

LOTUS FOR SEBRING

THREE Lotus Eleven Le Mans models are going to Sebring for the 12-hour sports car race at the end of March. Drivers will be Jay Chamberlain/Bill Frost, Colin Chapman/Cliff Allison, and Sam Weiss/Dave Tallaksen. The cars leave for America this week-end.

Lotuses will again be exhibited at the Geneva Salon, where they will be accompanied by Colin Bennett. New Lotus distributor in Switzerland is M. Andre Ziegler, of Alexander Continental (Auto) S.A., of which Michael Christie is British director.

SPORTS NEWS

DEUTSCHLAND RALLYE

THE 1958 Deutschland Rallye will take place from 15th to 18th of May this year and will count for the European Touring Championship. The rally will start from various points in Belgium, Great Britain, France, Holland, Switzerland and Germany and will comprise a long-distance event together with a number of special tests. Regulations and further information may be obtained by writing to the following address: Die Fahrleitung der Deutschland-Rallye, München 22, Königinstrasse 11a, Germany.



★
WELL DONE, US!
Peter Collins and Phil Hill, winners of the Argentine 1,000 kms. race (left). Below is Hill, enjoying his first ride in a new model V6 Grand Prix Ferrari.
★

ARGENTINE LAP RECORD

OUR South American correspondent, Dr. Vicente Alvarez, wishes to correct a mistake in his report on the Argentine 1,000 kms. race, in which he credited Phil Hill with the lap record. Hill did, in fact, set a new lap record on the 68th lap, but his co-driver Peter Collins bettered this on lap 94, so he is, in fact, the record holder. At the end of the race Hill was credited with the lap record by the organizers and the error wasn't rectified until later.

SILVERSTONE BOOKING OPENS

As from last Monday, 17th February, the advance booking office is open for the *Daily Express* International Trophy meeting at Silverstone on 3rd May. Applications for tickets and information should be addressed to the Trophy Office, Daily Express, Fleet Street, London, E.C.4.

ADMISSION DETAILS

Grandstands:
Pits 30s. per seat
South 25s. per seat
Grandstand Car Park—10s.
(All seats covered, numbered and reserved.)
Rest of Circuit:
"All-in" Car Ticket, including admission for all passengers 25s. if booked in advance (30s. on the day)
Coach, incl. admission for all passengers £9 10s.
Motor-cycle Parking 2s. 6d.
Not Bookable:
Individual Admission 6s. Cycle Parking 1s.

1958 SCOTTISH RALLY

THE 15th International Scottish Rally will take place from 26th-30th May this year. The rally will start from Glasgow and the route to be covered will be approximately 1,200 miles. The entry fee for each car is £8 8s. and must be sent along with the entry form to Mr. A. K. Stevenson, Secretary, Royal Scottish Automobile Club, Blythwood Square, Glasgow. Entries close on 28th April and the number of cars is limited to 240.

"STICK-ON" NUMBERS IN R.A.C. RALLY

"SPEEDWELL" plastic racing numbers, which were used by many British competitors on the Liège-Rome-Liège and Monte Carlo Rallies, will be issued by the R.A.C. to all competitors in the R.A.C. International Rally of Great Britain, next month.

The numbers will be carried on the cars for the special tests, and will be removed and kept on prepared backing sheets, so that no rally cars are driven on the public roads while carrying competition numbers.

119 KMH, the well-known red A35, will be crewed by Nancy Hulbert, wife of Speedwell's tuning expert, and by Norma Sprinzel, sister of John Sprinzel.

Tony Coakley and Graham Hill will be driving in a Speedwell modified Austin A105, and two other converted A35s will be in the hands of Dr. Dudley Barker and Mr. Eric Fishwick.



THE "AUTOSPORT" SERIES-PRODUCTION SPORTS CAR CHAMPIONSHIP, 1958

REGULATIONS have now been approved for the 1958 AUTOSPORT Series-Production Sports Car Championship. Entry forms will automatically be sent to all participants in the 1957 series. Others should apply to the Secretary, AUTOSPORT Series-Production Sports Car Championship, 159 Praed Street, London, W.2.

A list of approved cars is contained in the regulations; it should be made quite clear that this is a preliminary list, and that the Panel will consider other makes which are regarded as being built in the spirit of Appendix "J" of the Sporting Code applicable to Grand Touring and Improved G.T. cars.

The procedure is quite simple. Entries for the Competition will close on 31st March, 1958. The Championship Panel will meet at the earliest possible moment following the closing date to consider entries of cars not on the original list.

REGULATIONS

THE competition will be known as the AUTOSPORT Series-Production Sports Car Championship, 1958, and is open to all holders of an F.I.A. International Competitions Licence whose cars comply with the spirit of the regulations contained in Appendix J of the Sporting Code, applicable to Grand Touring and Improved Series Grand Touring models. A series of qualifying events will be staged on various circuits during the season, and points will be awarded according to the placings achieved in each class. Points obtained at any six of these events will count towards eligibility to take part in the final, a race at Snetterton circuit, Norfolk, of not less than three hours' duration. All cars must be the private property of the entrant (who need not necessarily be the driver—see Article 4) and proof of ownership may be demanded at any event in the series. Closing date for entries will be 31st March, 1958: no entries will be accepted without notification of engine, chassis and registration numbers. There will be a separate Team Award, for a nominated team of three cars (not necessarily of the same make) which amasses the greatest aggregate of points during the season.

Article 1

The competition will be staged on a series of scratch races within classes. These classes are: (1) 700 to 1,000 c.c. (2) 1,001-1,300 c.c. (3) 1,301-1,600 c.c. (4) 1,601-3,500 c.c. Modifications permitted are limited to those listed for Grand Touring Improved Series cars in Appendix J of the Sporting Code. All cars must comply with the Road Traffic Act. Full all-weather equipment as supplied by the manufacturers must be available for inspection; in any case, all cars will be required to race with the standard windscreens (fitted with laminated glass).

CREWS of the three Hillmans, winners of the Manufacturers' team prize in the Canadian International Rally. The cars were placed fifth, sixth and seventh out of 144 starters, 63 of whom were forced out by weather conditions. Left to right, the crews are Donald Fedeski, Alastair Smith, Ray Carter, George Reid, George Blane and Jack Gaven.

No cars will be considered unless registration, chassis and engine numbers are clearly indicated on the entry form. Entry of cars without these details will on no account be considered for the Championship. Machines approved by the Panel can be said to be homologated for participation in the series, although not necessarily homologated by the F.I.A. In any case, no vehicle will be admitted without irrefutable proof by the manufacturers that it is the intention to produce a minimum of 100 units during the fiscal year.

The Panel reserves the right to consider, at any time, the homologation of vehicles for the following year's series. The regulations for the Championship will apply for a minimum period of three years, and will be guided by Appendix "J". This decision, of course, makes cars which have been out of production for at least four years ineligible.

No metal tonneau covers will be permitted on open cars: if fitted, these must be of a non-rigid material.

Article 2

Engine capacities may be increased to the extent of the maximum size of pistons supplied by the manufacturers, provided that reboring (or sleeving) does not increase the capacity to such an extent that the car comes into the next highest category. The categories will be those indicated in Appendix J. All cars will run on *Pump Fuel* as readily available to the general public. Superchargers will not be permitted. There must be seating for at least two persons: at no time will seats be removed for the stowage of spare wheel or extra fuel tanks. At least one spare wheel must be carried on the car at all times, utilizing the mountings and location supplied by the manufacturers.

Article 3

(a) While the entrant must be a competitor, this does not restrict the number of drivers. To permit of the entry of cars which may be jointly owned, it will be quite permissible to include the names of not more than two persons other than

the entrant in the original entry form. However, the entrant must have taken part in at least three of the events listed, and these three, irrespective of the results obtained, must be included in the six events necessary to qualify for the final. (b) It should be made clear that the *minimum* number of qualifying events is six, and to qualify at least two laps must have been covered.

Article 4

The AUTOSPORT Team Trophy will be awarded to a nominated team of three cars which, during the season, scores the highest aggregate of points. Although points can be scored in any number of events, the same proviso regarding qualification applies to each individual member of the team. In other words, each member of the team must have competed in a *minimum* of six qualifying events before the team itself is eligible for the award.

Article 5

Points will be awarded on the following basis: Race distance, 25-40 miles: first, 8 pts.; second, 6; third, 4; fourth, 3; fifth, 2; sixth, 1. 40-60 miles: first, 10; second, 7; third, 5; fourth, 4; fifth, 3; sixth, 2; seventh, 1. Over 60 miles: first, 12; second, 8; third, 6; fourth, 5; fifth, 4; sixth, 3; seventh, 2; eighth, 1. *Three Hours' Race*: first, 24; second, 18; third, 14; fourth, 10; fifth, 6; sixth, 4. All finishers, 2. To the outright winner in any event comprising two or more classes, 1 point.

Article 6

LIST OF ELIGIBLE CARS

Up to 1,000 c.c.:

Fiat-Abarth 750; Renault 4CV, 1063, Dauphine 1063, Ferry-Renault, Alpine, Gordini-Dauphine, Renault Brissoneauet Lotz; D. B.-Panhard, Panhard Junior; Turner A35; X (to be announced).

1,001-1,300 c.c.:

Porsche "1300", "1100"; Denzel "1300"; Lotus Elite 1200; Alfa Romeo Giulietta, S.V., S.S., and Spyder; Simca Sport, Monthéry; Fiat 1100 TV Spyder; Siata "1100" G.T.; M.G. TF; Morgan 4/4.

1,301-1,600 c.c.:

M.G.A. TF, 1500; Porsche Super, Carrera, 1600; Denzel "1500"; Elva Courier; Borgward TS.

1,601-3,500 c.c.:

A.C. Ace; Ace-Bristol; Aceca; Austin-Healey 100, 100S, 100 Six; Alfa Romeo T.I., S.S., Mercedes-Benz 190 SL, 300 SL, 300 SL Roadster; Morgan Plus Four; Triumph TR2, TR3; Ferrari 250 G.T.; Maserati A6G.2000; Fiat 8V; Lancia G.T., Spyder; Jaguar 120, 140, 150; BMW 507; Doretti; Aston Martin DB2, DB2/4, Mk. III; Salmson.



THE AMSTERDAM SHOW

THE Amsterdam Motor Show, one of the three "independent" and most international shows, was opened only a couple of days after the announcement of an increase of taxes on cars imported into the Netherlands, these taxes totalling at the moment up to 61 per cent. The Amsterdam Show has the same attraction as those of Geneva and Brussels, competition of all cars being more fair than in countries with an automobile industry. This situation may change in the near future on the small car market in this country, as last week it was announced that Holland will also produce a four-seater saloon before the end of this year. This will be of revolutionary design and with an engine of 600 c.c. selling at a price lower than the imported "full-size miniature cars". The Dutch Show will this year attract more interest than ever, since Brussels had to cancel its Motor Show with a view to the 1958 World Exhibition.

Holland started several assembly plants after World War II, mainly due to the fact that the import duties on complete cars were much higher than on parts. At the moment DKW, Fiat, Ford (Dagenham products), M.G., Morris, Simca, Volvo and some more makes are built from imported C.K.D. (complete knocked down) units and some 20,000 people are employed in this industry, including the manufacturing of several home made parts, like tyres, radiators, batteries, paints, safety glass, and so on.

Of the 63 makes represented at the Dutch Show Britain has the highest number, 20. Germany (East and West combined) has 15, the U.S.A. 12, France 8, Italy 4, Sweden 2, and both Czechoslovakia and Holland 1.

Twenty makes exhibiting products with an engine capacity of under one-litre form the opponents of the products of Uncle Sam, with engines up to 7 litres and over 300 b.h.p. There are some first appearances at this show, the Hillman Husky, Sunbeam Rapier, Triumph TR3, Fiat 1200 Gran Luce, and the D.A.F. Some of these are rather well-known types, with minor body modifications or "face-lifts", but it is the new Dutch D.A.F. car which is certainly something totally new and it therefore does not only attract interest from the Dutch public, but also from press, manufacturers and other people from abroad.

AUTOSPORT has already given a brief report on this remarkable small car. Our correspondent will do a short road test in a few days and will give his impressions in a future issue.

FRENCH GRAND TOURISME RACES

LAST year the 12 hours of Rheims was the main event for Appendix J "Grand Tourisme" cars in France. The race was a great success due to the large number of cars which were still running at the finish and therefore the French organizers are promoting three races this season for these cars. The races will be held at Pau (6th-7th April), Rheims (5th-6th July) and on the brand new mountain circuit of Clermont Ferrand, in the centre of France (27th July). Although there is going to be a separate classification with prize money for each of these three races, the Federation Française des Sports Automobiles will give a challenge cup to the aggregate winners



WILLIAM VICTOR RILEY

WILLIAM VICTOR RILEY, who died in an Oxford nursing home on the 9th February, was the eldest of five sons of William Riley, founder of the Riley Motor Company (originally the Riley Cycle Co., Ltd.), at Coventry in 1898. Born in Coventry on the 5th January, 1876, "V. R.", as he was always known to his many friends, was educated at the King Henry VIII Grammar School in that city. Leaving school at the age of 14, he was apprenticed in his father's cycle business and although his business was making bicycles and tricycles he was soon, with his brothers Percy and Alan, busy designing and making motor cars. Soon after the turn of the century they were building motor-cycles and in 1903-04 the 4½ h.p. water-cooled single cylinder "Forecar" was built. It was in 1903 also that, with his brothers Alan and Percy, he formed the Riley Engine Co. Then came the 6 h.p. twin car and later a 9 h.p. with a four-speed gearbox—a car far ahead of its time.

"V. R.", while still in his twenties, became works manager and it was largely

due to him that in 1907 Riley pioneered detachable wire wheels, fitted them as standard equipment and for many years were the biggest manufacturers of these wheels in the world. About this time, too, the Riley Motor Manufacturing Company replaced the Riley Cycle Co., and Victor formed the Nero Engine Co., control of which was taken over in 1913 by Stanley Riley.

Upon the cessation of hostilities Riley (Coventry) Ltd., was formed, the Riley Motor Manufacturing Co. became the Midland Motor Body Co. in 1919, and it was in this year that Riley (Coventry) Ltd., absorbed the Nero Engine Co.

With the introduction of the Riley 9 "Monaco" saloon in the mid '20s, the success of his company was assured and it was during the succeeding 10 years that controlling interests were acquired in the Midland Motor Body Company and British Press Panels of Coventry. Riley (Coventry) Ltd., under "V. R.", embarked upon its astounding development and racing programme and the marque was seen wherever car sporting events were held, notably at Le Mans and Brooklands, as well as at trials and rallies all over the country and Europe.

It was in 1925, at the conclusion of the annual M.C.C. "London to Edinburgh Run", that the Riley Motor Club was formed, with "V. R." as its president—a position he held until his death. A keen and enthusiastic president, he attended all events and took an active interest in all sides of the club's activities. In 1907 he competed in the Shelsley Walsh Trial and in 1909 won the event outright in his famous V-twin. Only two or three years ago he again took his car up the famous hill.

In 1938 when Lord Nuffield acquired Riley (Coventry) Ltd., "V. R." retained his managing directorship and in 1939 joined the board of the Nuffield Organization, on which he served until his retirement in 1948.

He married in 1934 Dorothy Champney, a well-known competitor in motor-racing events, who survives him with a son and a daughter, and in his retirement lived at Stow-on-the-Wold.

in each class. The first five in each class will automatically qualify for the next race.

The Pau and Clermont races will last three hours and the circuit of Pau being too short for the 50-odd cars who will participate, this particular race will be run in two or three heats, each one dealing with one or two classes. In Rheims the race will last 12 hours as usual. The classes will be: up to 750 c.c.; 750 c.c. to 1,000 c.c.; 1,000 c.c. to 1,300 c.c.; 1,300 c.c. to 2,000 c.c. and over 2,000 c.c. The cars have to comply to the "Grand Tourisme spécial" paragraph of the Appendix J.

For Lotus XI or A.C.-Bristol owners who might be interested, the prize money is as follows: **1,300 c.c. class:** 1, 125,000 fr.; 2, 90,000 fr.; 3, 70,000 fr.; 4, 40,000 fr.; lap record, 25,000 fr. **2,000 c.c. class:** 1, 150,000 fr.; 2, 100,000 fr.; 3, 80,000 fr.; 4, 60,000 fr.; lap record, 30,000 fr.

Entries will close on 5th March and letters should be addressed to the Federation Française des Sports Automobiles, 8 Place de la Concorde, Paris.

It was announced recently that the G.P. of Pau, traditional Easter Monday meeting, will cater for Formula 2 cars

and British drivers who are interested should get in touch with Monsieur Charaudeau, 85 Avenue Mozart, Paris 16, who is the secretary of the meeting. The 1.7-mile circuit of Pau should suit the Coopers and Lotuses very well and works entries are expected from Cooper and Ferrari.

GÉRARD CROMBAC.

1958 DUNLOP GUIDE

THERE are many new features in the 12th Edition of the Dunlop Guide which has just been published.

The gazetteer of towns has been brought up to date, and it incorporates a number of new features. Thirty more town street plans have been included, bringing the total to 167; the principal car parks and public conveniences are shown on the street plans; and details of hotel accommodation now include such things as the availability of a night porter, the provision of television, and the existence of a ballroom.

The 24-page atlas has been revised, and it now shows new and projected by-pass roads. In addition maps of holiday touring areas have been introduced. The Guide retails at 7s. 6d.

IMPOSING as Buckingham Palace, yet retaining a very refined dignity. The Silver Cloud combines superb motoring with tremendous prestige, and the great name still means as much as ever it did.

comes necessary. The rear brakes are partly servo operated, too, but the pedal is also coupled to the shoes by a mechanical hook-up, so that some direct "feel" is retained.

Another new feature of the car tested was the power-assisted steering, which is optional. This is a straightforward hydraulic system, which obtains its pressure from a small, engine-drive pump. The operation is so graduated that, although the power assistance does nearly all the work during low speed manoeuvring, the driver contributes a fair proportion at other times. This overcomes the "dead" sensation which some power-assisted layouts give, and which might make the driver feel that he was

JOHN BOLSTER TESTS THE

Rolls-Royce Silver Cloud

AMONG the many cars which are submitted for test, the advent of a new Rolls-Royce must always be an outstanding occasion. The magic of the name, of course, has something to do with it, but perhaps even greater interest lies in the sheer continuity of Rolls-Royce development. I have owned seven of the earlier models myself, and have had the privilege of driving nearly every type that has been produced. Most modern cars bear no resemblance to their forbears, but I at once recognized the aluminium name-plate on the bulkhead, because it is absolutely identical to the one that my 1911 Silver Ghost carries. Some knurled nuts on the engine covers would fit the early "Twenty", and other resemblances strike one as the chassis is examined. I almost forgot to mention the radiator.

The Silver Cloud follows the design of recent Rolls-Royce and Bentley cars. It has a box-section chassis with cruciform bracing, and the independent suspension, with very wide spacing of the lower wishbone pivots, is as before. So is the hypoid axle on its semi-elliptic springs, driven by an open divided propeller shaft, and located by a Z-shaped torque member.

