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BRITAIN'S MOTOR SPORTING WEEKLY

FEBRUARY 15, 1963

2/-

Vol. 26 No. 7

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



IN THIS ISSUE

JOHN BOLSTER TELLS THE OVERHEAD CAMSHAFT STORY AUTOBOG AT BRANDS HATCH: THE YORKSHIRE RALLY



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February 15, 1963

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EDITORIAL

ACTION WANTED-ON SNOW!

As Cliff Michelmore stressed in the B.B.C. television programme "The Big Freeze", last Sunday, this country is completely unable to deal efficiently with traffic chaos produced by winter weather. AUTOSPORT has already drawn attention to the inadequacy of snow-clearing equipment controlled by local authorities, and there appears to be little planned organization to deal with the road blockages which, during the several weeks of Arctic weather, have paralysed our transport on thousands of miles of roads. Surely this is a Government affair, and requires the meticulous planning of a military operation. It is a sad reflection on the slender resources available for large-scale snow-clearing that, over six weeks since the first blizzards arrived, many vital routes are still impassable. With the millions of pounds that find their way into the Exchequer from road-users, a proportion should be earmarked to ensure that everything possible is being done to keep traffic moving, whatever weather may be experienced.

BRABHAM'S HOME-TOWN VICTORY

FORMER two-times-holder of the World Championship, Jack Brabham has scored a notable success for his new racing cars by winning the Australian Grand Prix last Sunday at Warwick Farm with his 2.7-litre Brabham-Climax from John Surtees in the Bowmaker Lola-Climax and Bruce McLaren (Cooper-Climax). Brabhams were also 4th and 5th, in the hands of Australians David McKay and Bib Stillwell respectively. Even more satisfying to Jack was the fact that he won in his own home-town, Sydney. This victory will help to convince organizers that the Gurney-Brabham challenge in this year's Grand Prix racing must be taken seriously. With skilful drivers, and cars which will obviously be meticulously prepared, the Australian-American combination could well provide a thorn in the flesh to the older Lotus, Cooper, B.R.M. and Ferrari organizations. Whatever else, the presence of a new marque must supply the variety which is needed to stimulate Formula One racing-not forgetting Formula Junior and the new Formula Two! As reported in our news pages, it now seems practically certain that no entries from the Porsche factory will be seen in Grandes Epreuves this year, and it is more than good to know that a driver of the calibre of Dan Gurney has found a new berth in the driving seat of such a promising machine as Jack Brabham's brainchild. It seems likely that the World Championship roll has not by any means seen the last of the name of Brabham!

OUR COVER PICTURE

MUD AND SLUSH are flung high in the air by the spinning, sliding wheels of Eric Carlsson's Saab as he flings it through a corner in the course of the London M.C.'s "Autobog" meeting at Brands Hatch last Saturday. The event, a sort of cross between a sprint and an autocross meeting, involved most of the leading rally drivers and was won by Timo Makinen. Carlsson suffered ignition trouble. Photo: George Phillips



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BRABHAMS 1-4-5 IN AUSTRALIAN GRAND PRIX

WITH a track temperature stated by the tyre experts to be 140 deg. F, Jack Brabham (2.7 Brabham-Climax) delighted his countrymen by winning the 101 miles Grand Prix of Australia by 7.6 secs. from John Surtees (2.7 Lola-Climax). This was undoubtedly a test of physical endurance as well as driving. Surtees, who took the lead and kept it for 31 out of the 45 laps, began to suffer agonies from badly blistered feet, in a cockpit which became like an oven. A braking error, possibly the result of his feet injuries, let Brabham through. Once in front Jack stayed there, but the gallant Surtees never gave up trying, and finished in second place, 47.3 secs. ahead of third man, Bruce McLaren (2.7 Cooper-Climax).

Only other driver to complete the distance was David McKay (2.5 Brabham-Climax) and in fifth place, one lap behind, came another 2.5-litre Brabham-Climax, driven by Bib Stillwell. Graham Hill, whose Ferguson-Climax was completely off colour. struggled along for sixth place. Of the 16 starters, nine were running at the end. Brabham and Surtees shared fastest lap of 1 min. 40.2 secs. (80.84 m.p.h.), as compared with McLaren's 1962 record of 1 min. 37.5 secs. Full story and pictures will appear in next week's issue.