The big 4.9-litre engine is still of the inlet-over-exhaust valve layout, but here a change has been made that profoundly affects the character of the car. A very considerable increase in the compression ratio, from 6.6 up to no less than 8 to 1, has improved the performance even more than one would expect. Thanks to the light alloy head and the fundamentally good turbulence of this valve positioning, the engine will still run perfectly smoothly on almost any sort of petrol, and the most expensive grades are not required. The two very large SU carburettors have an automatic starting arrangement of special Rolls-Royce design.

A fluid coupling drives the gearbox, which is of epicyclic principle and has

four speeds. It can simply be regarded as a fully automatic transmission, or the driver can take over and make his changes manually. Even then, he is prevented from doing anything destructive. For instance, were he to attempt to change down at 100 m.p.h., the gear would remain in top until the speed was reduced to about 70 m.p.h., when a completely smooth change would take place. There is, as with other "automatics", a kick-down change, achieved by extreme accelerator depression. However, one sometimes wishes to change down with only a light throttle opening, and this the hand lever permits.

I am glad to say that the brakes retain the famous gearbox-driven servo. The front brakes are hydraulic, and fully servo operated. They work on the hydrastatic principle, with the linings in permanent light contact with the drums, and so they never require adjustment, right up to the time when relining be-

not in full command of his car. With tyres of 8.2 ins. section, and a car of this size, power-assisted steering must be a worthwhile feature.

The body is of all-steel construction, and is remarkably light in view of its size and luxury, to the benefit of performance and handling qualities. It is large and roomy, with almost every imaginable accessory for passenger comfort. The elaborate built-in heating, demisting and ventilating system includes an electrical demisting element for the rear window.

On taking the wheel, the seating position at first feels rather high, but this gives an impression of command over the big car. Starting is instantaneous, hot or cold, and the machine may be driven off at once in the morning without stalling. Provided that the hand-brake is applied, there is no danger of unwanted creeping when a gear is engaged.



CLASSIC radiator tops a car which gives the appearance of having quality built into every line. This striking view shows the car at its most impressive.



The first impression on moving off is one of immense acceleration. This car really goes, and the higher compression ratio certainly pays dividends when the accelerator is pressed down hard. I would say that the engine is even smoother than the lower-compression unit, and one never has the idea that it is moving about on its flexible mountings. To insulate the unit so completely, without allowing it to shake when it is delivering its massive torque, is a major engineering achievement.

For a car weighing just on two tons, the performance figures are fantastic. The getaway from rest feels terrific, in spite of its smoothness, and the 0 to 30 m.p.h. time of 3.4 secs. can only be equalled by the very "hottest" sports cars. The figure for the standing quarter-mile is 18.1 secs. as a mean of several runs in both directions. On each of these runs, the car was exceeding 80 m.p.h. before the end of the "quarter"! The 0 to 90 m.p.h. time of 25.2 secs. is much better than that of any of our competitively priced sports cars and some of the expensive ones, too. Because these cars are in entirely different classes, it is perhaps not unethical to make such comparisons; or to remark that some famous speed models, of German and Italian origin, would be comfortably out-accelerated.

It is necessary, at this point, to paint the other side of the picture. The Silver Cloud can be moved off almost imperceptibly, and when driven in this fashion it engages its top gear as early as would the most stately chauffeur. It then whispers along in exactly the same way as did the Silver Ghost of immortal memory. The difference is that, if ever it is wanted, that sudden surge of immense power is waiting under the pedal.

It was some 33 years ago that Rolls-Royce first fitted their cars with a gearbox-driven servo for the four wheel brakes. I had one of those early cars, and the brakes were far better than those

of most 1958 models. The current type have fully retained that leadership, and they may be applied repeatedly at over 100 m.p.h. without a sign of fade. As most of the world's large cars are woefully short of braking power, the Rolls-

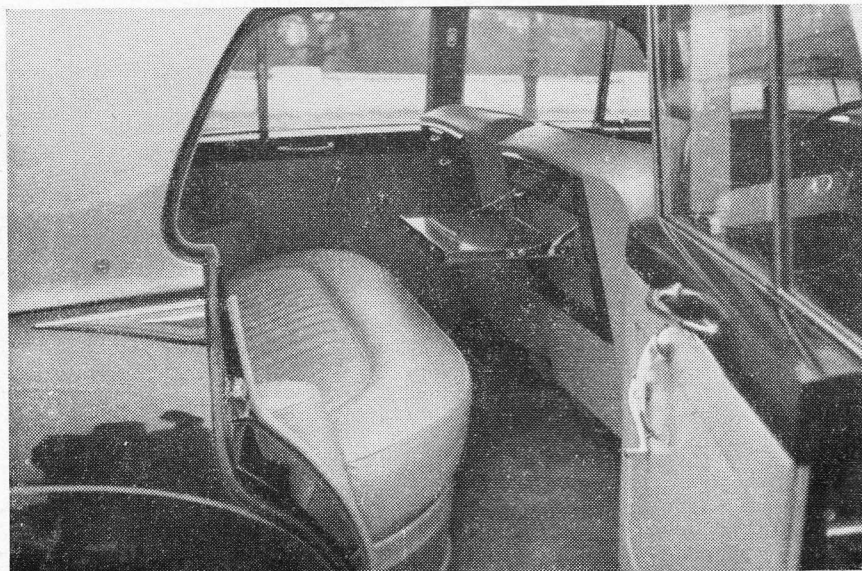
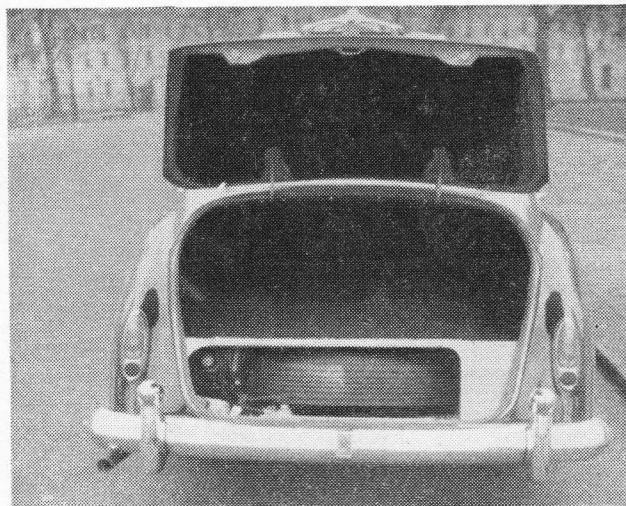
DRIVING compartment combines a neat, functional layout of controls and instruments with a "well-bred" air of simplicity and convenience. The driver's position is rather high, and this gives a feeling of complete control over such a large car.

Royce is really outstanding, especially in comparison with the biggest American vehicles.

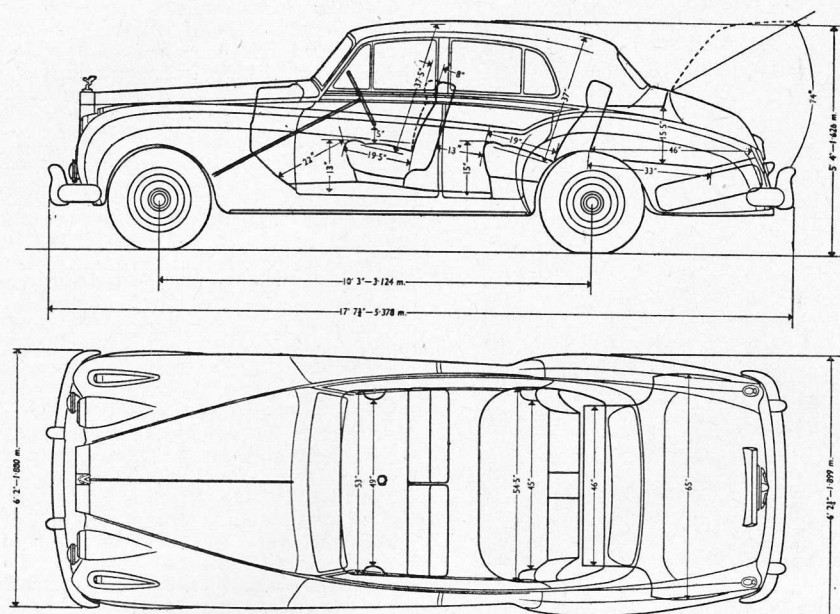
The machine handles well under all conditions, but naturally its size must be taken into account on corners. One cannot, of course, fling it about like a small sports car, but at all reasonable speeds it responds perfectly on dry or wet surfaces. I found that I drove faster in traffic than I have previously driven a Rolls-Royce, both because of the extra acceleration and of the power-assisted steering.

I really like this power-assisted steering. At low and medium speeds, it makes this very large car as light to handle as the smallest vehicle. To manoeuvre such a capacious carriage must demand a fair amount of wheel-twirling, but one finger suffices to spin it from lock to lock. The performance is also excellent at high speeds, but the average driver would be well advised to go gently at first, until he is fully used

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CAPACIOUS boot is unimpeded by the spare wheel which, as can be seen, is carried in a separate compartment.
★



REAR seats and all interior trim and upholstery maintain the luxurious standard associated with the Rolls-Royce. The rear window is electrically demisted, and picnic tables are mounted on the rear of the front seat squabs.

**Dimension Diagram**

to power assistance. This is because the steering is so effortless that, in conjunction with the silence and smoothness of the engine, it is possible through inattention to enter a corner too fast. It is worth glancing at the speedometer, for it has a way of creeping up to 90 m.p.h. when you thought you were only doing "sixty".

All the usual Rolls-Royce features are found. The rear shock absorbers have a hand control, electrically operated. The suspension is not particularly soft, but gives a welcome freedom from pitch or roll. The chassis components are served by a built-in lubrication system, and it is such a pleasure to return to proper instruments on the dashboard, instead of those nasty little indicator lamps. It goes without saying that the finish is superb, the heater is exceptionally powerful, and even the radio has an unusually good tone.

The pleasure of handling such a car is very great. Its size may be a handicap on certain journeys, but car park attendants, and even the police, give preferential treatment to the driver of a

Rolls. The great name still means as much as it ever did, and if the chap who opens the door for you expects half a crown as a matter of course, that is a small price to pay for indulging in this very special sort of motoring.

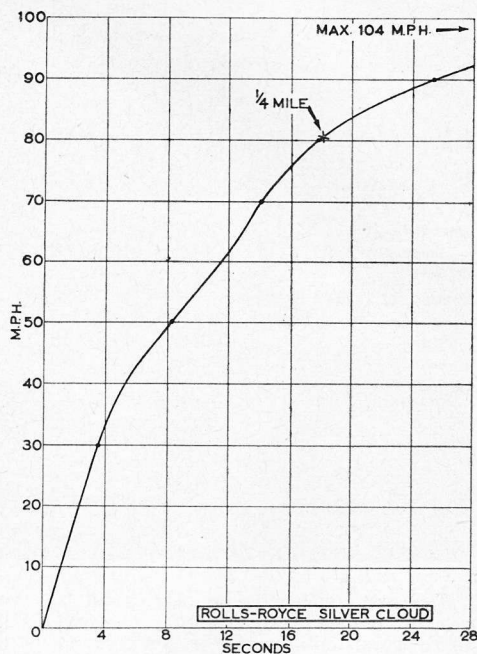
Sheer quality will never be cheap, and the Rolls-Royce cannot be other than an expensive car. Yet, for the lucky man who can afford it, it is certainly a good investment. As a superb piece of transportation equipment, carrying immense prestige, there is no substitute for this car.

SPECIFICATION AND PERFORMANCE DATA

Car Tested: Rolls-Royce Silver Cloud saloon, price £5,693 17s., including P.T. Extra, power-assisted steering, price £165, including P.T.

Engine: Six cylinders, 95 mm. x 114 mm. (4,887 c.c.). Pushrod-operated overhead inlet valves in light alloy head. Side exhaust valves in block. Compression ratio 8 to 1. Twin SU carburettors. Coil and distributor ignition.

Transmission: Fluid flywheel and four-speed epicyclic gearbox with automatic gearchange, ratios 3.42, 4.96, 9.00 and 13.06 to 1. Open two-piece pro-

**Acceleration Graph**

peller shaft with steady bearing. Hypoid rear axle.

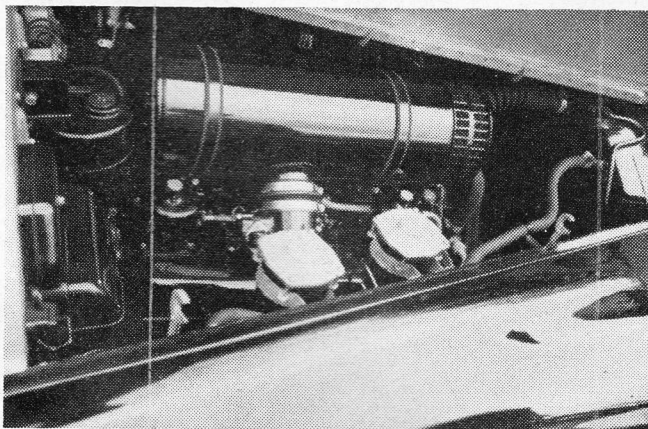
Chassis: Box-section frame with cruciform bracing. Independent front suspension by unequal length wishbones and helical springs with torsional anti-roll bar. Cam and roller power-assisted steering with three-piece track rod. Rigid rear axle on semi-elliptic springs with Z-type torsional locating member. Piston-type dampers with electrically operated ride control at rear. Hydraulically operated hydrostatic front brakes, hydraulic and mechanical rear brakes, gearbox-driven servo; 8.20-15 ins. tyres on pressed steel wheels.

Equipment: 12-volt lighting and starting. Speedometer. Clock. Oil pressure, water temperature and fuel and oil level gauges. Heater and demister, with electrical demisting of rear window. Self-cancelling wipers and screen washers. Flashing indicators. Radio. Cigar lighters. Picnic tables.

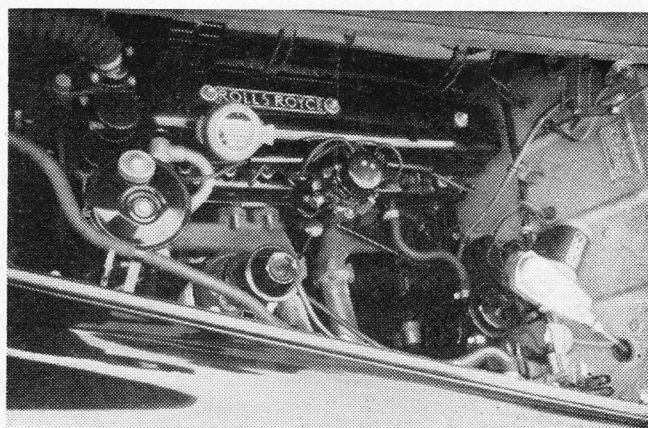
Dimensions: Wheelbase, 10 ft. 3 ins. Track (front), 4 ft. 10 ins., (rear) 5 ft. Overall length, 17 ft. 8 ins. Width, 6 ft. 2 1/2 ins. Turning circle, 42 ft. Weight, 1 ton 19 1/2 cwt.

Performance: Maximum speed 104 m.p.h. Standing quarter-mile 18.1 secs. Acceleration, 0-30 m.p.h., 3.4 secs.; 0-50 m.p.h., 8.4 secs.; 0-60 m.p.h., 11.6 secs.; 0-70 m.p.h., 14 secs.; 0-80 m.p.h., 17.8 secs.; 0-90 m.p.h., 25.2 secs.

Fuel Consumption: 16 m.p.g.



BIG engine of 4.9 litres retains the inlet-over-exhaust valve layout, with its inherently good turbulence. Compression ratio, however, is increased from 6.6 to 8:1 and this improves the performance considerably.



THE engine appears to be even smoother than before, and is perfectly insulated with no shake whatsoever, even when delivering its tremendous torque. Under-bonnet space is well-fitted, but "owner-maintenance" is scarcely intended!

A BRITISH NATIONAL FORMULA?

Suggestions for a Comparatively Low-cost Form of Racing for Proprietary-powered Single-seaters

by GREGOR GRANT

FOR some time it has been evident that single-seater racing is beyond the resources of the average amateur enthusiast, unless he is content to take part in the few events for 500 c.c. cars, restricted to J.A.P. engines. The idea of "J.A.P. races" has been fostered by the B.R.S.C.C., and undoubtedly provides a certain amount of competitive racing for people who can neither afford to purchase new series Formula 3 cars, nor fit the essential two-o.h.c. Norton engine. It also provides the opportunity to utilize obsolescent chassis, which may be acquired at fairly low cost. Apart from the established sports car events for vintage, and "750" and "1,172" machines, this J.A.P. racing does provide a useful outlet for those who do not have much in the way of financial resources. In any case, sports car owners have the opportunity to race on various circuits practically every weekend, whereas owners of older types of

of pump fuels. Owing to the larger capacity of the Ford engine, o.h.v. conversions should not be permitted, but otherwise, proprietary cylinder heads could be fitted. There should be no restrictions on cylinder head modifications, porting, valve sizes and the number of valve springs. Carburettors should be limited to a maximum of two (a double-choke instrument to be regarded as twin carburettors). Pistons must be those supplied by the manufacturers, with reboring limited to the maximum oversize pistons listed in the manufacturers' catalogues. High-lift and racing camshafts to be permitted, so long as these are available through normal trade channels. Standard crankshafts to be used, but there should be latitude in the types of bearings fitted. Oil-coolers to be permitted, but no increase in sump

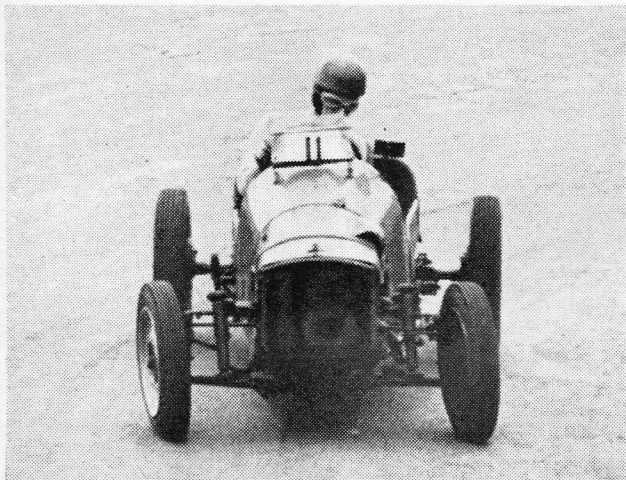
capacity. No restriction as regards size of radiator and/or header tank. Exhaust pipe(s) must be arranged so that tail pipes are carried to a point not less than 12 ins. beyond the rear axle. Pipes must not be arranged so that gases will be emitted either directly upwards, or to the side of the car.

Chain drive should not be permitted, and the gearbox must have a minimum of three forward speeds and a reverse gear. Push-starts should be permitted, to obviate the need for separate starting arrangements, or the fitting of electric starters.

As regards chassis design, there should be complete freedom, but minimum and maximum dimensions for both front and rear tracks, and for wheelbase should be insisted on to avoid the construction of freak machines. A suggested minimum weight limit of 600 lb. (dry) could be applied for the complete car, in the interests of safety. There should be no restriction on wheel and tyre sizes, but where bolt-on wheels are used, there should be additional safety measures to prevent loss of a wheel should the bolt heads become stripped or loosened in any way.

Complete freedom should be given to the location of the engine, and also to the method of transmission, excepting chain or belt drive. Again, to prevent "freaks", dimensions should be drawn up for seating and distances between pedals and front of seat cushion. Bodywork may be of steel, aluminium-alloy or plastic materials, enclosing the engine, fuel tanks and chassis members. There must be adequate fireproof bulkheads between engine compartment and the rest of the car. Fuel tanks must be located at least 3 ft. from No. 1 (or No. 4 as the case may be) sparking plug. Hand-pressurized fuel tanks not to be permitted, the pumps to be operated

(Continued on page 249)



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TYPICAL of the highly successful Irish single-seater Ford specials are these two cars: T. A. Burke's (left) and Robin Scott's (below). Such simple devices as these can give a great deal of racing fun at really modest cost.
★

500 c.c. machines have nothing like the selection of events.

In point of fact, many potential racing drivers would prefer to use something more akin to F1 and F2 machinery. The last-named, already highly specialized, requires a considerable financial outlay; so, apart from the favoured few, there is no point in thinking in terms of a 1,500 c.c. formula. What is required is one that would encourage skilled design and construction, without the necessity to invest in expensive, twin-o.h.c. racing machines. In other words, by utilizing certain proprietary units, construction costs would be kept fairly low, and replacements could be readily obtained. As water-cooled power-units would be used, pump fuel could be provided for in the regulations.

My suggestion is that power-units could be confined to side-valve Ford (1,172 c.c.), Renault, and the o.h.v. A35 and Standard Ten units. No limit should be placed on the compression ratios used, but these, in turn, would naturally be restricted owing to the use

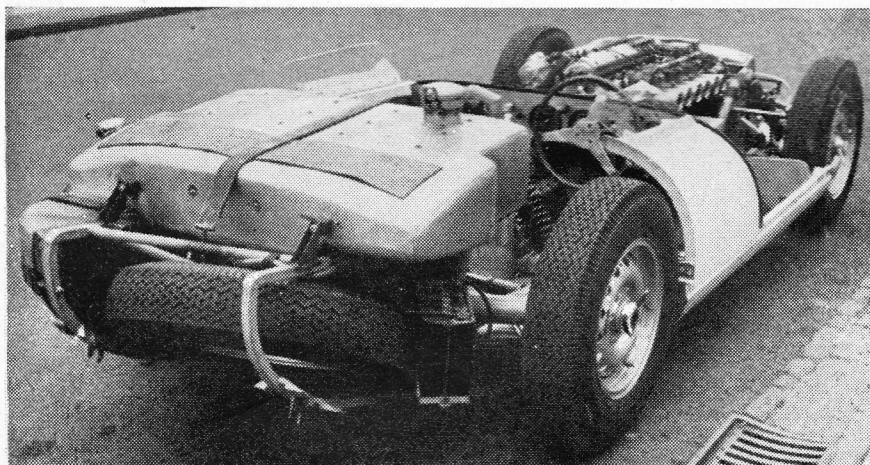
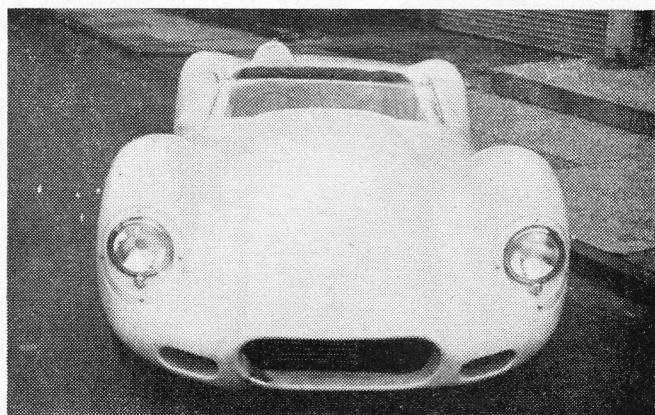


LISTER-JAGUAR

Developed version of highly successful sports-racing machine has cleaner lines,

THE frontal area of the 1958 Lister-Jaguar and Lister-Chevrolet cars is as low as most of the current British 1,100 c.c. cars, and with the 300 b.h.p. available on the larger 3.8 Jaguar engine and on the Chevrolet engines a top speed of circa 200 miles an hour is expected on the faster Continental and American circuits. The height to the top of the windscreen of this car is 33 ins. A driver's head fairing incorporates a crash bar, and the cockpit layout has been re-designed, with fully upholstered seats. The bodies are being made by Williams and Pritchard, Ltd., of Edmonton, some of them in magnesium alloy. Williams and Pritchard, Ltd., have made the bodies of many well-known competition cars,

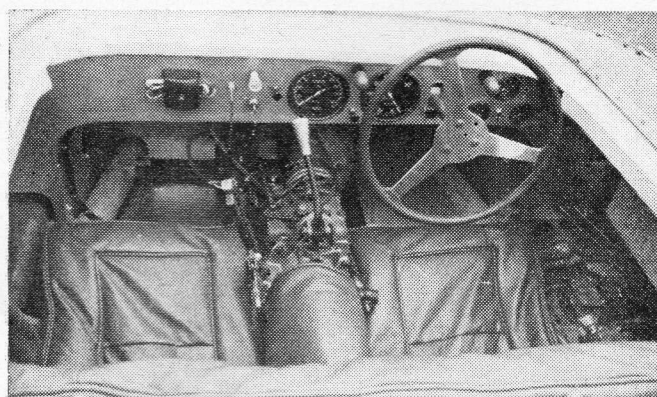
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SMOOTHER lines than on last year's Lister-Jaguar are shown in these views of one of two cars bought by Briggs Cunningham, which will probably be raced at Sebring by Archie Scott-Brown and Walter Hansgen.
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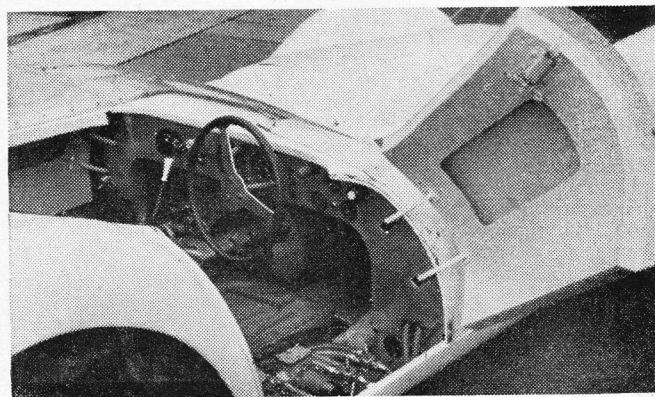
and their craftsmen carry out work of the highest order.

The main points of difference between the 1957 and 1958 Lister cars are these: larger Girling disc brakes (12 ins. all round) are now fitted, as opposed to 10 ins. rear and 11 ins. front last year. The fuel tank is now of 38 gallons capacity and has been reshaped and re-positioned. It is higher but farther forward than last year. There is also an 8-gallon oil tank situated at the near-side rear quarter. Two gallons of oil are carried; the rest of the space in the tank guarantees that no oil will be deposited

STRIPPED for inspection: This view shows the new, larger fuel tank, with the spare wheel now mounted below, instead of above it. The battery, too, is slung lower than before.



DASH layout is now more "civilized" and carries a full range of instruments, plus a readily accessible fuse-box. Twin, fully upholstered seats are fitted.



DOORS are now "three-dimensional" and even have map-pockets. Fuel pumps and tank cocks are mounted on the door sill, fully accessible.

For 1958

larger brakes and tankage, improved weight distribution and redesigned cockpit layout

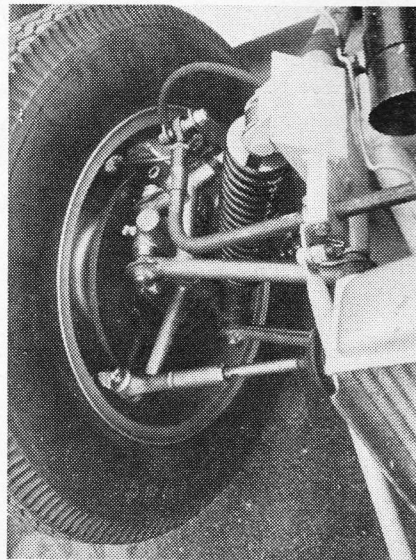
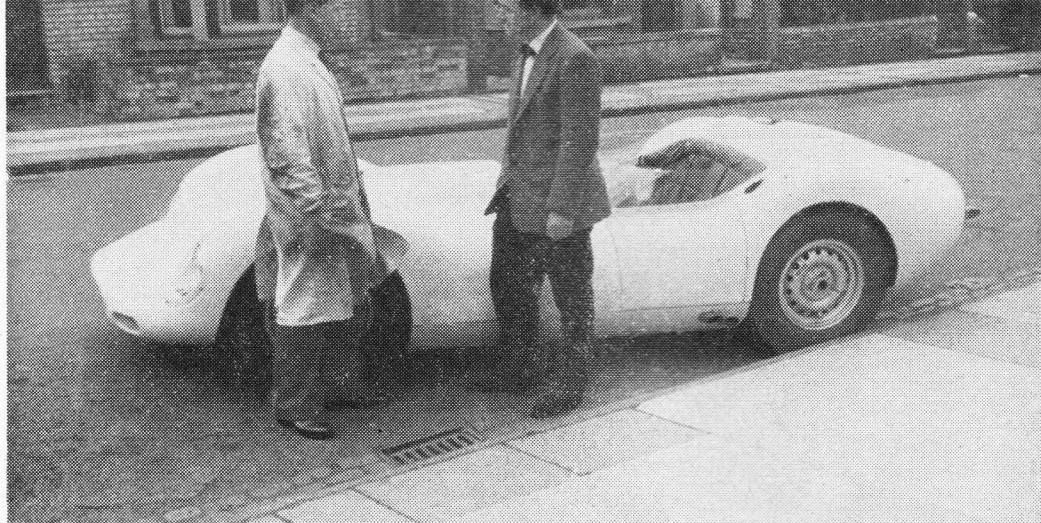
on the track due to frothing, because of the use of dry sump lubrication. The spare wheel has also been repositioned, and is now lower, last year being carried on top of the petrol tank. The battery is also lower.

The car is now equipped with a proper instrument panel with a full range of instruments including a starter switch which actuates with the turn of the igni-

DISCUSSION between Brian Lister (above, right) and Len Pritchard of Williams and Pritchard, who make the magnesium alloy body.

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FRONT SUSPENSION (right) incorporates a new anti-roll bar of heavier gauge. Note the new 12 in. disc brakes.



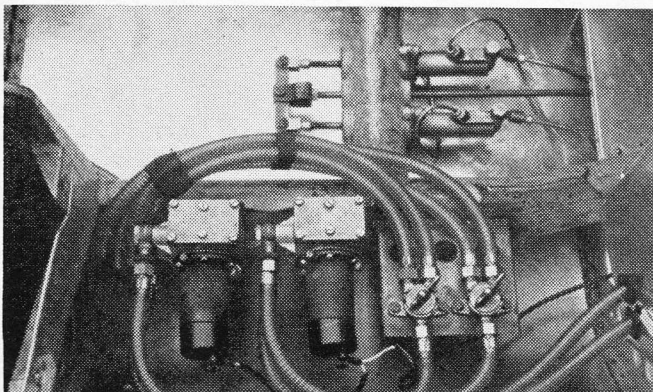
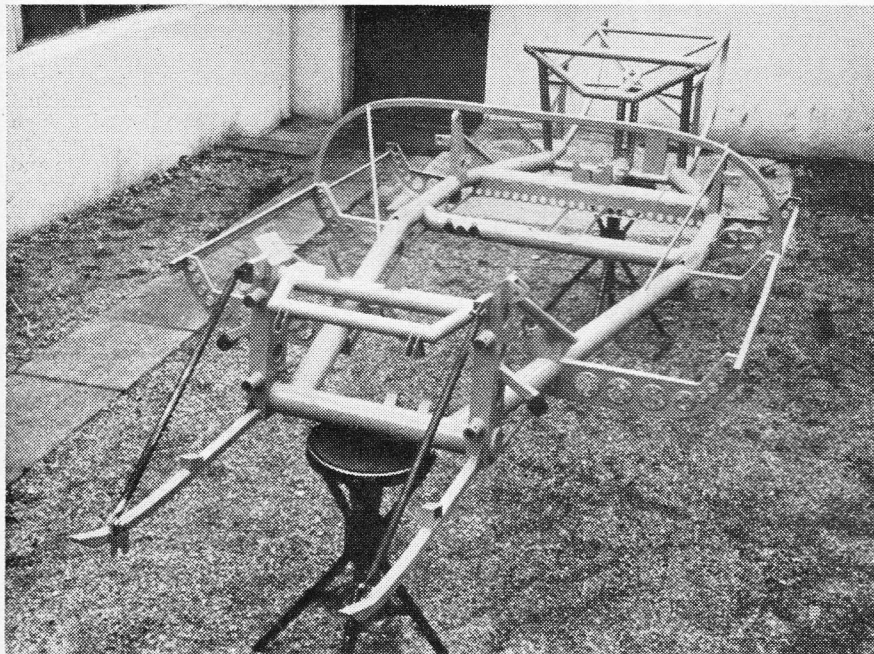
tion key. (This with an eye to Le Mans starts.) There is also a hornbutton and a flicker switch for the headlights.

George Palmer is now in charge of car production which is already quite considerable, being one car per week.

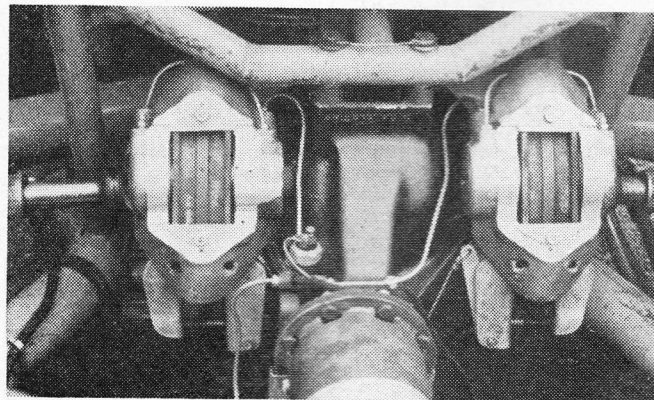
Accessory contracts so far signed are as follows: Fuel and oil—B.P.; tyres and

(Continued on page 244)

BARE chassis frame of the Lister-Jaguar is a lightweight structure built around two large-diameter tubes.



TWIN pickups from both main and reserve fuel tanks, plus dual pumps, virtually eliminate trouble in this department. Note also twin brake master cylinders.



BRAKES are 12 in. Girling discs, mounted inboard at the rear. Pads can be changed directly through two panels, when the bodywork is in position.



CHANGING THE TUNE

How can the amateur improve the performance of production engines?

by **DEREK STOLLERY**

THE present-day touring car possesses road-holding and braking power of a very high order and in most cases the chassis can stand considerably more power and will allow for a much better-than-standard performance. The obvious way to increase performance is to fit a more powerful engine, but this can be an extremely complicated job for an amateur, although it is a very popular way for manufacturers to offer either a faster replacement model or a high performance version of an existing touring model. There are many examples: Morris Minor, A30 and A35, Rover 60, 75, 90 and 105, Standard 8 and 10 and so on. The alternative is to make the existing engine more efficient and turn out more power.

It may seem rather impertinent for the amateur tuner to assume that he can make an engine more powerful than can the professional designer, but the latter is working to a specification to suit the majority, and the enthusiast may obtain more power by sacrificing some flexibility, smoothness, silence and/or reliability. Let us take a typical touring engine and see what we can do with it.

In order to see what we are doing we should look at a typical power output/r.p.m. curve (Fig. 1). It will be seen that power developed increases with speed up to about 4,500 r.p.m. when it begins to fall off. There are two things we can do. One is to increase the power all along the curve, and the other is to delay the falling off so that the peak is farther on in the speed range and, of course, higher on the power output scale; we can even do both. The power begins to fall off at 4,500 r.p.m. on our imaginary engine because at high speeds the fuel mixture cannot be passed through the induction passages fast enough to fill the cylinders, so attention to the breathing of the engine will delay the falling off and give us more power but at higher speeds. Also our engine was probably designed to run

on fuels of modest octane rating, so we may increase the compression ratio at the price of having to run on more expensive petrol. This will increase the output all along the curve.

Attention to the engine without modification

There is much we can do without adding special parts, since the engine we are dealing with was mass produced and a little attention, mainly to the breathing, will pay dividends. The inlet manifold is a casting, only machined at its fitting surfaces, and the internal passages are bound to be rough, which will impede

IMPROVEMENTS to the power unit are scarcely worth while unless the road-holding is improved to match the increased performance. Ballamy modifications to these two Ford saloons (seen racing at Goodwood) have vastly improved their handling qualities.

the flow of fuel mixture at high speeds. Attention with rotary files will clear most of this roughness away and small Swiss files should account for the rest. Much depends on the design of the manifold as to how far inside one can get with the various tools.

Having dealt with the manifold, the same treatment can be given to the inlet ports, but first of all the two components should be checked for correct match as there may be some slight projection caused as in Fig. 2. This can be checked by fitting a sheet of white paper in place of the gasket and marking the mating surfaces. The two marks should be superimposed, any discrepancy showing up if the paper is held against the light.

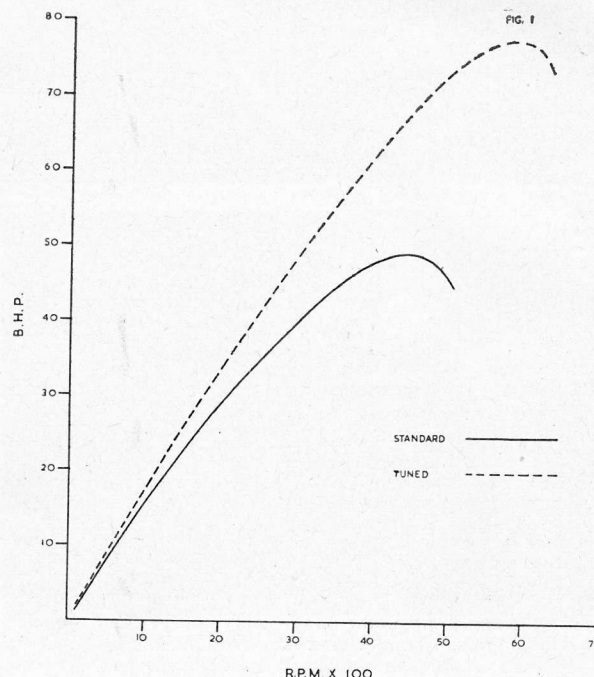
These improvements will ensure that the engine is operating with maximum efficiency within the limits of its basic design and can be applied to good effect in production car competitions where modifications are forbidden.

Increasing the compression ratio

Increasing the compression ratio gives more power but there are limits to how far we can go. Detonation of the fuel is the main limiting factor and a high compression ratio can restrict one to 100 octane fuel or a dash of benzole and it makes the engine rough at low speeds.