Result
(45 laps—101 miles)

1. Jack Brabham (2.7 Brabham-Climax), 1 h. 16 m.
34.0 s. 80.02 m.p.h.

2. John Surtees (2.7 Lola-Climax), 1 h. 16 m. 42.6 s.

3. Bruce McLaren (2.7 Cooper-Climax), 1 h. 17 m.

4. David McKay (2.5 Brabham-Climax), 1 h. 18 m.

1. David Method (2.5 Brabham-Climax), 44 laps.
1. Sib Stillwell (2.5 Brabham-Climax), 44 laps.
1. Graham Hill (2.5 Ferguson-Climax), 44 laps.
1. Fastest lap: Brabham and Surtees, 1 m. 40.2 s.,
1. 80.84 m.p.h.

ANN RILEY is to return to rallying. She is to co-drive with Pat Moss on the Safari, as we mentioned two weeks ago, and she will also do the Acropolis and the R.A.C. Welcome back!

Other Ford drivers for the Safari include Anne Hall and Peter Riley from the U.K. and Lucille Cardwell, Vic Preston, Beau Younghusband, David Markham, Mike Armstrong and Peter Hughes from Kenya. Fords are to send out one 1,200 c.c. Anglia, four 1,500 c.c. Cortinas and two Zodiacs to the Safari but have yet to decide who will drive what.

THE Scottish Racing Drivers' Club was recently formed, the aims being to unite the efforts and further the interests of Scottish drivers both at home and abroad. As well as drivers, the club intends to have tuners, mechanics, entrants and others actively concerned with motor racing amongst their members. Membership is by invitation.

Committee members are John Romanes, Bill Borrowman, Adam Wyllie, Bill Stein and David and Douglas Bertram. Club president is Peter Beaton. It is hoped to enter a team of some of Scotland's successful drivers in important events during the

1963 season.
Bill Stein, the 1962 Scottish Speed Champion, is to drive a Lotus 23 this coming season, while Romanes and Wyllie have ordered F.J./F2 Lotus 27s. Borrowman is to conduct a Group 2 Austin Mini-Cooper and the Bertrams an 1,100 c.c. sports car.



ONE-LITRE ASTON MARTIN?

WE have heard strong rumours that Aston Martins will be producing a 1,000 c.c. G.T. car within the next few months.

WE revealed last week that Mickey Thompson is to enter V8 Chevroletengined cars for Indianapolis. We now hear that he is to enter five, not four, Harvey Aluminium Specials, due to a change of plans. Jim Kimberly is to enter the ex-Jack Brabham 1961 Indianapolis car for Pedro Rodriguez to drive. car is to be fitted with a Buick engine, while a similarly powered Kimberly Special is to be driven by Keith Rackwitz. A third Kimberly-entered car is a new machine to be conducted by Jimmy Davies.

JOHN WHITMORE will again be seen in a works Cooper-Mini this coming season.

SEBRING organizers inform us that Bruce McLaren will be driving a works Aston Martin in the 12 hours race on 23rd March.

Marcello orsi died recently at the age of 65. With Adolfo Orsi he was the coproprietor of Officine Maserati, the Orsi group having taken over from the Maserati brothers in 1938.

ECURIE ECOSSE PLANS

AT the annual dinner of the Ecurie Ecosse Association last week, David Murray announced that the Ecurie Ecosse Tojerios are to be powered by Buick engines de-stroked to give a capacity of 3 litres. The lightweight V8 engine is being developed and without impairing reliability it is hoped that the original b.h.p. will be doubled. Incidentally, if the Buick engines were not to be reduced to under 3 litres weight would have to be added to conform with the F.I.A.'s minimum requirements. As David Murray pointed out: "This is something quite foreign to Ecurie Ecosse mechanics because for years we have been trying to reduce unsprung weight, successfully as far as the cars themselves are concerned but not quite so successfully as far as some of the personnel is concerned."

It is hoped that a four-speed Corvair gearbox will be used. A full programme is anticipated including races at Silverstone, Goodwood, Aintree, Oulton Park, Brands Hatch, Rheims, Nürburgring and Le Mans (not Monza?). Drivers are as yet undecided, but Ninian Sanderson will be in the Le Mans team.