As the problems are different with different valve layouts let us take them separately. First the side-valve layout. Here there are several snags in the way of really high compression ratios—firstly that detonation is likely to occur earlier than in the overhead layout and secondly that the valves themselves must have clearance to operate as designed. The provision of adequate headroom for the valves, allowing for a possible degree of valve bounce at high speeds, means that

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PERFORMANCE graph of a typical engine before and after tuning would look something like this.



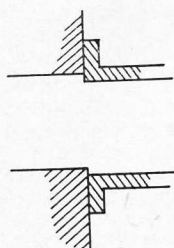


FIG. 2

INLET ports do not often match the manifold exactly, and the "steps" need smoothing out.

there is a minimum combustion chamber volume which, of course, puts a limit to the attainable compression ratio. Another difficulty is that reduction of the combustion chamber volume will cause a restriction at the point marked in Fig. 3. This can be overcome by removing metal as shown by the broken line, but this is enlarging the combustion chamber and reducing the compression ratio. On the whole one is lucky to exceed 8:1 with a side-valve unit without affecting the breathing.

The overhead-valve layout allows a higher compression ratio to be employed, as the valve position helps in keeping the combustion chamber the best shape and there is no restriction to breathing as in the side-valve layout, but the valves still need clearance and they are in danger of striking the pistons, particularly if the engine has a large bore and short stroke. Often a high-performance unit will have shaped depressions in the piston crown to allow for valve operation.

There are two ways normally to increase compression ratio: one is to fit pistons with higher crowns and the other (and more usual) method is to remove metal from the surface of the cylinder head. It should be noted that this method alters the set-up of the valve operating mechanism of an overhead layout and it may be necessary to pack up the rocker bearing pillars by the same amount as was removed from the face. There are no such problems, of course, with the side-valve layout.

Improving the breathing

The normal four-cylinder touring engine has "siamesed" inlet ports and a single carburetter. If the firing order is 1-3-4-2, it follows that when No. 1

piston is on the induction stroke, mixture is passed from the carburetter to No. 1 inlet valve, but the next induction stroke is 3 and the mixture has to be reversed in direction to No. 3 inlet valve. The next stroke is 4 and the mixture is already travelling in the right direction so its inertia helps to fill No. 4 cylinder, but for stroke 2 it is necessary again to reverse the flow. The effect of this reversal of flow is that Nos. 1 and 4 cylinders will be better charged than 2 and 3, and at high speeds the mixture will be dashing hither and thither to such an extent that it is little wonder that power falls off.

The simplest way to overcome this is to fit twin carburetters, one serving cylinders 1 and 2 and the other serving 3 and 4. Here there will be no reversal of flow, but there will be an uneven cycle of operations in which No. 1 carburetter supplies two cylinders and then waits while No. 2 supplies the other two. Thus the column of mixture starts moving for, say, No. 3 cylinder and is still moving for No. 4, but stops while

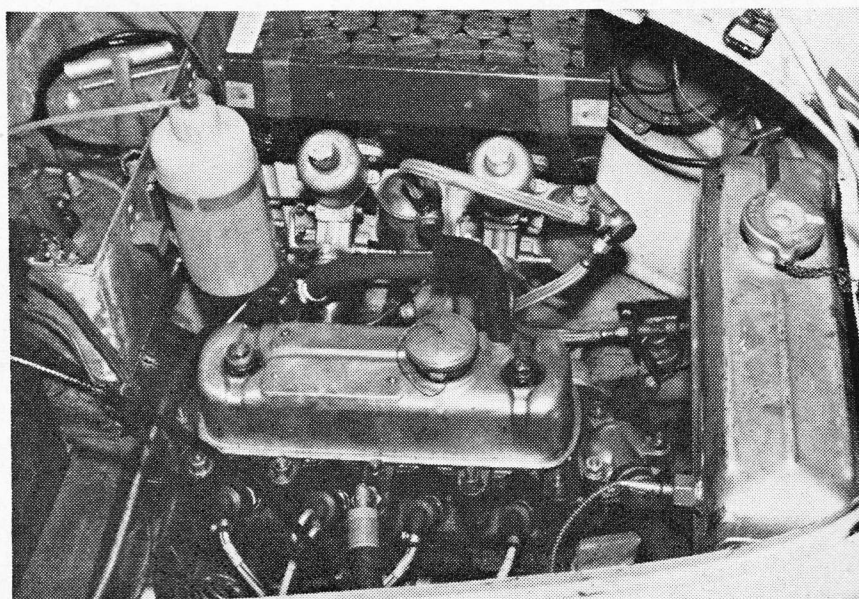
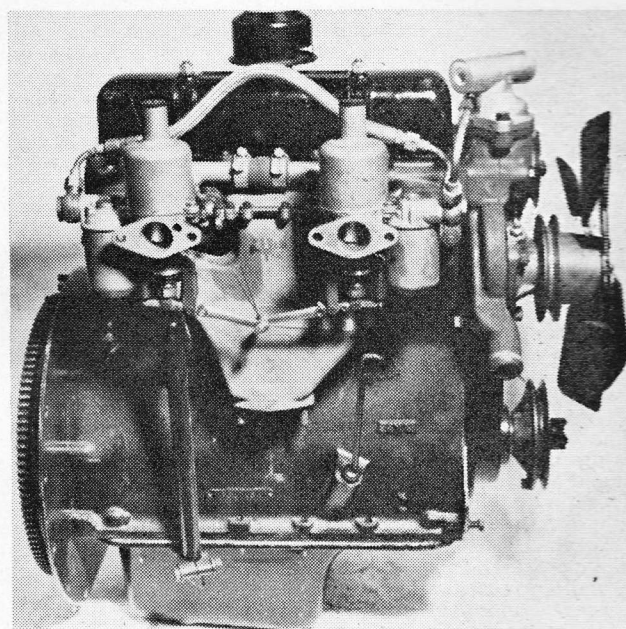
the other carburetter does its stuff, so No. 4 (and No. 1) cylinders are again going to get a better supply than the others.

The answer is to fit carburetters serving 1-3 and 2-4 instead of 1-2 and 3-4, thus evening out the impulses, but there are two snags to this. One is that the ports are siamesed and in order to use the improved layout they must be split, which is likely to be tricky, and the other is that we may start reversing the flow again if the ports are any distance apart. The real answer is to split the ports and use four carburetters but this can be a difficult set-up to tune and keep in tune.

The fitting of twin carburetters would appear to have some drawbacks with regard to even distribution, but they do increase power by reducing the number of corners the mixture has to go round and by increasing the size of the induction system, simply by using two induction pipes instead of one.

It is worth considering improving the single carburetter layout assuming that there is room for the system under the

WELL - ESTABLISHED examples of proprietary conversions to popular "touring" engines are the Alexander Engineering treatment to the Standard 10 (right) and the Speedwell conversion (below) on the Austin A35. Both employ modified cylinder heads, twin SU carburetters and special manifolds.



bonnet. The scheme is to use two almost straight pipes from the ports to the carburetter (which should, of course, be larger than the standard bore) something like Fig. 4. It will be seen that there is less reversal of flow, but inertia effects still favour the outer cylinders.

A six-cylinder engine firing 1-5-3-6-2-4 requires carburetters serving 1-2-3 and 4-5-6, which gives ideal distribution, but the manifolds contain a few bends, and three carburetters serving adjacent pairs of cylinders have better pipe-work although distribution is uneven.

Having looked at multi-carburetter arrangements and mixture distribution, let us take a look inside the induction system to see how we can clear the way and allow more mixture through.

First of all we can make the passage bigger, but this will have the effect of slowing down the mixture flow to the detriment of low speed performance. It is certain that any modifications to improve breathing will add power at high speeds but may reduce it at the bottom end. This is only of interest to those wishing to potter at 25 m.p.h. in top gear, but it can also cause difficulties with a

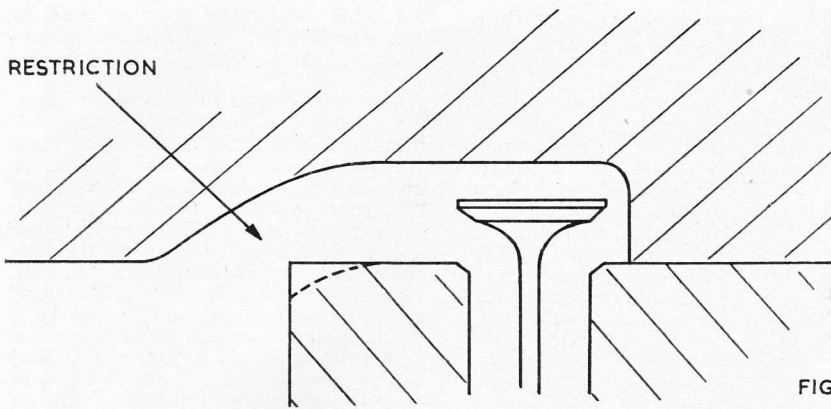


FIG. 3

widely spaced gearbox in that we may change up at peak revs and find that we are so far down the scale in the next gear that we have to wait for the power to come in again, all to the detriment of performance. However, we shall look at this problem in a little more detail later on. Returning to our journey with the mixture through the induction system, the first thing we meet is the butterfly valve in the carburettor. This will be facing us end-on when the throttle is fully open, but it can still cause resistance and may well be smoothed off to a streamlined section. Next we have the induction pipe and it should of course be smooth, and with no steps or projections as we reach the cylinder block or head. The valve guide is next and if there is plenty of it in the head or block, it can be cut off so that there is no projection into the port. Failing this it can be smoothed off to a streamlined shape. The valve itself may have a sharp edge at the inner edge of its seat which can be rounded off. It is as well to remember that the mixture in the cylinder must be turbulent for efficient ignition, and smoothing the flow and increasing the size of the passages goes against this, but the design of the port and head is important in this respect and we can do little about this.

It is little use increasing the bore of the carburettor and induction manifold if the port itself remains the original size, and larger inlet valves are required. It is possible to obtain a small gain with standard valves by using only the outside $\frac{1}{16}$ in. of the seat and increasing the port diameter to suit. This should give an adequate gas seal but may require attention at more frequent intervals.

One other method of increasing the breathing capacity is to make the valve lift farther off its seat. This entails grinding down the base of the cams and fitting valves with longer stems, but care must be taken to see that there is sufficient clearance for the increased lift.

Having packed the maximum volume of mixture into the cylinders we must make sure that the burnt gases can get out before the next induction stroke. This problem is not quite as great as that of induction, as in the latter case there is only atmospheric pressure driving in the mixture while in the case of the exhaust stroke there is the pressure inside the cylinder plus the rising piston, but the exhaust ports and manifold should be reasonably smooth and free from sharp bends and the silencer should be of the straight-through type.

Super tuning

The modifications we have considered so far, with the exception of increased

valve lift, are of a fairly simple nature, consisting of cleaning up the existing unit and adding external fittings, but there are many other changes which can be made of a nature which brings us into the super-tuning class, and provide more power but over a restricted speed range with a sharply peaked power curve. First of all, valve timing.

Under high speed conditions the valve timing may be modified to make use of inertia effects to charge the cylinders more fully, but since these effects are not the same at low speeds, operation at low speeds is bound to be less efficient and output may well be less than that given by the standard engine.

Let us consider the cycle of operations at high speed, starting with the ignition of the mixture and the power stroke. Both valves will be closed, of course, during the power stroke and the first valve operation is the opening of the exhaust valve, which should occur before bottom dead centre to allow most of the pressure to be released before the piston starts to rise, as pushing the gas out absorbs some of the power produced. The exhaust valve must not open too early, however, or power will be lost. At the end of the exhaust stroke there is considerable energy present in the column of gas and the exhaust valve should not close until all the gas has been expelled. This energy can be used to create a suction on the incoming mixture for the induction stroke and the inlet valve must be open to take advantage of this, so it opens before top dead centre and before the exhaust valve closes. The inlet valve must be open all through the induction stroke and again in order to take advantage of inertia effects it remains open as the piston passes through bottom dead centre, and the mixture continues to rush in until the rising piston starts to push it back. The

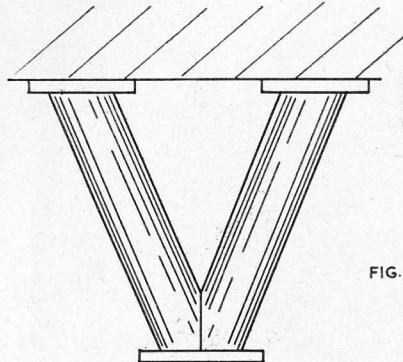


FIG. 4

SIMPLE, though efficient, inlet manifold for a single carburettor.

MACHINING the cylinder head of a side-valve motor may cause undesirable restriction of the inlet ports; hand-work may be used to relieve this.

valve is closed just before this happens.

Allied with this timing, we use an exhaust system designed to extract and an induction designed to promote inertia effects, and if possible we use resonance in the pipes to provide a little more push or pull to the gases as the case may be. All these effects take place at high speeds and greatly increase the peak value of the power developed, but at low speeds there is loss of charge through the extreme valve timing and power is low. We have our maximum power then, but at high revs and over a narrow speed range. Changes in valve timing mean modifying or replacing the camshaft and usually the lift of the valves is dealt with at the same time. The rate of opening of the valves is of great importance: they should open quickly and close quickly, spending as much time as possible in the fully open position. This is achieved by modification of the cam profiles and the shape of the tappet base.

Other factors affecting performance

In all our efforts to pack more mixture into the cylinders we have been trying to increase the volume of the charge with the object of increasing its weight. As is well known, materials expand when heated, which goes for gases as well as solids and liquids, and it follows that the cooler the mixture the more weight we shall be able to use. The touring engine has a hot spot in the induction system to aid quick warming-up of the engine which improves the distribution of the mixture, but during normal running it can heat the charge so that weight is lost, so it is best removed, but at the price of greater use of choke at cold starts. For the same reasons it is not good to feed the carburettors with hot air, and an outside source of cold air should be supplied, but care should be taken to see that the intake is not under pressure.

Supercharging

Fitting a supercharger is possibly the simplest way to increase power. It is an addition rather than a modification and is very effective provided one is not greedy. It works by pushing the mixture into the cylinders instead of relying on atmospheric pressure alone and many breathing troubles are immediately overcome. Pressure is low at low speeds and rises as the blower turns faster, so that performance is not greatly enhanced at low revs but is increased all along the curve, the increase growing as the speed rises. Thus the curve is extended, as the engine does not get out of breath so quickly, but the blower itself requires power to turn it and one must be satisfied with moderate boost and not use astronomical revs or mechanical trouble is certain. Perhaps the greatest point in favour of the blower is that it can be added to an engine and removed later, putting the engine back to standard if desired. A supercharger alone without further modification can be very satisfactory but the unit will still benefit from smoothing the induction tracts and fitting efficient silencing arrangements.

Supercharging has the effect of ensuring complete atomization of the mixture due to the "stirring" action of the vanes

or rotors and can improve performance for this reason alone. Also there may be a reduction in oil consumption and a slight gain in power as the mixture is pushing the piston down on the induction stroke. However, a slight snag is that your insurance company may require a 50 per cent. loading on your premium.

Modifications necessary to the tuned engine

As designed, our touring engine was not meant to be run faster than, say, 5,000 r.p.m., and it may now be asked to go up to 6,000 r.p.m., at which speed the valve springs are not sufficiently strong to hold the valves on to the cams. Double strength springs should be fitted and are available for many different engines.

The bearings are going to be subject to higher loadings due to both increased pressures and inertia and an increased flow of oil may be desirable. This can be accomplished by modifying the oil pump and setting up the system to run at higher pressure. The oil may get rather hot, too, and will require cooling in order to cool the bearings, so a large capacity sump and oil cooler will be desirable.

At high speeds our engine is going to use more fuel, and in order to avoid starvation (and weak mixtures are the arch enemy of high speed engines) an extra fuel pump is desirable.

Finally, more heat generally is going to be developed and the cooling system must be in perfect order and may have

to be enlarged in coolant capacity. The heat inside the combustion chamber will be higher, of course, and exhaust valves of special steel are advisable.

Tuning the chassis

As was remarked earlier, modern touring cars possess excellent road-holding and braking, but it is possible to tune the engine to such a pitch that the power cannot be used to the full because of chassis limitations. Braking is most important and fade-free linings should be fitted and a supply of cooling air is useful. This can be assured by cutting apertures in the wings or using certain types of wheel disc which promote a flow of air over the drums. Road-holding can be improved by stiffening up the suspension and fitting an anti-roll bar and/or panhard rod.

Most touring cars carry around a great deal of excess weight which can be discarded if the best possible performance is required. Bumpers can go, window glass is surprisingly heavy and can be replaced by Perspex, and even the inside trim and spare wheel can be dropped. Replacing the essentials with lighter versions is possible and complete panels (bonnet tops, boot lids, etc.) may be copied in fibreglass reinforced plastics.

Perhaps the most rewarding tuning process of all is to treat yourself to a decent seat. A good, high-sided bucket seat which holds the driver so that the steering wheel is used for steering only and not as a grab handle can make a

difference far out of proportion to its cost, but there may be some restriction in access and exit.

The price of increased performance

If we have gone whole hog and increased maximum power output to the limit we shall find that we have an inflexible engine with a restricted speed range, and we require a multi-speed gearbox. Much can be done nowadays with the fitting of an overdrive working on all ratios, giving the effect of a close-ratio multi-speed box, and in some cases close-ratio gears can be fitted in an existing box. If one wishes to fit a four-speed box in place of a three-speed type, it is not impossible either to fit the new box to the engine or to fit it amidships with a universally jointed shaft from the original clutch.

We shall probably find that our tuned engine requires more frequent maintenance than the original touring unit, and the stresses will be greater so its life will not be so long. Fierce cams and strong valve springs increase wear on camshaft bearings, and high pressures can find weaknesses in gaskets. High operating speeds mean high rubbing speeds of all bearings and may mean higher oil consumption. The extra power may overtax the transmission and cause early failures, and tyre wear will be increased. No one can expect to get something for nothing and many of the engine's features (which are probably of little interest to the enthusiast anyway) must be sacrificed towards the gain in performance.

Ulster Commentary

by W. A. McMASTER

IN my last Ulster Commentary I had a few remarks to make about the abnormally low number of entries being received for Ulster trials. I observed that the best tonic for this situation would be an early announcement by the Ulster A.C. that the 1958 Circuit of Ireland was to be held. Well, that announcement has now been made and up go the entries for recent trials as everybody rushes out to get in some pre-Circuit practice.

The "Circuit" is very much the major topic of conversation among Ulster motoring types just now. The issue of the regulations has confirmed what had already been feared—that as well as the route being lengthened to 1,500 miles, there will also be two all-night drives—on the nights of 4th-5th April and again on 7th-8th April. This has caused some heart-searching on the part of the ageing trialists who, a year or two back, were the stalwarts of the Circuit and some have declared in a forthright manner that they have no intention of submitting to this marathon. A few more probing questions elicits the fact that they have also already booked their hotels at Killarney for the two overnight halts, so all may yet be well.

The 1958 Circuit will have many features which differ from previous events, quite apart from those mentioned above. For one thing, there is every possibility of the 1958 event being "won on the road". Again, it is by no means a foregone conclusion that the winner will be found among the open sports cars which, incidentally, will lead the cavalcade for the first time instead of acting as "tail-end Charlies". As a pressman reporting this rally, I welcome the very active steps being taken to the end that more hard news will be made available during the actual event. For most of the post-war "Circuits" I have acted as co-driver to Charles Maunsell as well as trying to "cover" the rally for Press and B.B.C. and no one knows

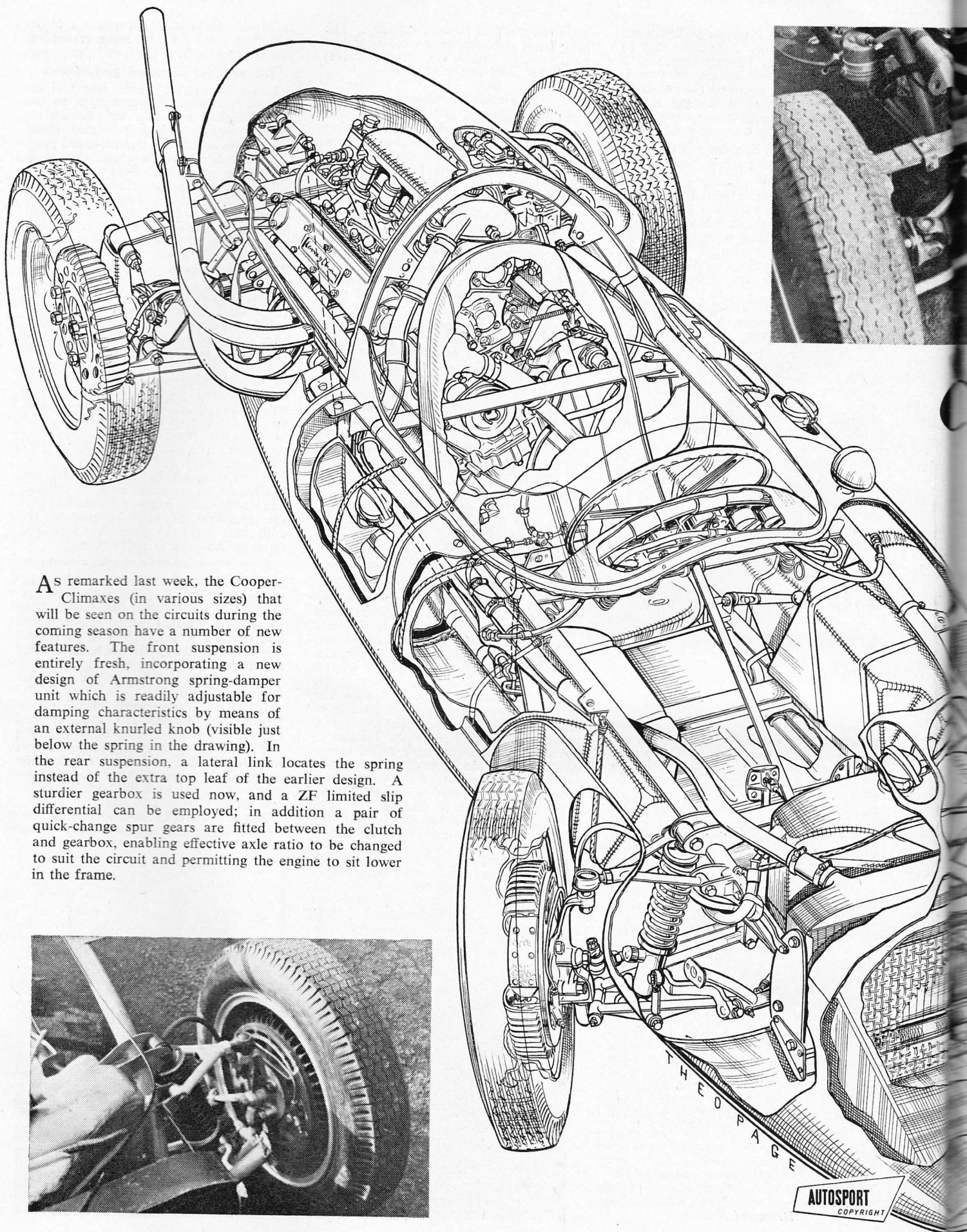
better than C. M. the frustrations involved. Now, I report with considerable satisfaction that C. M. has decided to act as an official rather than compete and that he is working hard to silence one critic, to the point where he assures me that I shall be able to write a "gearchange-by-gearchange" description of the whole rally!

Being an international event, we in Ulster look forward to a really fine entry from England but, even if this is not forthcoming in 1958, the main effort will be directed towards increasing the status of the event with an eye to future years. Can we look forward to seeing you in the Circuit at Easter?

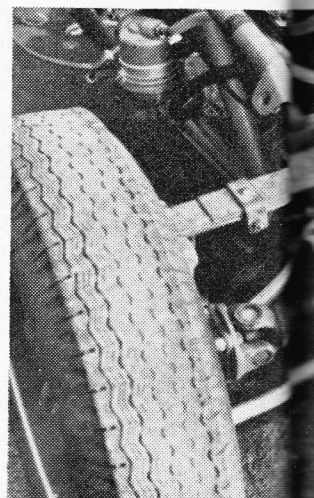
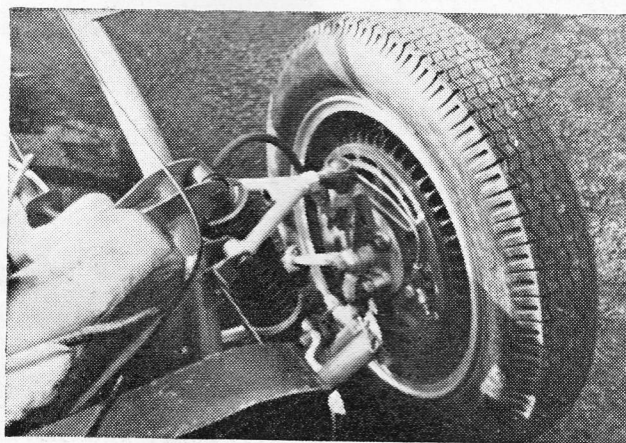
For a few weeks there was some hope
(Continued on page 249)

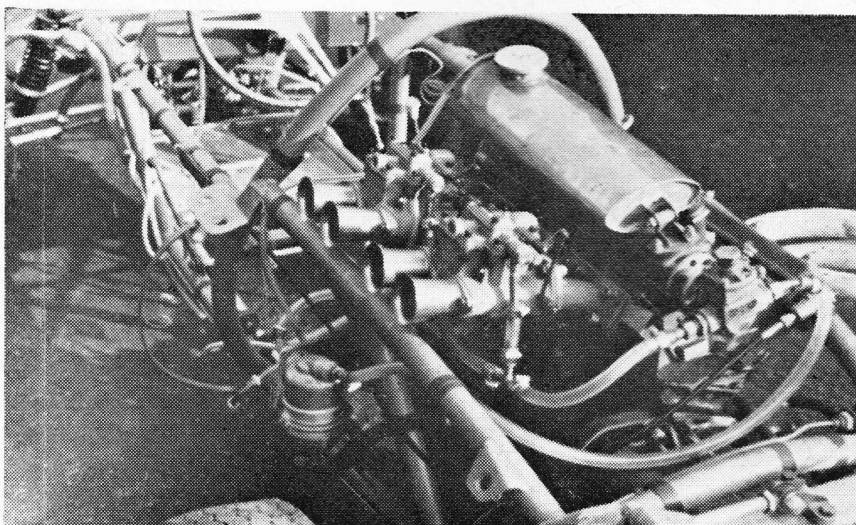
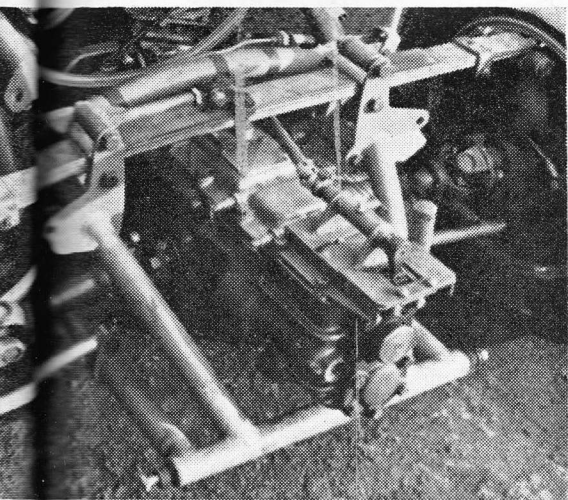
SECURING the bonnet straps of his McCandless Spl. before setting off at the start of the recent Ulster A.C. trial is Desmond Sloane.





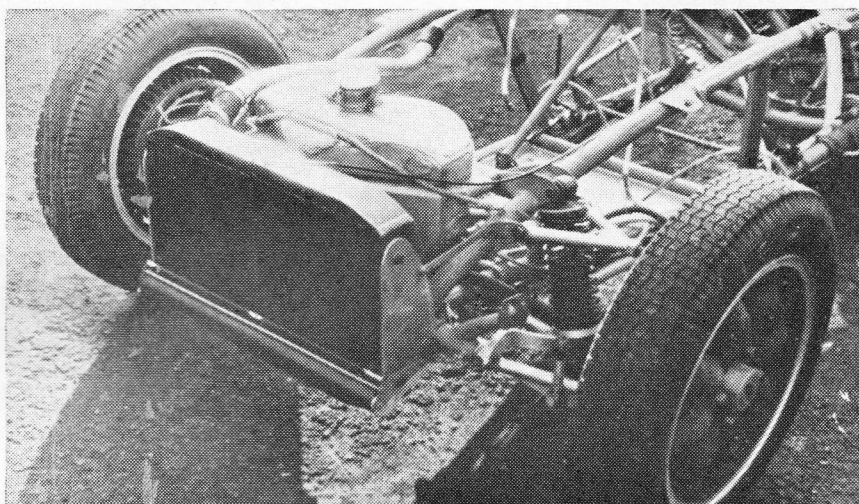
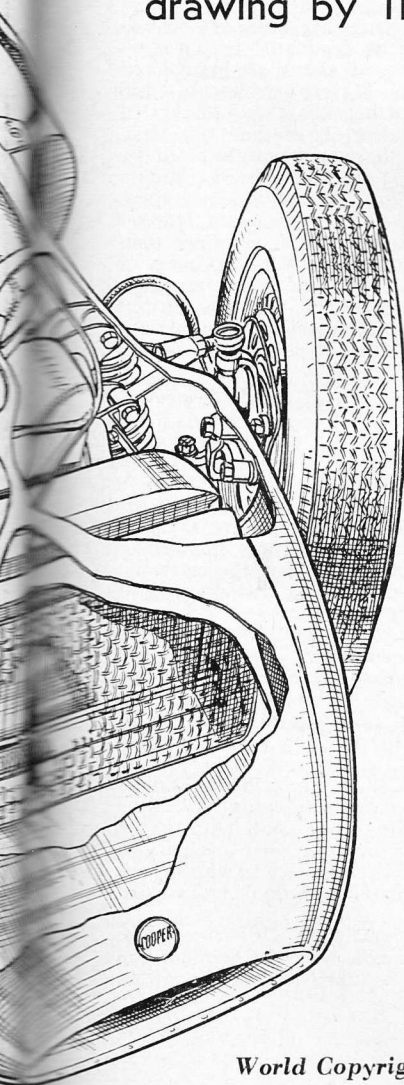
As remarked last week, the Cooper-Climaxes (in various sizes) that will be seen on the circuits during the coming season have a number of new features. The front suspension is entirely fresh, incorporating a new design of Armstrong spring-damper unit which is readily adjustable for damping characteristics by means of an external knurled knob (visible just below the spring in the drawing). In the rear suspension, a lateral link locates the spring instead of the extra top leaf of the earlier design. A sturdier gearbox is used now, and a ZF limited slip differential can be employed; in addition a pair of quick-change spur gears are fitted between the clutch and gearbox, enabling effective axle ratio to be changed to suit the circuit and permitting the engine to sit lower in the frame.



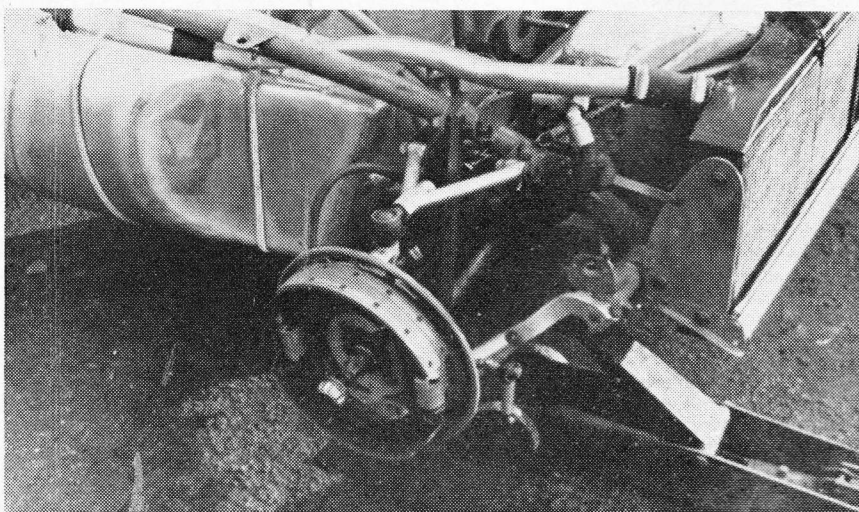


Cooper-Climax for 1958

Another exclusive cutaway
drawing by Theo Page



MORE details of this year's car are shown in these photographs. Top left is seen the modified rear spring and gearbox; top right is the engine installation, lower than last year. Two twin-choke Weber carburettors are now fitted. Above and below, the new front suspension is seen, using adjustable Armstrong spring-damper units.



World Copyright

CORRESPONDENCE

Formula 1 Racing

I NOTICE that I am being taken to pieces in the correspondence columns, but I am still unrepentant in my views on Formula 1 Racing. Those people who want noise and smell must understand, once and for all, that the modern economy simply cannot stand the cost of building and running immensely complex supercharged cars. You must either have a Formula that makes racing economically possible, or there won't be any G.P. racing at all. This is a hard fact, and not a matter for any argument.

Of course, Mr. Maitland, I saw the Donington G.P. in 1937, but I have seen many better races since. A good modern Cooper would have lapped the whole field if it had existed then, but I suppose the lack of noise and smell would have rendered its performance valueless? I condemn the Nazis' misuse of racing, because it was all part of the terror campaign as the small countries were grabbed, one by one, in preparation for the greatest crime of all time. It is proper to use racing as propaganda for peaceful trade, and that is why the Government should have granted a subsidy to Connaughts.

Dr. Bayley's arguments in favour of alcohol fuel can be disposed of fairly easily. I agree that the internal cooling provided by the high latent heat of vaporization is desirable—nay, essential—for the typical supercharged G.P. engine of yore, but a properly designed unsupercharged engine needs no internal coolant, and gives more power without it. The reason is simply that the i.c. engine is a hot air engine, which generates its power by the combustion of *air*. Therefore, the less fuel and the more air in the combustion chamber the better, for valve and piston cooling problems have long ago been solved. Alcohol fuel, by virtue of its high octane rating, *always* gives more power in an engine with a really high compression ratio, but high compressions and over-square engines just don't mix. Anyway, most of the existing G.P. engines are already giving up to 30 b.h.p. more on the new fuel.

To me, the smooth hum of the Vanwall is better than all the sound and fury of the past. Those cars that once seemed engineering masterpieces now look more like sledge-hammers to crack a nut. They had double the power and five to 10 times the fuel consumption of today's cars, yet they didn't lap the circuits as fast. So, I look forward to a season of the best racing that I have ever seen.

JOHN V. BOLSTER.

HORSHAM, SUSSEX.

NO alcohol fuel! No superchargers! Grand Prix racing not what it used to be! What's this fella Joseph Bayley talking about?

Gad, Sir! It's never been the same since they brought in fal-lals like wired-on tyres and front wheel brakes, and started running the things on tarred roads.

IAN GORDON MACLEOD.

BRISTOL, 6.

Rallying

I FEEL that I must comment on Mr. R. Clark's attack on night rallies in AUTOSPORT of 7th February.

In my experience of club rallies I have found that competitors invariably behave much better than other road users. I have certainly never seen anyone drive in a rally when they are the worse for drink, but one motor club recently decided to delay the start of a rally because members had complained of very dangerous driving by other motorists during the hour after closing time.

If Mr. Clark read the list of entrants for the Monte Carlo Rally he would have seen that Great Britain provided far more entrants than any other country. What does he think is the reason for this? I suggest to him that it is because in this country, with our excellent club system, a driver can gain a wealth of valuable experience before embarking on the major international events.

Mr. Clark doesn't say if he has ever competed in a rally, but from the tone of his letter I gather he has not. If he hasn't I advise him to "have a go" and find out what he is talking about before he condemns a most excellent form of motor sport.

R. J. STEPHENS.

PAINSWICK, GLOS.

Goggo Reliability

I SHOULD like to enlarge on the point raised by John Bolster in his road test report on the TS300 Goggomobil coupé that it is "built to last". I did over 13,000 miles in my 1956 T300 saloon, including a considerable mileage of club racing and practising, before exchanging it for my present TS300 coupé. The coupé has now done 13,270 miles since 2nd August, 1957, during which time the sole replacement has been a nearside rear wheel bearing that started to "grumble" a bit at just over 10,000 miles.

As I have been using the Goggo every day to commute from Horsham to London and back, and at week-ends for pleasure and club racing in due season, invariably driving it as hard as one might reasonably expect to drive something of twice its capacity, I think the built-in reliability factor of the Goggomobil is phenomenal.

The coupé is just a wee bit quicker than the saloon because of its better shape, though I find it does notice the additional weight of the more luxurious equipment. I like both of them so much that I would like one of each. If I ever have a "touch" with "Mr. Littlewood" I shall have a collection of them in all available shapes and sizes of power unit.

Incidentally, the body is *separate* from the chassis "punt" to which it is attached by a number of nuts and bolts at roughly four-inch intervals along the raised edge of the frame, which makes life easier in the event of a more or less serious bending session.

Now I am looking forward to the beginning of the new season of members' meetings and sprints. My vehicles certainly have to work for their livings!!!

FLT.-LT. PETER COLEBY, D.F.C.

HORSHAM, SUSSEX.

Poor Man's Motor Racing

I HAVE read many letters in AUTOSPORT from the poor types looking for a cheap form of racing, and so I offer them midget car racing. Jack Brabham started in midgets and was twice Australian Champion before he graduated to big stuff. The slowly expanding English edition of this sport has a good following in Manchester, where The Midget Car Racing Club now has over 60 members, owning between them 22 cars of the 500 class. Northampton has over 10 of the 1100 class. Attempts to spread the sport South have been thwarted by lack of publicity and the failure of the Allard-built "Mighty Atoms" to justify the TV and Press publicity given them before they were tested. These beautifully made cars turned out to be too heavy for the job and their failure, more than anything else, was responsible for the sudden dropping of plans to bring the midgets to London. Regular race meetings will take place at three Northern tracks this summer. A 500 class car can be built for less than £100 doing it yourself or a pukka job bought for £225. If that's not poor man's racing, what is?