LORD SELSDON

We regret to report the death of Lord Selsdon, a prominent personality in the world of motoring sport. His motorracing career began before the war, when he competed regularly at Brooklands with a single-seater Frazer-Nash. He also drove a Talbot in sports car races, and took part at Le Mans with Lord Waleran in a V12 Lagonda. In 1949, with Luigi Chinetti, he won the 24 Hours Race in a 2-litre Ferrari; Chinetti did the major part of the driving. Peter Selsdon also competed in the Monte Carlo Rally, including a highly successful run with Tommy Wisdom, in a huge Daimler limousine.

In recent years he was a member of the council of the B.A.R.C. and put in a great deal of work on behalf of motor-racing, especially at Aintree and at Goodwood. A popular and kind-hearted sportsman, Lord Selsdon will be sadly missed. He was 49 years of age. To Lady Selsdon and her family, AUTOSPORT offers its deepest sympathy.

JOHN BOLSTER and Jack Brabham will show Dickie Henderson how to become a racing driver in the "Dickie Henderson Show" on ITV on 20th February.

BRITISH RACING PARTNERSHIP

Rumours concerning the British Racing Partnership constructing their own cars for 1963 are true, but they will not be ready for some time. Until this B.R.M.-engined car is raceworthy the team are to race modified Lotus 24s, which are also to be powered by B.R.M. engines. Modifications to the two Lotuses include strengthening of the front wishbone locations, revised rack and pinions, new oil tanks, new radiators, and a great deal of importance has been placed on driver cooling as severe heat caused driver fatigue during 1962. Dunlop wheels will be used, subject to availability in time.

Innes Ireland is to be the No. 1 driver

and his team-mate is to be the American driver Jim Hall, who designs and builds the very successful American Chaparral sports cars. He finished fourth in the Mexican Grand Prix driving an ex-Jack Brabham four-cylinder Lotus and he has also driven many fine races in European single-seater

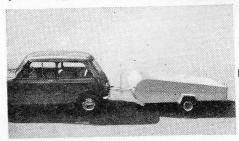
The faithful Lotus 19 used in 1961 and 1962 has been retained, while the Ferrari GTO with which Innes Ireland won the T.T. has been sold.

DAN GURNEY is to drive an A.C. Cobra in the Daytona Continental for G.T. cars this Sunday. He heads a team of three that is completed by Skip Hudson and David McDonald. The A.C. Cobras are ranged against the very best that Ferrari and Chevrolet can produce, which means that a good race should be had. Gurney won last year in his Lotus 19 when sports cars were admitted, but this year only G.T. cars may take part and the Continental is the first round of the 1963 G.T. Championship. Jo Bonnier and Bob Holbert are to drive factory-backed Porsches and seem assured of the 2-litre category.

THE secretary of the Automobilclub von Deutschland stated at Monaco that he thought that Porsche were definitely retiring from Formula 1 racing. Last year's drivers Dan Gurney and Jo Bonnier were released from their contracts last year. Gurney signed-up for the Brabham team while it is thought that Jo Bonnier may drive for Rob Walker.

It is rumoured that some of the works Triumph TR4s are to be offered for sale in the near future.

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ALWAYS CARRY COOKS TRAVELLERS CHEQUES

SPORTS NEWS

According to an Italian report, Mike Hallwood, the motor cycle star, has joined A.T.S.-Serenissima.

CITROEN WIN ROUTES DU NORD

The marque Citroën won both categories m last weekend's Rallye des Routes du Nord The touring class went to Rene Transpara Madame Bouchet and the G.T. section to Lucien Bianchi/Pascal Ickx. The highest-placed British car was the 3.3 Jaguar driven by Dutoit, which finished second to Trautmann's Citroën and above Greder's Ford Falcon Futura.

Results

Results
G.T.: 1, Bianchi/Ickx (Citroën), 793.82 points;
2, Feret/Duneyret (Alpine), 4515.06; 3, Vanson/De
Henning (Citroën), 5229.64; 4, Quilico/Robert
Triumph TR4), 5906.89, Touring; 1, Trautmann/
Bouchet (Citroën), 796.94; 2, Dutoit/Morel (Jaguar
3.8), 1149.68; 3, Greder/Greder (Falcon), 1366.93;
4, Verrier/Jourdain (Citroën), 1702.64. Coupe des
Dames: Mlles. Mathieuw/Martine (BMW 700).