J. ABBOTT.

ALTRINCHAM, CHESHIRE.

The Irish View

BEING a dyed-in-the-wool Ford enthusiast, I have read with great interest the letters from your correspondents re the present English 1,172 Formula. I think it is fair to say that we of the 500 M.R.C.I. would gain quite a large number of new members as our 1,172 Formula is simple in the extreme: use a S.V. Ford 1,172 c.c. unblown engine and do with it what you will. There are no restrictions whatever on any other part of the completed vehicle. As a result, there is quite a variety of cars, ranging from orthodox single-seaters to rear-engined single-seaters, to the more common two-seaters. In all honesty, I must add that one has to go back to July last for a two-seater victory—and that was the occasion of the Irish Ford Championship when our English visitors, led by "Lola", swept the boards.

In passing, I should like to add that our orthodox single-seaters (i.e., front engined) could come quite easily within the present English 1,172 Formula as the transmission is off centre, and there is room for two people, but only just! This idea might appeal to some of our English compatriots who favour "single-seaters". (If this isn't an Irishism, I don't know what is!)

I can give advance notice to our many English friends that the 500 M.R.C.I. again hope to promote a Ford Championship event on the 5th July next, when we hope to renew rivalries, meet old friends and some new ones.

REG TURNER.

BELLAGHY, CO. DERRY.

500 M.R.C.I. COUNCIL MEMBER.

BOOK REVIEWS

Title: W.O.

Author: W. O. Bentley (Autobiography).

Size: 5½ x 8½ ins. 223 pp. 18 illustrations.

Publisher: Hutchinson and Co., Ltd., 178-202 Great Portland Street, London, W.1.

Price: 21s. net.

ONE must admit that, with the publication of the autobiography "W.O.", much of the glamour surrounding the name W. O. Bentley has been dispelled, and "Bentleyphiles" will be mildly shocked to discover that the legendary genius of "The Patron" was more a matter of acute foresight than sheer engineering skill. Admittedly he was the first to introduce aluminium-alloy pistons in a motor-car engine, incorporating them in the French-built D.F.P., for which he and his brothers had become concessionaires before the 1914-18 war. This in turn led to their adoption in aircraft engines, and they were used in the Bentley Rotary units, which had been developed to a high stage of efficiency from the older Clerget Rotary.

The true art of W. O. Bentley lay in developing and applying known principles of automobile engineering to his own standards of perfection. The Bentleys of the 1920s revealed nothing outstanding in the way of originality of design, but were constructed to appeal to the wealthy sporting motorists of the period whose desire was to own vehicles which looked, and were, powerful. Assisted by the "Bentley Boys", the big green cars became a legend of their time, helped, in no small way, by their remarkable run of successes at Le Mans. Despite the backing of the late Babe Barnato and his millions, the company could not survive the Wall Street crash, which brought in its wake a falling-off in the demand for fairly expensive hand-built motor-cars. Nevertheless one feels that during its existence, Bentley Motors, Ltd., made many mistakes. "W.O." admits himself that the "4-litre" was a dreadful machine, and that the "blower Bentleys" caused a loss in prestige that was never overcome. He readily admits that the early success of the concern was entirely due to racing, and the figures published must surely prove that no manufacturer has ever spent so little and gained so much. Racing to Bentley's was never a sport: they took part in it entirely for what they could get out of it in the way of publicity.

"W.O." is, of course, no financial wizard, and many of his misfortunes can be traced to dependence on others. Again, in trying to compete with Rolls-Royce for the high-grade "limousine" market, his concern failed to achieve much success owing to a lack of resources as compared to the famous Derby company. In acquiring Bentley Motors, the directors of Rolls-Royce did so more to keep the name within their own jurisdiction, as was proved many years later when Lagonda were forbidden to name their cars Lagonda-Bentley. Oddly enough, just after the original Bentley company was wound up, everything was more or less ready for the production of a new luxury high-performance car, the Napier-Bentley. However, Napiers were outbid for the Bentley assets and goodwill by a mystery purchaser who eventually turned out to be acting under the instructions of Rolls-Royce, Ltd.

In 1911, "W.O." was most impressed with a Sizaire-Naudin which he had acquired, and he states in his book that its magnificent road-holding and steering was due to the use of independent front suspension. Yet, it was a great many years before i.f.s. was used on a Bentley product. It also seems strange that "W.O." should make several allusions to the Rolls-Bentley; this reviewer has never been able to find any positive evidence that Rolls-Royce, Ltd., ever used this name. The first announcements referred to "Bentley—the Silent Sports Car", and a careful study of subsequent advertisements and catalogues will fail to find any reference to the mythical "Rolls-Bentley".

There is no gainsaying that Bentleys did a great deal to popularize the sporting car as such. During a period when some of the worst cars ever to be built were launched on an unsuspecting public, the Bentley standard of engineering stood out head and shoulders above the majority. That so many

should survive today is proof of their reliability and lasting qualities, and they form the backbone of the very strong vintage movement. Whether or not the late Ettore Bugatti did refer to them as "camions" is open to question, but even so, they possessed the qualities wanted in the big high-performance machine of the period.

The autobiography also settles the question of who was responsible for the original 2.5-litre Lagonda engine, which has been steadily developed into the fine Aston Martin unit of the present time. The answer is that the complete car, with all-independent suspension, and twin-o.h.c. engine, was the one that was to be known as the Lagonda-Bentley. After the court case had been settled in favour of Rolls-Royce, Ltd., production was attempted at Staines, but shortage of raw materials made it uneconomic to introduce the new car. Lagonda, Ltd., was put up for sale, and W. O. Bentley attempted to sell his design to other manufacturers. It was turned down by Sir Miles Thomas and Alex Issigonis, although Lord Nuffield had expressed interest. Mr. William (now Sir William) Lyons could not fit it into the Jaguar programme. Eventually Mr. David Brown, who was just entering the motor-car market, purchased the half-dozen prototypes and the entire engine rights.

All in all, the story of "W.O." is a fascinating one, and although his efforts have not always been crowned with success, he must have the satisfaction of knowing that during his lifetime he has done as much as anyone to add to the prestige of British automobile engineering. So long as motor-cars continue to be made, the name of Bentley will always be remembered.

G.G.

Title: "The Faster They Go".

Author: John Bentley.

Size: 5½ ins. x 8½ ins. 251 pp.

Publisher: J. B. Lippincott Company, Philadelphia and New York.

Price: \$3.50.

THAT versatile journalist-racing driver John Bentley has added to the fictional works with motor-racing backgrounds in *The Faster They Go*. The plot is of no account: it is the authentic descriptions of such races as the Pan-Americano, Le Mans, Monaco and Nürburgring which will enthral the reader. Although obviously written for a wide public, the chapters on Le Mans give a true and exciting picture of the famous 24 hours race.

The hero is a young American journalist, bitten by the racing bug. In the Mexican road race he throws away his chance of a class victory by going to the aid of a famous German driver when his Protos (Mercedes?) crashes. This leads to a place in the German team for Le Mans, and a clash with the great team manager, Mannheim, who, for all his leanness, has the exact mannerisms of Neubauer. Our hero is completely devoid of any sense of discipline, and does things which would have him thrown out on his ear from any professional team. Yet he is invited to drive for Milano (Maserati?). At Monte Carlo, on account of an Italian film actress, his erstwhile German friend turns nasty, and edges the Milano into the harbour wall, resulting in a ducking for our hero. Not to worry: he is offered a drive in the latest Milano for the German G.P., manages to assist in the rescue of his German rival from East Berlin Communists, and has the winning of the G.P. in his hands when he unaccountably let his now wounded rival through.

Enthusiasts will have most fun guessing the true identities of racing drivers and identifying makes. It shouldn't be too difficult to spot Duncan (Clog down) Scott, the Argentinian ace Ibanez, the ageing Stuckman, the Monegasque Louis Varron, Castelfranco, Farnese, the two Peters, Douglas and Coleman, and so on. In the same way, there is little doubt as to the makes of car such as Magnolia, Panther, Feltham-Brown, British Dreadnought, Astra-Romana, Culpepper and others. So thinly disguised are these that one wonders whether or not it is worth while going to the considerable trouble to invent new names.

Anyway, the book is well written, and the love interest is not permitted to intrude too much, which is a good thing for this reviewer took an instant dislike to Mannheim's daughter, the efficient Hannalore!

G.G.

New Rapier wins the Riverside

J. B. Sunley/T. A. M. Pigott (1½-litre Sunbeam Rapier) score sole "clean sheet" in tough Hants & Berks Riverside Rally

FIRST competition success for the new 1½-litre Sunbeam Rapier was recorded last week-end, when J. B. Sunley and T. A. M. Pigott used one to win the Hants & Berks M.C. Riverside Rally. Theirs was the only "clean sheet" at the end of some 300 miles of quite rugged motoring, and it augurs well for the future of this much-improved model. However, the major credit of course goes to the highly successful Sunley/Pigott partnership of skilful driving and inspired navigation, for this was no event for novices. It is in fact one of the high spots in the southern club calendar and its popularity is reflected in the entry of 114 cars, which for a restricted event in these crowded days is very good indeed.

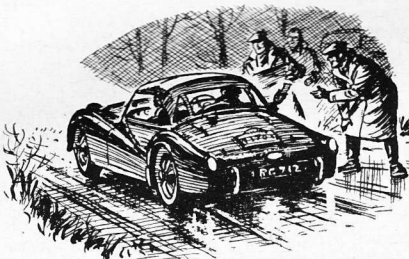
There were five non-starters, but the remaining 109 began to leave the start at the Royal Ascot Hotel at 7.01 p.m. last Saturday, with a nice easy 25-mile "warming-up" route, northwards into the Chilterns, to a control on a back road between Stokenchurch and High Wycombe. Here Arthur Tooth launched alternate competitors on one or other of two 30-mile "Eight Clubs" sections he had devised, which took them either north or south, returning to the same control to start off on the second loop. Plotting had to be fairly nimble here, and the route was fairly tricky, but even so 30 competitors had at the end of it notched up 85 miles without any loss of marks.

They were next confronted with a formidable route card, listing 27 map references. These denoted 25 signposts from which information had to be noted, plus two intermediate time controls, on a route laid down by Stan Read which led the contestants for 70 miles almost due south, to the White Rose garage on the A3 at Liss, near Petersfield. At this most hospitable Mobilgas station had been set up a welcome refuelling base for cars and crews, with a half-hour break in the proceedings. The number of "cleans" had dropped to 11 by now, although most of the original 30 believed they were still in the clear at the time! The fact was that there was nothing to indicate whether the signpost one had visited was the right one or not, whereas on the sections that used code-word boards one could hunt around for an elusive one until it was found.

Up to now, it was felt by many competitors that things had been a little too easy on such a fine, dry night, and how were the organizers to sort out the winner? The answer lay in the next two sections, one devised by Douglas and Joan Johns, and the other by Sam Moore and Joyce Chesterton—quite a potent team! Here no plotting was necessary, for a marked map was provided, issued one half at a time. The first half was a loop of 43 miles, heading down towards Portsmouth and re-

turning to the White Rose, whilst the other went for 65 miles east around Petworth and back again. However, far from being easier, these two sections wreaked havoc on the entry! The writer was navigating for Les Needham in the latter's TR3 and we would scarcely have believed that such a course existed this side of the wilds of Wales; in fact, with the marked maps, it was very much like the notorious London Rally in places! Similarly, too, the route was split up into short sharp sections of six-eight miles between time controls, with just one or two route checks in between. It even began to pour with rain, just to make it more interesting. At the end of the first of these sections, only Sunley and Pigott had got around without loss of time, while on the second one they repeated this remarkable performance and were joined in it by B. G. Norman/A. D. W. Thomson (Minor 1000). On the second loop, great trouble was caused by a route check on Bognor Common, near Petworth: the point was in the middle of a wood, on one of the few usable tracks, none of which looked anything like they appeared to be on the map!

At the end of all this, a tired—and chastened—collection of crews reported back to the White Rose and after a very welcome 10-minute break for coffee, were dispatched upon the last section—an easy, 40-mile main-road run back to



the finish at Ascot—culminating in a very fine breakfast at the Royal Ascot Hotel.

Little more need be said except that the whole event was a model of what a good club rally should be; but then, with the Hants & Berks M.C. running it, this has come to be taken for granted. About 100 marshals were employed on the event and still the promoting club managed to field 48 of the entries, B.A.R.C. being second keenest with 15, and Harrow C.C. next with 11. Of the original 109 starters, 19 retired before the night was out, but the credit for the most dogged "pressing-on" goes to J. Holden and P. Hickson in an Ausford Spl. While the winners had lost no marks and an average loss was a little under 1,000 they managed to amass over 12,000 penalty marks—and still finished within the time limit!

Finishing touch to a superbly organized event was provided by the results

team, led by Harry Arkley, who dispatched in the post to all competitors, on the same day, a full duplicated awards list, plus a full results analysis, showing for each competitor his position overall, and on which sections he had lost his marks. Other clubs please copy!

STUART SEAGER.

Provisional Results

Best Performance: J. B. Sunley/T. A. M. Pigott (Sunbeam Rapier), 0 marks lost.

Up to 1,300 c.c.: 1, D. Russell/C. P. Rogers (Standard 100, 80); 2, B. G. Norman/A. D. W. Thomson (Minor 1000), 250; 3, M. J. Crabtree/K. Levitt (Volkswagen), 340; 4, B. A. Slinn/P. Dennell (Minor 1000), 450.

1,301-2,000 c.c. and "Specials" up to 1,300 c.c.: 1, D. E. Gunner/P. B. Clarke (Riley 1.5), 80; 2, W. T. Alden/T. Winterbottom (Hillman Minx), 90; 3, J. Higginson/Miss S. Biden (M.G. Magnette), 160; 4, K. Hartridge/L. McFarland (M.G. Magnette), 190; 5, J. Bell/L. Sutcliffe (M.G. Magnette), 210; 6, F. E. Still/R. G. Forster (M.G.A. coupé), 290; 7, R. J. G. Smith/J. d'Orville (M.G. Magnette), 320.

Over 2,000 c.c. and "Specials" over 1,300 c.c.: 1, G. F. Woodroffe/J. B. W. Wood (Wolsley 1500), 230; 2, H. G. W. Kendrick/J. O. Clarke (Austin A105), 260; 3, R. Witheyman/Miss P. Taylor (Standard Vanguard), 340.

Team Award: J. Bell (Magnette), D. Russell (Standard 100), M. A. Harvey (Volkswagen), 970 agg. **Ladies' Award:** Miss P. Moss/Miss Ann Wisdom (Minor 1000), 430. **Best Mixed Crew:** R. Witheyman/Miss P. Taylor (Vanguard).

Lister-Jaguar—continued

wheels—Dunlops; brakes—Girling; electrics—Lucas; oil cooler and radiator—Marston-Excelsior.

SPECIFICATION OF LISTER-JAGUAR ENGINE

No. of cyls.: six in line. Bore and stroke: 83 x 106 mm. Capacity: 3,442 c.c. Valve position: overhead. Compression ratio: 9 to 1. Max. b.h.p.: 250. R.p.m.: 6,000. Carburation: three twin choke Webbers. Fuel pumps: two SU electric pumps. Sump capacity: dry sump (5 gallons). Oil filter: Tecalemit full flow. Cooling system: water pump. Marston-Excelsior radiator. Battery: 12 v. 40 A/H.

A 3-litre Jaguar engine is also available: bore, 83 mm.; stroke, 92 mm.; 2,986 c.c. This can be equipped with the latest 35/40 head at an extra charge. Power figures probably in excess of those quoted for the 3½-litre standard engine may be expected.

TRANSMISSION

Clutch: Borg and Beck hydraulically operated. No. of speeds: four. Lever position: remote control. Synchronesh on all forward gears. Overall ratios: top, 3.54 to 1; third, 4.525; second, 5.825; first, 7.610. *Final drive: hypoid 3.54 to 1. Salisbury manufacture: 2.93 to 1, 3.31, 3.54, 3.77, 4.09, 4.27, 4.55, 4.78.

*This incorporates the Powr-Lok differential unit at no extra charge. ZF limited slip differential is available at an extra charge.

CHASSIS

Construction: 3 ins. x 14G. Seamless drawn steel tube. Brakes: Girling disc; 12 ins. dia., front; 12 ins. dia., rear. Suspension: front, equal length wishbones and coil springs; rear, de Dion and coil springs. Shock absorbers: Girling telescopic. Wheels: Dunlop knock-on light alloy, 5 ins. x 16 ins.; perforated disc. Tyre sizes: front, 6.00 x 16; rear, 6.50 x 16. Steering: rack and pinion. Steering wheel: light alloy, leather covered; Derrington manufacture; 15 ins. dia. No. of turns (lock to lock): two.

DIMENSIONS

Wheelbase: 7 ft. 6½ ins. Track: front, 4 ft. 4 ins.; rear, 4 ft. 5½ ins. Overall length: 13 ft. 6 ins. Overall width: 5 ft. 2½ ins. Overall height: 2 ft. 3 ins. at scuttle; 3 ft. 3 ins. at head rest. Ground clearance: 4 ins.; chassis 4½ ins. Turning circle: 50 ft. Dry weight: 15½ cwt. Tank capacity: 38 imperial gallons.

PERFORMANCE DATA

Top gear m.p.h. at 1,000 r.p.m.: 24. Weight distribution dry: front, 48 per cent.; rear, 52 per cent.

Lister cars are under constant development, therefore this specification is subject to change without notice.

Valve Springs...

effect on performance

Engine speeds

Engine speeds in excess of 4,000 r.p.m. are common in modern cars. At this speed a valve opens and closes approximately 2,000 times a minute. The opening is caused by the action of the cam, but the closing is controlled *solely* by the valve spring.

Valve Temperature

The average temperature of an exhaust valve head is approximately 700°C.; of an inlet valve head, approximately 250°C. High temperatures combined with high revs. require that valve springs are made of top-grade steel capable of retaining its elastic properties.

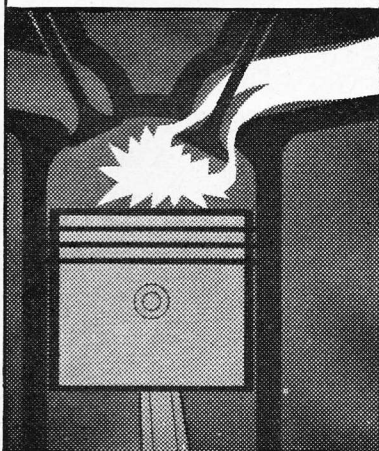
Maximum engine revs. are controlled by the force exerted by the spring when the valve is fully open

Valve Bounce

At *high* revs. a slightly weak spring will permit valve bounce. This allows the exhaust gases to escape on the power stroke, and lowers efficiency. If a spring overheats it may take on a set—i.e. become shortened in length. This reduces the force exerted by the

spring and so permits valve bounce at *lower* revs. This will in turn increase overheating, burn out the exhaust valves, and compression will be lost at *all* engine speeds. Thus poor performance and high petrol consumption can be caused by weak or worn valve springs.

Hot exhaust gases escaping



Badly burnt exhaust valve

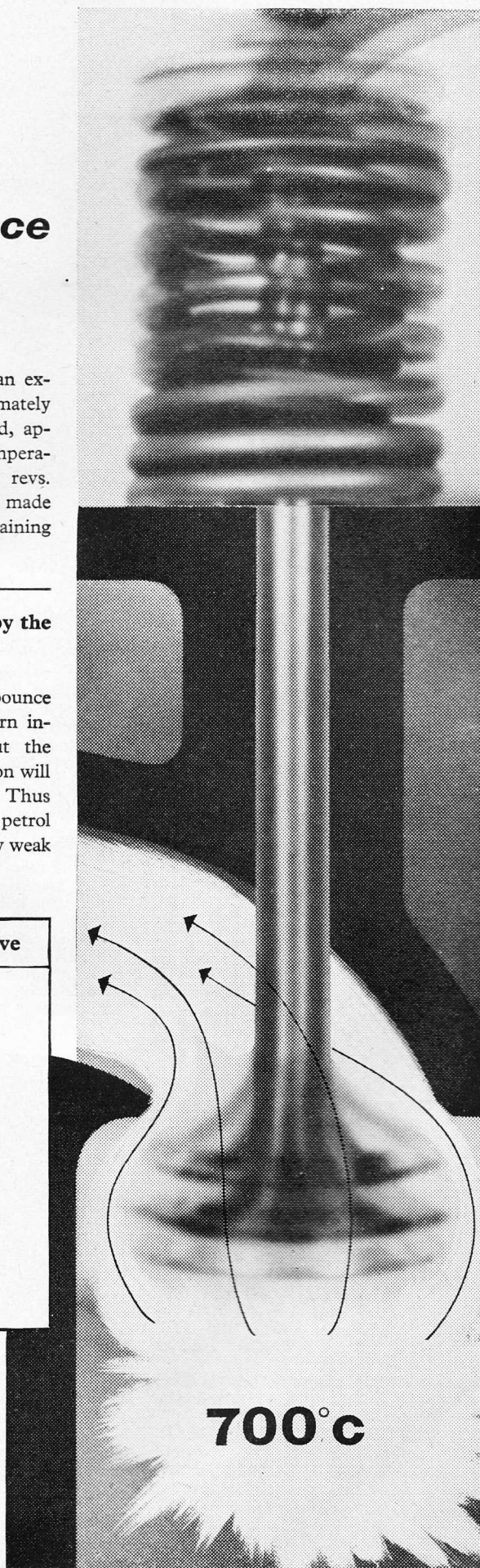


For performance and petrol economy, valve springs need to be replaced regularly—always, as a matter of routine, when decoking. It is in your own interest to specify Terrys, the most efficient and reliable valve springs made.

TERRYS AERO VALVE SPRINGS

The experts' choice

HERBERT TERRY AND SONS LIMITED, REDDITCH, ENGLAND



GENTLY sailing through a lane flooded bumper-deep is H. M. Dixon's Citroën DS19—with the "undercarriage down"! This was one way of going through!

Bracco (Lancia) (dynamo) and C. Pitchon (Minor).

The next stage to Pole Moor "Co-op." was fairly gentle, then came a four and a half mile run full of twists and turns and ups and downs, finishing at Ripponden where there was a compulsory halt. Again Wallwork was still on time, but missing were H. J. O. Connor-Rorke (Anglia) (oil leak), E. Arnold (Zephyr) (gearbox), and B. Hargreaves (TR2).

After refuelling came the "special section" which comprised three miles of a very, very twisty, narrow, up and down tarmac-surfaced lane. This distance had to be covered in 6 mins. dead, which just "wasn't on". Best attempts were made by T. A. Gold (Austin-Healey) in 6 mins. 42 secs., and J. C. Wallwork (TR3) some 5 secs. slower.

Leaving Ripponden, drivers faced a 15 miles an hour average to avoid annoyance near Hebden Bridge which finished at Widdop Gate. This latter was rather difficult to find and caused two further absences in the persons of R. Grylls (Standard 10) and E. Casteel (Minor). Next came a long run over the Moors to Davy's Hill control where the observer was astonished to see cars enter and depart by each and every one of four cross roads! Then via Skell Gill Bridge and Jeater Houses some 30 miles of road was covered west of the north Yorkshire moors through the first of very deep fords to Laskill.

Here more casualties included P. W. Strawson (Standard 10) (big end), Mrs. P. Mayman (Morgan Plus 4) (whose car was described as literally falling to pieces) and W. A. Crowther in a similar car (who just got stuck in a field). Even J. C. Wallwork dropped a mark on this section, and if possible it was even worse down to Old Byland as the route included a very sharp bend over a river, which more than one failed to take, with rather wet results.

Those failing to arrive included Mrs. Elsie Ashall (TR3), J. D. Wood (TR2) (dynamo), J. D. Scott (Standard 10), who contacted the river hard, descending into some 3 ft. 6 ins. of water. In the process

8th Yorkshire "Mille Miglia" Flooded Out

*Best Performances by T. A. Gold (Austin-Healey)
and J. C. Wallwork (TR3)*

ONCE again the Yorkshire Sports Car Club's proud boast—no clean sheets in the great dice—stood the test of time, but truth to tell "they were saved by the gong" and this is the reason why!

For many years the three wise Clerks of the Course, Messrs. Haley, Wilson and Wise, have, in addition to fiendish ingenuity in their selection of terrain, choice of date and evil obeisance to the Weather God, till this the eighth of the series, always received "his" benediction in the shape of one or more of the following elements—ice, snow or fog.

This time they must have used the wrong incantation, for at 9 p.m. on 14th February conditions at the Ilkley start were mild, moonlit and, apart from a slight drizzle, perfect for the work in hand, so much fear for their idle talk was in the heart of the Wise Ones.

However, their luck held. A deluge descended and stayed put all night and all the next day, so that great floods appeared over the land where no water ever was before. Hence dismay in the hearts of the brave competitors who stood and surveyed those who had gone before "stationary and half-submerged". Net result: again NO clean sheets!

Now to business. One hundred and twenty-three cars faced the starter, including foreign competition from such names as E. Casteel/P. Klein (Minor 1000), A. Fila/A. Bracco (Lancia), M. Gjanhi/A. Marchesi (Fiat), and J. S. Marchant/P. Diant (Citroën); welcome to our simple sport!

Leaving Ilkley the route lay via Keelham, Grange Moor and Hoylandwaine

to the first time check at Windhill Wood. This was over the edge of Strines Moor and merely served to get drivers motor-ing south without touching any main towns. Next, an easy stage to Woodhead, from whence started the "Holme Moss Grand Prix" through Austonly to Saddleworth. The check point, the Church, proved difficult to find, competitors emerging from all directions! By this time 122 drivers had lost marks. Only one, J. C. Wallwork, was on time and casualties now included D. Grey (Riley 1.5), G. R. Monkman (Fiat) (broken windscreen), P. M. Craven (Anglia) (no lights), M. E. Marsh (Jaguar) (dynamo), D. Burnell (Minor) (no clutch), R. H. Jenkinson (Jaguar) (ditched but later got going again), Fila/

THE OTHER way of going across is demonstrated here by S. L. Hickling's Hillman Minx. Not surprisingly, the car had to be "dried out" later on.



THAT lake behind the wall on the left of the picture is a field! D. S. Astle's TR3 is the car negotiating the flood.



of "docking" he lost his sump plug, but, nothing daunted, he plugged the hole with a plug wrapped in rag, borrowed oil from all passers by and nearly continued. Last but not least of these happy adventurers was W. O. Ackroyd (Anglia), who found the "beck" but could not dock until next morning, and then needed the aid of a tractor.

Onwards via Boltby and Felskirk, which included another deep ford, then by twisty roads to Byland Abbey control, then by main roads to Gillamoor. From here the route climbed up a high ridge passing Barmoor, Little Blakey, Danby, Ellers House, Rosedale to the breakfast halt at Everley.

Restarting, competitors took a 15 miles an hour stage through villages to Hilda Wood. Here retirements included C. S. Alderton (Healey-Elliott) (gearbox) and D. A. Smith, whose Landrover just wouldn't go! Next, short and sharp to Harwood Dale, then straight up the coast road to Hawsker. Now came real Alpine stuff, over Grosmont Goathland to Egton Bridge, then tough going over the top of Glassdale Rigg to Rosedale.

Now a long run of perhaps 40 miles, which gave those behind-hand a chance to catch up a little on the run down to Green Gill and West House. At Ascrigg, the next main control, only T. A. Gold (Austin-Healey) was on time though J. C. Wallwork, hard on his heels, was only a minute behind.

So on it went, both hard at it, over Buttertubs to Hardraw, easy down to Cage, over Deepdale, through Ingleton to Keasden, then bad going to Halton Gill. Kilnsey control was signposted

by a full-sized coffin lid (suspected that "Fur" Coates lived there!). What should have been a quiet run into the finish proved anything but! Weary crews found to their horror that the river at Burnsall had broken its banks. Roads were flooded over axle height, which meant the choice of a long detour, or wet plugs, etc., with the promise of delay so caused.

At the finish all declared that the Mille Miglia had lived up to its name as certainly the toughest Northern "do".

FRANCIS PENN.

Results
Best Performance and Winner Scarborough Trophy: T. A. Gold (Austin-Healey). **Opposite**

Class (Eric S. Myers Trophy): M. Sutcliffe (Minor 1000). **Second, Class II:** J. C. Wallwork (TR3). **Second, Class I:** F. Smith (Minor 1000).

First Class Awards: D. Butterwick (Dauphine); J. R. Crow (M.G.A.); E. J. Mitchell (Anglia); J. P. Bordman (Borgward); R. J. Dack (M.G.A.); K. W. Lee (Dauphine); B. R. Waddilove (VW); S. L. Hickling (Minx); J. C. Henson (TR2); J. K. Armstrong (A95); M. D. Einhorn (Zephyr); J. H. Walker (Sunbeam); B. Hurt (Healey 100).

Co-Drivers' Awards: G. P. Crabtree; M. Horner; J. M. Wood; W. Cave.

Ladies Award: Mrs. E. R. Einhorn (A55). **Novice Award:** A. J. Hallitt (Minor 1000). **Team Award:** The Yorkshire S.C.C. "Ramblers" (K. N. Lee, D. Butterwick, R. J. Dack).

A "Kitching" For Ron Kemp

A Well-Planned, Well-Executed North Midland M.C. Event with Large Entry

THE North Midland Motor Club's big Kitching Trophy Trial drew not only the biggest entry for some years (51 cars left the start at Bamford) but, no doubt due to the fine weather, what also might be an all-time record for the number of spectators' cars parked on both sides of the main Manchester/Sheffield Road!

Again by courtesy of Mr. Charnelly, his wonderful farm site off the Snake Pass Road was used. Indeed "Rowlee" is the Kitching, as it includes just about every variation required for a successful "do". In this terrain one finds water, mud, grass, leaf mould, bracken, rocks, mounds, bumps and mountains. Just what more could any organizer desire?

Sections chosen this year were varied, very difficult, but in the main fair, in that given skill, guts and a good motor, a clean was possible!

Two things stand out a mile about this trial. At last a club has seen the light, in so much that it has reverted to rear wheel marking, together with the banning of that stupid and dangerous perching

of passengers high up over the rear wheels. In the Kitching, they were allowed to bounce but only from a normal seating position. Good for you, North Midland! Other clubs please copy!

Because of the huge entry the journalists' nightmare was again in force and our old enemy the "split" was in operation, odd numbers going to A. Sections 1-5, and evens to B. 1-6. This, of course, never allows for a really accurate report, so, bearing this in mind, here we go.

A.1. Down through a river bed, up and out the other side, over a bump, round a taped grass turn then straight up the side of a wall, on a muddy surface and the ascent very steep. Only G. J. Newman (Cannon) was observed clean, A. E. Marsh (T.M.S.1), J. D. Hollingworth (T.M.S.2), M. H. Lawson (M. & L.), E. J. Chandler (Chandler), R. Kemp (Cannon) and R. W. Phillips (Fairley) all reached the limit of section nine but just could not quite make it.

A.2 was quite the best hill of the day, starting in a lane, up a steep grass bank,

round and down to a very tight hairpin which led into a river bed, on through rocks and water to a steep grass climb. The snag was that if the turn was not made correctly cars were forced up a bank, to remain suspended on three wheels till manually released! Only the following made the turn, which after correct positioning made the rest simple: A. D. Alldred (Bassinette), G. J. Newman, T. C. Harrison (Harford), J. Harrison (Harford), J. C. Broadhead (J.C.B.) and R. J. Wilson (R.J.S.). Poor Doc Lilley actually made the turn then failed in section nine, but quite candidly he was baulked at the top!

A.3 started on tarmac. Drivers were faced with a right-hand "flick" turn to a rutted mud path which climbed high up alongside a steep wall. No one was clean here and only Newman, Kemp and Phillips made section eight. F. Wall (Cannon), Lawson, P. Atkinson (Cannon), E. Harrison (Harford) and R. Chappell (S.C.S.) all climbed to section seven.

A.4 was a little easier being a right-hand turn off a lane, round a taped left-hander, climbing up a rutted track to turn first right, then left, then right again, coming out on a further path. Here just about half the entry were clean, the other seemed to fail rather low down, without apparent cause!

(Continued overleaf)



A.5 ran from a path, left up a grass ravine to a hairpin, left on to a badly dug up and rutted path, the hairpin being very steep and narrow. Again this one was fairly easy; only N. Mould (Ausford) was clean. Surprisingly Newman, Doc Lilley, W. Howarth (Pemhow), C. Cocker (Hillman), E. Vere (Ford) and B. H. Dees (P.A.B.) failed to make the grade.

B sections were all rather different, in that there was a good deal of sticky, glutinous mud about which admittedly became worse as the day went on. B.1 went from a grass lane, looping round on adverse camber, over a muddy lane and on to a bracken ridge. Then came a right-hand taped turn, a further 75 yards or so, to a left-hand hairpin with a very bad falling away surface. Cleans

here numbered three only, J. D. Hollingworth, A. D. Alldred and G. J. Newman.

B.2 ran up three grass ledges, a steep descent on adverse camber, then right into a bog of some 50 yards, at the end to which no one reached was a steep bracken climb. Section seven was the farthest reached, honours going to Alldred, Lilley, Kemp and Marsh.

B.3, from a grass start, went into a muddy bog then twisted and turned through a small stream, again into thick mud, then out and around a grass semi-circle. This looked very difficult but wasn't, only failures being N. Mould, M. H. Lawson, E. Vere, N. Moor (Wasp), R. Chappell and R. W. Faulkner.

B.4 ran up and over a short steep grass mound, along a ridge to a taped left-

WINNER of the Kitching Trophy Trial. Ron Kemp takes his car up the bank out of a stream, with sterling assistance from his "bouncer".

hand turn to climb two steep bumps. No one reached section five which was the start of the second bump!

On B.5, from a downhill start, competitors had literally to make a dirty great rush up a ruddy great mountain! No one reached the top. Marsh and P. Highwood (Exspence), taking their courage in both hands by going flat out, reached nine, while Newman, E. Jackson (Cannon), Chandler and Phillips made eight.

B.6 was a very steep climb on falling-off adverse camber, with a very badly placed tree in the case of a slide. Cleans here included Marsh, Hollingworth, Alldred, Highwood, Jackson, Chandler, Fleetwood and Phillips, in an ascent that included a full sideways-on slide!

From lunch time on the leaders were Ron Kemp, Tony Marsh and Frank Lewis, and by the day's end only Lewis had lost his position to Tony Alldred, with Reg Phillips firmly in fourth spot.

So ended what could be justly referred to as a model event, well planned, executed and thoroughly enjoyed by all!

FRANCIS PENN.

Results

Best Performance (Kitching Trophy): 1, R. Kemp (Cannon IX); 2 (Parker Trophy), A. E. Marsh (T.M.S.I.); 3 (Noble Trophy), A. D. Alldred (Bassinette); 4 (Senior Trophy), R. W. Phillips (Fairley). **Passenger's Award:** R. Winwood.

Scales Haigh Team Award: R. Chappell, P. Highwood, G. J. Newman. **First Class Awards:** G. J. Newman, P. Highwood, F. Lewis, R. Chappell, J. Harrison, E. Chandler.

TANGANYIKA ENTERS MOTOR SPORT

TANGANYIKA has come into the motor racing world and for once the capital, Dar-es-Salaam, has not taken the lead, but Tanga, the Territory's second city.

The first race meeting, held last November by the Tanga Motor Club, was more or less a tryout for club members on their ready made tarmac-adam track, 5 deg. South of the Equator, fringed with palm trees and ceilinged by a blue tropical sky. This meeting was an unqualified success. Tales of this meeting and the excellent mile and a half track in its lovely setting and the fact that the Tanga Motor Club were serious soon spread over East and Central Africa and applications for entry at the club's next meeting, which was held last week, came from the big boys of racing in Kenya.

Of the six events which took place during the last meeting the 10-lap handicap for sports cars and Formula 3 racing cars and the 20-lap New Year Handicap for all-comers undoubtedly caused the greatest sensation for the public, African, Asian and European alike, who have now taken to motor car racing in no uncertain terms.

In the 10-lap event, which was won by the only lady driver, Mrs. Cicely Gavaghan, in a Jaguar XK 120, 12 cars lined up for what was to prove a thrilling race.

Stan Bradfield from Dar-es-Salaam led from the start in a Ford V8 special and was followed 18 secs. later by two M.G.As before the Jaguar XK 120 with a 24-sec. handicap got away. Throughout the race these four cars and an M.G. TF driven by David George, a club member, battled it out for the lead, the M.G. TF trying very hard to take fourth place till he eventually dropped out. Unfortunately most of the show was stolen by one car—a "D"-type Jaguar from Kenya driven by Kenya's champion driver, John Manussis. This was the first time this car had been seen in Tanganyika and was watched with interest resulting in many of the thrills provided by the other competitors going unnoticed by the spectators.

The "D"-type had a handicap of 127 secs. and Manussis sat watching the first four cars battling for the lead before he even had a chance to move. But when he did, what a get-away! Throughout the race the Jaguar kept improving upon his handicap as he roared around the track at fantastic speeds—fantastic at least for Tanganyika.

A Swiss driver, Hans Huber, in an M.G.A. overtook the Ford during the ninth lap. At the same time the Jaguar XK 120 overtook the M.G.A. and the Ford V8, thus taking the lead which Mrs. Gavaghan held with brilliant

driving. In the meantime Manussis in the "D"-type Jaguar had come up to third place only 200 yards behind the XK 120 at the start of the last lap. Given one more lap and undoubtedly the "D"-type would have won.

The main race of the day, however, was a 20-lap New Year Handicap in which over 15 cars took part and we in Tanganyika considered it some race. Once again major interest was shown the "D"-type Jaguar. This was unfortunate as so many people failed to see the superb performance put up by the others. The Jaguar, however, only finished third, but in one of the most spectacular finishes one could wish to see.

There is room for considerable improvement in Tanganyika, but the sport here is as yet new, however it has caught on and is attracting outsiders. A Corvette was, in fact, entered from the Belgian Congo, right over on the other side of Africa, but was unable to get to Tanga. It is hoped that interest will be aroused in South and Central Africa and that soon racing names from those countries will be seen at Tanga.