THIS year's Monaco Grand Prix will be the Grand Prix of Europe.

LLOYDS M.C. DINNER

TRADITIONALLY the annual dinner of the Lloyds M.C., held on 8th February at the Café Royal, provided the sort of cabaret that only Tim Hedley would provide, and "Les Girls" were certainly appreciated by the members and guests, the last-named including Duncan Hamilton, Graham Whitehead, the Editor of Autosport, Robin Richards and James Tilling, who spoke on their behalf. The dinner itself was arranged by Eric Thompson and Tim

Carl Haas, the American Elva importer and distributor, ordered 14 Elva Mark 7s at the Racing Car Show—seven with Coventry Climax and seven with Cosworth-Ford twin-cam engines.

THE STARS DRIVE IN OWN RALLY

STARS of stage, screen and television drove through falling snow and slushy roads in the Regent "Fast Lady" Safety Rally on Sunday, 3rd February. The rally was organized by the Regent Oil Company in conjunction with the Rank Organisation and Kine Weekly, with the approval of the The first all-Show Business rally, it started and ended at Pinewood Studios, covering a 50-mile route through Bucking-

hamshire, Berkshire and Surrey.

Leslie Phillips drove a Red Label
Bentley, "star" of the new film "The Fast
Lady," navigated by Stanley Baxter. More modern travel in the form of a Jaguar 3.8 saloon was driven by John Gregson.

Glamour was present in quantity. Samantha Eggar drove an M.G.A 1600, navigated by Penelope Copley-Smith. Other navigators were Janet Munro, Sally Shuter, Caron Gardener and Lucy Bartlett. Luisa Mattioli navigated for Roger "The Saint" Moore, who drove a Volvo P1800.

Outright winner of the silver Challenge Trophy was Peter Haigh in a Riley 4/68, navigated by Mrs. Haigh. The first artist, Bryan Forbes, won a silver cup for himself and also one for his agent. Mrs. Bill MacQuitty as the first lady won a silver cup. The team winners for three rose bowls were "Z Cars" actors Alan Stratford Johns, James Ellis and Joseph Brady.

The prizes were presented by Graham Hill, World Champion motor racing driver. The V8 B.R.M. in which he won the South African Grand Prix to clinch the World Championship was on display during the day. Within 24 hours he was on his way to the Australian Grand Prix.

THE Surrey Sporting Motor Club's Sprint scheduled to take place at Brands Hatch last Sunday has been postponed until 24th February. Also affected was the Kitching Trophy Trial of the North Midland Motor

AT its meeting at Monte Carlo last month the C.S.I. introduced a new regulation to the current Formula 1. Under the new rule oil overflow pipes must be led into a "catch" tank of at least three litres tank of at least three litres capacity.

Arrangements have been completed, we are told, between Elva Cars, Ltd., and Colin Chapman for the supply of the d.o.h.c. Lotus-Ford-Cosworth racing engine for use in the new Elva Mark 7.

LAST-MINUTE news indicates that weather conditions have again caused the cancellation of the M.C.C. Exeter Trial.

AFTER serving as Chairman for 12 years, L. J. Roy Taylor has retired from the Bugatti Owners' Club and Ronnie Symondson has taken over his position.

PLANS for the 1964 Racing Car Show are for it to remain at Olympia—but for a longer period. The total figure of this year's attendance was 80,523, which represents a 30 per cent increase. sents a 30 per cent increase over last year and a rate of 915 visitors per hour.

A NNUAL dinner-dance of the "Rallye Automobile Monte-Carlo" will be organized by the British International Rallies Club on 1st March. Tickets (52s. 6d. each) from Jack Kemsley, Three Gables, Highfield Road, Chislehurst, Kent.

BRIAN CULCHETH is now working for John Sprinzel and will specialize in the pre-paration and sale of rally cars between outings for the B.M.C. works rally team.

HUGH BRAITHWAITE is to take delivery of a new Deep Sanderson 301 coupé in a few weeks. It will be fitted with a Webercarburetted Downton-tuned engine and Hugh will race it extensively both in this country and abroad.