Tanga is very lucky indeed in having a ready made track consisting of the dispersal runways of the old Naval Air Base in a setting which is really perfect. Given their fair share of luck there seems no reason why Tanganyika should not come to the front.

ROBIN PETERS.

Ulster Commentary—continued

of seeing Dundrod in use again for motor racing; a hope inspired by the fact that the Ulster A.C. had been allocated the date 10th May for the Ulster Trophy Race. Alas, the U.A.C. council has thought better of this idea and have informed the Newry and District M.C. that they will not be "taking up" 10th May, so that the Newry folk can get on with organizing their Spelga Hill-Climb on that date.

The Newry club's annual "do" at Ballymascanlon Hotel, just on the Ulster-Eire border, on 1st February was the usual enjoyable get-together of motoring types. When the time came for the distribution of trophies, a great welcome was given Kevin Sherry, who won not only the President's Cup but also the Aggregate Shield, the first time that anyone has pulled off this "double". There was a tense moment when Commodore Shillington (who is president of the Irish Linen Guild) sat down to dinner and found himself provided with a paper napkin—but a few well-chosen words soon rectified matters, to the point that he later told some excellent stories.

At the Knock club function, the evening before the Newry event, gratitude was shown to Hugh C. Reid and Cecil Molyneux, each of whom had presented the club with perpetual trophies for car competitions.

The 500 Motor Racing Club of Ireland have taken very practical steps to ensure that no one overlooks their 1958 events. They have just issued a wall calendar, with each club date marked in red. Incidentally, they are to

adopt the R.A.C. recommendations on handicapping for their race meetings. In this system, competitors are handicapped on practice times and any untoward improvement in the actual race will be penalized.

It is gratifying to learn that there is considerable (if secret) activity among "special builders" in Ulster at the moment. For a season or two it looked as if the "special" was very much on the way out, but now one hears of a number of constructions being hatched. All of which, of course, bodes well for the future.

National Formula—continued

either by mechanical or electrical means.

Any type of braking system to be permitted, but independently operated handbrakes to be compulsory, acting at least on two wheels, or directly on to the propeller shaft.

If the use of o.h.v. conversions were to be desired on the Ford-engined cars, the advantage could be minimized by compulsory carrying of fixed ballast to the extent of about one cwt. This idea might well be worth considering, as it would have a definite effect on power-weight ratio.

There now emerges what could quite well be a very raceworthy, miniature formula car. There should not be a very great difference in ultimate performance, which would make for exceedingly close racing. Ford-engined single-seaters have been constructed in Northern Ireland, and have performed exceptionally well. There is no reason to suppose that cars using the smaller-

capacity Standard and A35 o.h.v. engines could not perform equally well. The machines resulting in the introduction of such a formula would form the basis of a true British National Formula, and as such would be welcomed by race-promoters in every part of the British Isles.

I am perfectly willing to throw open the correspondence columns of AUTOSPORT to discuss these proposals, and to form a special panel to submit findings to the Competitions Committee of the Royal Automobile Club.

MORE ACCESSORIES

A RANGE of motor accessories being marketed by a new concern, Kenlowe Accessories, of 204 Feltham Road, Ashford, Middlesex, includes an idea which will be greatly appreciated by those who have to park in London and other overcrowded cities. "Bumper bump rubbers" are conical-shaped rubber buffers, 2 ins. in diameter, which mount on the car bumpers to protect these often fragile components from scratches and minor damage. They cost 21s. for a set of four. Self-locking wheel nuts are also offered, in sets suitable for most popular makes, at 1s. per nut.

Particularly useful for rally drivers, for quickly setting the engine to a fast tickover to obviate stalling during violent driving test manoeuvres, is a ratchet hand throttle lever. This is a 5½-in. lever, giving a maximum pull of 3½ ins. to the operating cable, and which will remain in any position until released by pressing a button on the end. It is sold complete with 3 ft. of Bowden cable and all fittings at 48s. 6d.

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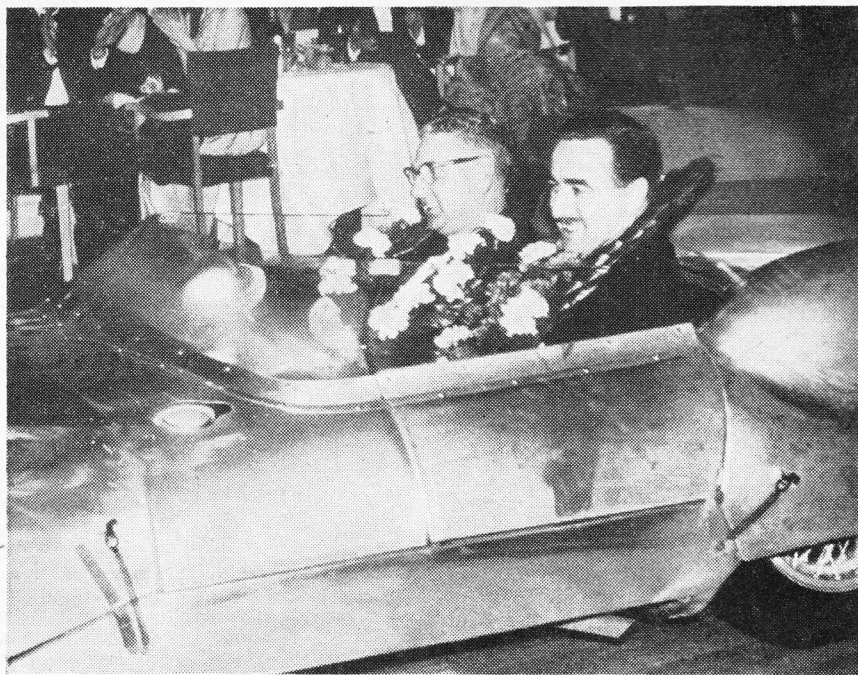
Club News

By MARTYN WATKINS

It's an odd thing how enthusiasm takes different forms in many places. And what is just as odd is that clubs don't seem to combine keen social and keen competition members in some cases. I know from personal experience that there are indeed a great many of them that have a packed and popular competition and social diary, but a couple of examples of "the other way on" have just come my way.

From time to time during the winter the motor clubs, or at least the more masochistic ones, invite members of AUTOSPORT'S staff to trot along to their annual dinners and dare them to make speeches there. One such invitation to a colleague was all set to go just recently—he even looked at the dictionary—when out of the blue came a letter to say that the dinner had been cancelled for lack of support. Now, I've been to club dinners when the total attendance, including guests, has numbered less than 20, so that to cancel the thing must have meant a real absence of ticket-buyers—and the odd thing is that the club in question has a most enthusiastic membership when it comes to what, after all, is the real purpose of the club—motoring. By contrast, let's take another example—even more recent. Another club—or shall we drop anonymity? the Sporting Owner D.C., then, has just held its yearly bunfight and do you know how many turned up? Somewhere between 90 and 100 per cent. of the membership—and that is really something. Here, however, the scales have swung the other way and the boot is on the other foot, to coin a couple of phrases, for the S.O.D.C. seems to be finding it rather difficult to fill its entry lists for the competitive side of things.

Funny, isn't it? There doesn't seem to be a solution, so it looks as though



PAUSE in the Club Lotus dinner and dance was filled by the roar of a Climax engine—and on to the dance floor came this Le Mans model with Bill Frost and Ian Walker "up". The scene was reminiscent of that famous Bentley dinner of yesteryear.

one day we may have clubs for each aspect, with no interference from "the other side".

MORE news of annual general meetings comes first on the list, with a note that tells me that **Worcestershire M.C.** has elected its officers for the coming year. Secretary is J. L. McVitie and competitions secretary H. J. H. Dodds—no addresses given, I'm afraid. President G. H. Goodall was re-elected. . . . South-Eastern Centre of the **B.A.R.C.** runs a closed rally on 16th March, entries closing on 11th March and going to J. C. Checkley, "St. Moritz", Church Street, Willington, Eastbourne. Rally mileage

Coming Attractions

- February 23rd.** Burnham-on-Sea M.C. Mendip Standard Car Trial, Station Farm, Sandford, near Bristol.
Chiltern C.C. Committee Cup Trial, Griffin Hotel, Amersham, Bucks. Start, 10.30 a.m.
- March 2nd.** Surrey Sporting M.C. Sprint, Brands Hatch. Start, 12.30 p.m.
Yorkshire S.C.C. Trial, Ringways, Whitehall Road, Leeds. Start, 10.30 a.m.
Mid-Thames C.C./American D.C. Driving Tests, Denham. Start, 10.30 a.m.
- March 8th.** Mid-Cheshire M.C. Wilshire Trophy Trial, Egerton Arms Hotel, Broxton, near Chester. Start, 11 a.m.
- March 9th.** Jaguar D.C. Driving Tests, Middle Walk, Blackpool. Start, 10 a.m.



will be about 75 and the start is at 3 p.m. from the Seaford Head Hotel, Seaford. . . . Next event for the **Midlands M.E.C.** is described as a night navigational exercise lasting about four hours on 1st-2nd March. It is a closed event and entry forms and so forth can be had from L. Hill, 100 Prospect Lane, Solihull, Warks. The event starts from the "Fleur-de-Lys", Lowsonford, just half-an-hour after closing time. . . . **Cemian M.C.** holds its spring social on 16th March at the Hautboy Hotel, Ockham, Surrey, at 2 p.m. . . . **British Motor Racing Marshals' Club** has formed committees to run

THE SPIRIT of winter motor sport is adequately defined by this Francis Penn shot. Winter sunlight, bare trees and a trials special attacking a winding, muddy hill. In the car is Tony Marsh.

a number of regional centres. Area secretaries for these are: Southern—A. P. Bird, 39 St. Andrew's Road, Portslade, Sussex; Midlands—E. C. Cornwell, 11 Ashleigh Road, Penn, Wolverhampton; North—G. F. Irving, Wyke House, Wellington Road, Babington, Wirral, Cheshire. A Scottish centre secretary will, it is hoped, be announced shortly. The first club annual general meeting will take place at Mallory Park club house on 30th March, starting at 3 p.m. . . . **A.C.O.C.** night rally takes place on 1st-2nd March, entries closing on 22nd February. Invited clubs are Herts County A. and Ae. C., Lagonda Club, Hants and Berks M.C., Singer O.C., North London E.C.C., Cemian M.C. and Aston Martin O.C. The event starts at Buckland, Berks, at 10 p.m. and entries go to T. H. Hands, 18 Waverley Road, Enfield, Middx. . . . **Southsea M.C.** holds its annual dinner and dance on 7th March at Kimbell's Clifton Ballroom, Southsea. . . . **Jaguar D.C.**, northern branch, holds its Blackpool week-end on 8th-9th March, a closed-to-club but not only to the branch event. On the agenda for 8th March are a cocktail party and a dinner-dance, with driving tests on the following day. Enquiries should be made to H. V. Cromach, 24 Urmston Lane, Stretford, Manchester. . . . **Stockport M.C.** and **Cavendish M.C.** jointly promote a closed rally on 2nd March, open to members of either club, of course. Mileage will be about 167 and the start is at the Fiveways Hotel, Macclesfield Road, Hazel Grove, and entries, going to J. G. Hopwood, "Woodlands", Bowlake Road, Hyde, close on 27th February. . . . **Pembroke-shire M.C.** regretfully announces that as it is not possible to have the use of the hill at Easter, there will be no hill-climb on 5th April. It is, however, hoped to run a similar event in October. . . . **Newry and D.M.C.** hold an "Irish Experts Trial" on 1st March, entries closing on 26th February and going to Mrs. E. Atkinson, 17 Sandys Street, Newry. . . . New venture for **Cambridge University A.C.** is the Welsh Rabbit Trial on 21st-22nd March, modelled on M.C.C. events. Mileage will not exceed 250 and the event starts from Church Stretton at 10 p.m. Invited clubs are Combined Universities M.C., M.C.C., B.A.R.C., Wirral 100 M.C., Hagley and D.L.C.C., S.C.C. of Norfolk, B.R.S.C.C., Sunbac, Bedford A.E.C., Yorkshire S.C.C., M.G.C.C., Midlands M.E.C., B.T. and R.D.A., Lancs and Cheshire C.C., and the Cambridge '50 C.C. Entries close on 15th March and go to T. J. Threlfall,

Caius College, Cambridge. . . . **O.R.M.A.** annual general meeting on 12th March at Berners Hotel, Berners Street, W.1, at 7.30 p.m. . . . **Alvis O.C.** holds its "Alvis Day" at Crystal Palace on 18th May. . . . **M.C.C.** runs its "Fiftieth Anniversary" Land's End Trial on 4th-5th April—Easter, to be exact. Entries close on 10th March and go to L. G. Eckett, 1 Holmdene Avenue, London, N.W.7. . . . **Mid-Thames C.C.** holds driving tests in conjunction with the American D.C. at Denham on 2nd March at 10.30 a.m. Entries close on 24th February and go to A. T. Rogers, 32 Keswick Road, Putney, London, S.W.15. . . . **Swansea M.C.** holds its Charles Cup rally on 9th March, a closed event. Entries close on 7th March and go to 349 Llangyfelach Road, Brynhyfryd, Swansea: there is something about that address that my typewriter won't cope with, I'm afraid. . . . Described as a good way of introducing the wife, fiancée, girl-friend or all three to rallying, **Thames Estuary A.C.**'s anniversary rally is scheduled for 23rd March—a closed event. It is guaranteed not to give you "Cats Eyetis" and uses no maps, just route cards. Regs are available from S. L. Offord, 68 Exford Avenue, Westcliff-on-Sea, Essex, and entries close on 15th March. . . . Yorkshire area of the **Riley Register** will be holding a mystery run on 9th March, starting at Farnley Tyas, near Huddersfield, at 11 a.m. . . . **Combined Universities M.C.** hold their speed trial at Snetterton on 9th March, starting at 12.30. Practice is on the preceding day and on the Sunday, entries close on 4th March and the meeting is closed-to-club. Secretary is R. H. Hardman, 20 Kimberly Road, Cambridge. . . . **Kentish Border C.C.** holds a standard car trial for the Bussey Trophy on 16th March, an inter-club event for members of the Kentish Border Club, the Bexley L.C.C. and the Sevenoaks and D.M.C. Start is from the Bull at Birchwood at 11, and entries close on 14th March. Secretary is S. P. Clipston, 28 Widmore Road, Bromley, Kent.

SNETTERTON, 30th MARCH

SNETTERTON'S "first" this season is on 30th March, a Sunday, and as may be expected for this restricted meeting a typical Snetterton programme is being arranged. Sports cars, F3 (which is not tied to pump fuel), a saloon car race for Appendix "J" special touring cars, and the old favourite "all-comers dice", a *Formule Libre* event. B.A.R.C., B.R.S.C.C. and Club Lotus members are

invited to this spring meeting, regulations for which are available from Oliver Sear, Old Buckenham Hall, Attleborough, Norfolk. (Tel.: New Buckenham 352.)

LEICESTERSHIRE C.C.

THERE was quite a good entry for the Leicestershire Car Club's Bacon Trophy Rally held during the week-end.

This proved to be a rally of route cards, for no less than four were issued to competitors during the 120-mile course in East Leicestershire. Continually varying speeds set by the organizer, E. D. Beaumont, had navigators in a constant flurry of figures, but as usual they rose nobly to the occasion and all finished the route within the allotted time.

Provisional Results

Best Performance: K. M. Law (TR3). **First Class Awards:** E. Crease (Rapiet); T. B. Williams (Minor). **Novice Award:** F. J. Massey (M.G.). **Navigators' Awards:** 1, J. M. Taylor; 2, R. G. Lord; 3, Mrs. T. B. Williams.

BUCKINGHAM AND D.M.C.

AN evening signpost rally, organized on 12th February, attracted 12 entries. Competitors were given sheets showing a series of signposts and were required to identify them and give accurate map references. The course, measured and timed, had to be completed within the stipulated time and distance otherwise penalties were incurred.

Bonus marks were awarded to competitors completing the course with a mileage within three miles of the organizers maximum.

Results

Best Performance: 1, H. Hancock; 2, Shelagh Smith; 3, T. Hawes; 4, S. Lloyd.

OXFORD M.C.

THE annual dinner and dance of the Oxford Motor Club was held on 14th February at the Randolph Hotel, Oxford, when about 170 members and friends were present.

Guest of honour, Nancy Mitchell, proposed the health of the club with a wealth of knowledge of the history of the club dating from 1905 that made some of the older members glow with pride! After the Chief Constable of Oxford had compared the skills of navigation and driving needed to motor in Oxford with those required for the Monte Carlo rally the Mayoress of Oxford presented the trophies. These included the premier awards for the "Boanerges Rally" to Marcus Chambers of B.M.C. and Douglas Johns of the Hants and Berks M.C.

(More Club News on page 256)

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Club News—continued

CEMIAN M.C. ANNUAL DINNER
 ABOUT 170 members and their guests sat down to dinner at the Rembrandt Hotel, on 7th February. The guest of honour was Dr. R. Jardine Brown, M.A., LL.B., Principal of the College of Estate Management, from which the club springs. He proposed the toast to the club. The reply was given by the club's president, Mr. G. T. Wilby. After these two brief speeches, the very fine array of gleaming silverware was distributed among the lucky winners by Mrs. Jardine Brown.

PLYMOUTH M.C.

THE Anon Trophy was held on the 9th February consisting of four observed

sections which were extremely muddy after torrential rain, and driving tests. There were 22 entries. Tea was provided at the Beacon Hill Hotel, Newton Ferrers. This event was the first to qualify in 1958 for the Mercury Trophy.

Results

Best Performance: 1, G. H. Turnbull (Ford Prefect); 2, G. Edwards (Dellow); 3, Goodwin (Morris Isis).

Recent Results**HARROW C.C.**

Evening Rally, 26th/27th January

Best Performance: L. N. Needham (TR3). **First Class Award:** P. W. Browning (Morris Minor). **Second Class Award:** J. Stidwill (Ford).

BRISTOL M.C. and L.C.C.

Rally, 15th/16th February

Premier Award (The Basil Barber Cup): C. M. Seward (Standard). **Best in Opposite Class (The Catherine Hicks Cup):** J. T. Spare (Austin A50). **Second in Class to Winner (The Hayward Cup):** W. G. Cawsey (Renault). **Second in Opposite Class (The M.C.C. Cup):** D. C. Tappin (Volkswagen). **Navigator to Premier Award Winner:** A. C. Harmer. **Navigator to Best in Opposite Class Winner:** J. Bailey.

Class Awards: J. Flook (Standard 10); P. White (Austin Metropolitan); N. Kell (Standard Vanguard); E. Serle (M.G.A.).

Best B.M.C. and L.C.C. member: A. McKechnie (Volkswagen). **Novice Award:** R. J. Jackson (Morris Isis). **One Make Awards:** Austin, H. S. Hawkins; Ford, A. P. H. Vincent; Morris, R. Willson; Rootes, L. Tanner; Standard, J. Flook; Renault, J. L. Loveday. **Special Test:** F. E. Lea (Renault Dauphine).

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