A USTRALIAN driver John Ampt, who drove an Ausper T4 in Formula Junior races last season, is to drive a Cosworth-powered Alexis Mk. 5 for this coming season.

THE Mexican Grand Prix, due to take place on 27th October, has been added to the lists of events qualifying for the 1963 World Championship.

FURTHER discussions will be held at the May meeting of the C.S.I. in Moscow on the Soviet suggestion that a World Championship of rallies be instituted.

With the increasing expense of the present 1½-litre Formula 1, British racing teams are hoping for early discussions with grandes epreuves organizers on the subject of increased starting money.

It seems possible that regulations for the Formula 1 which will replace the current $1\frac{1}{2}$ -litre Formula when it expires at the end of 1965 may include minimum cockpit dimensions and minimum requirements for driver visibility. It has already been suggested that the driver, when "normally seated", should be able to see the road surface at a point 15 metres ahead. Another method of classifying cars into Formulae, other than using engine capacity as the yardstick, is being sought, but it is not certain that any means of this kind will in fact be employed.

LOTUS SEVEN G.T.

SEEN and admired by many at the Racing Car Show was the hard-top conversion for a Lotus 7 exhibited by Fibrepair, Ltd. Although much fun can be derived from driving an open car, many people must be fed up with Britain's climatic conditions and wish that they had purchased a coupé instead. Fibrepair's Lotus 7 G.T. is the answer to converting the Lotus 7 into a completely closed and weatherproof Grand Touring car, whilst still retaining its excellent all-round visibility.

The hard-top is constructed from glassfibre and strengthened with steel at strategic points. The conversion is available in the standard range of Lotus 7 colours, windscreen and side windows are fitted and all rubbers and fixings attached.

The hard-top is available in kit form priced at £77 and takes about a day to fit. Alternatively, Fibrepair themselves can fit it for you for an extra £10. For full details contact Fibrepair, Ltd., at 21A Lancaster Mews, Paddington, London, W.2.

The aluminium prototype was raced at Brands Hatch on Boxing Day by Gordon Jones and made fastest practice lap in its class (or fourth overall behind three very fast Elites). Unfortunately it retired in the race with plug trouble. A car will be raced in this country and possibly abroad this season, while it is hoped that the Lotus 7 G.T. will be homologated early in the season.



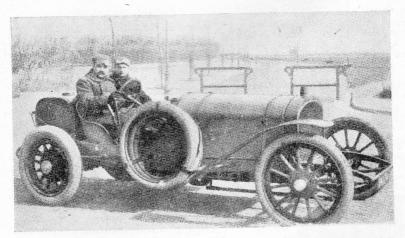
MERLYN MARK 5. The Essex firm of Merlyn offer their 1963 Formula Junior car, which raced at Boxing Day Brands Hatch and was shown at the Racing Car Show, with a Cosworth-Ford engine. The glassfibre body is very attractive indeed, the car itself being slim and smooth. The coil spring damper units are fitted inboard in the front suspension.

CHRISTABEL CARLISLE has been invited by the Helsinki Morris distributor to navigate for Timo Makinen in the Finnish Snow Rally, which starts today and finishes on Sunday. They are to drive a Morris Mini-Cooper.

David Prophet, who has in the past driven Kieft and Alexis Formula Junior cars with some success, has ordered a Brabham Junior for this season. It will have a Cosworth-Ford engine and a Hewland Mk. 4 five-speed gearbox.

THE 33rd International Geneva Motor Show takes place from 14th-24th March. Australian participation is to be continued for 1963 and there will also be cars from Japan, Israel and Russia in addition.

JOHN DUNN, who last year raced a Lotus 18 in club events, has purchased a new Brabham Junior for this coming season. The Holbay-Ford-powered car will be prepared by Ivor Bowen and it is planned to take in some continental events.



OVERHEAD CAMSHAFT: The inclined-valve engine necessitated a much higher bonnet line, but the car is quite compact for a 14-litre machine.

Photo by courtesy of Motor Racing Publications.

T-HEAD: The Clément-Bayard when fitted with the side-valve engine, with Gabriel (of Paris-Madrid fame) at the wheel.

Photo by courtesy of Motor Racing Publications,

by JOHN BOLSTER



OVERHEAD CAMSHAFT STORY

Having re-read my recent article, "Stroke/Bore Ratios" (Autosport, 7th December, 1962), I feel that perhaps I gave the Weigel a little too much credit for having an overhead camshaft engine in the 1908 Grand Prix. In fact, the much more successful Clément-Bayard also had the camshaft above the cylinder heads in that race, and these two *marques* were not the first to espouse the principle. I have accordingly spent several enjoyable sessions in the library of the Veteran Car Club, endeavouring to trace the history of this method of valve operation, in addi-

tion to my previous research.

The overhead camshaft was first employed to operate the valves of gas engines. Some of these large and ponderous power units had quite a forest of valves, air and gas being admitted separately, and in many cases a form of flame ignition demanded yet another valve. A vast stroke and a connecting rod many feet long made bevel gears and a half-speed shaft the easiest way to operate the valves. Usually the valves opened at right angles to the cylinder axis, via cams on the half-speed shaft and rockers. Occasionally, however, another pair of bevel gears permitted the camshaft to lie across the head, though whether a to lie across the head, though whether a horizontal engine can really be said to have an overhead camshaft I have never been

Anyway, if almost prehistoric stationary engines had overhead camshafts, the cars which followed them did not. The first cars had overhead inlet valves, which were suction-operated; beneath them were side exhaust valves that were inserted downwards through the holes in the top of the casting. These holes were then blocked by the cages containing the inlet valves.

Of necessity, the exhaust valves were operated by a camshaft that sometimes lived alongside the crank case but soon found its way inside, where it enjoyed the oily atmosphere. When it became desirable to increase the speed and flexibility of engines, the same camshaft was used for operating the inlet valves mechanically. This could be done in two ways. Either the inlet valves were left where they were, when pushrods and rockers were employed, or the inlet valve was taken out of its cage and placed alongside the exhaust valve. A third alternative was to put the valves on opposite sides of a T-head, but this entailed the use of two camshafts in the crank case.

It was well known that there were theoretical advantages in putting all the valves in the head, but early pushrod engines tended to be noisy and the weight of the reciprocating parts was a disadvantage.

There is little doubt that the first production car to have an overhead camshaft was the Mandslay, which was built in Coventry, Incredible to relate, the first O.H.C. Mandslay car was presented as early as 1912. Its manufacturers had been famous for many years for their big lathes, and man they were the originators of the community of rest.

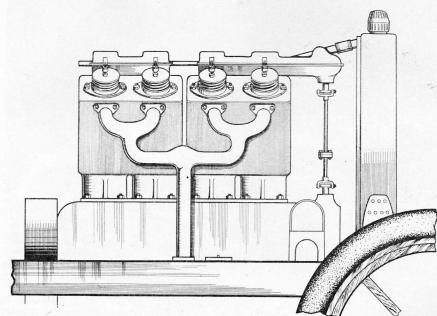
Maudslay had a 3-cylinder the "square" dimensions of 127 mm. (4,828 c.c.) which the 20 b.h.p. at 800 r.p.m. The overstand the same of the

A great feature of the Maudslay engine was its accessibility, the camshaft literally being hinged to swing away from the valves for adjustment or replacement of springs. Three swing bolts had merely to be loosened and slid out of their slots, and as the vertical driving shaft had a universal joint exactly in line with the hinge pivots, there was nothing to prevent the camshaft being swung out of the way. Incidentally, Maudslays built a monster 3-cylinder O.H.C. engine for tractors and rail cars with an equal bore and stroke dimension of 228.6 mm. It developed 75 b.h.p. at 450 r.p.m. from some 28 litres.

In 1904 the Maudslay engines became very much over-square with dimensions of 127 mm. by 88.9 mm., which developed 18, 25 and 40 b.h.p. in 2-, 3- and 6-cylinder forms respectively. These cars were built for many years, a model called the "Sweet Seventeen" (4 cylinders, 90 mm. by 127 mm.) being famous in Edwardian times, and a very pretty small 6-cylinder machine was shown at Olympia in 1923. This 2-litre car had twin overhead camshafts, operated by a "Y"-shaped connecting rod and eccentrics. The crankshaft was built up on tapers and all the bearings were rollers. The design was probably too complicated and that was the last Maudslay car.

If the British Maudslay was the first overhead-camshaft touring car, it would appear that the German Mercedes was the first racing machine so equipped. All the early Mercedes victories were gained with engines which had pushrod-operated overhead inlet valves and side exhaust valves. For races as far apart as the 1903 Gordon-Bennett and the 1908 Grand Prix, 4-cylinder engines with this valve arrangement were employed with great success. Yet, for many years Mercedes also built a succession of 6-cylinder racing cars, or rebuilt and modernized a design that was first laid down in 1905. These "sixes" were raced and used in hill-climbs but did not grace the Grand Prix arena.

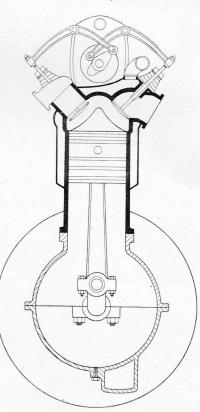
The 6-cylinder cars never achieved the mastery that the 4-cylinder models did, but they are of interest because they had overhead camshafts and, unless I am proved wrong, it would appear that no other racing car before them was so endowed. Though the valves were vertical they were not in line, being placed on either side of the camshaft and operated by very short rockers. There were two enormous valves per cylinder, and as the heads had to be extended laterally to accommodate them, they were almost like the old T-heads but upside down. This Mercedes developed around 100 b.h.p. at 1,400 r.p.m. from



CLÉMENT-BAYARD: The four-cylinder engine has two blocks, the heads are non-detachable and the overhead camshaft is bevel-driven by an exposed vertical shaft. The updraught carburetter is hidden behind the chassis member and the water pump is on the far end of the magneto cross-shaft.

11 litres, but one assumes that the unit was heavier than the "four", which would account for its moderate showing.

Neither the Maudslay nor the Mercedes



WEIGEL: A sectional view of the engine showing the valve rockers and overhead camshaft. The inlet valve is caged, and the exhaust valve seats directly in the head. The flywheel is of large diameter.

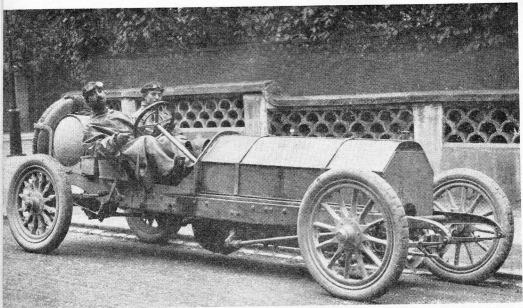
had hemispherical heads, and so we come to the 1908 Grand Prix. The 1906 race was won by a side-valve Renault but the 1907 contest was a victory for Fiat, with an engine which did have hemispherical heads containing inclined valves. However, they were operated by push-and-pull rods with enormous rockers, a solution that gives no aesthetic pleasure to the engineer. It is therefore scarcely surprising that both Weigel and Clément-Bayard appeared for the 1908 contest with the Mercedes camshaft and the Fiat valves, so to speak

shaft and the Fiat valves, so to speak.

The Weigel was a British car. D. M. Weigel only built cars for a few years in the Edwardian period, but he designed special racing cars for the 1907 and 1908 Grand Prix races. His production cars were quite straightforward large- and medium-sized vehicles with side valves in T-heads. The production 40-h.p. Weigel had four cylinders in two blocks of two, and the 1907 racer had four of these blocks, thus constituting a straight-eight power unit. The crankshaft was a 4-throw 5-bearing affair, each pair of cylinders sharing a journal. The length of these journals was therefore immense, and as the big ends and main bearings had a diameter of only 54 mm. it is remarkable that the engine could even be started up without turning the crank into barley sugar! The dimensions of this contraption were 130 mm. by 140 mm. (14,868 c.c.) and it was considered that its two-speed gearbox was ample with so much torque. The Weigel team achieved nothing in 1907 with the 8-cylinder cars, and so D. M. Weigel designed his overheadcamshaft "four"

The 1908 race was for cars with a cylinder bore not exceeding 155 mm. in the case of 4-cylinder engines. All the successful competitors chose to build long-stroke engines, but the Weigel, curiously enough, was over-square. Its designer refused to reveal the stroke, though it was generally assumed to be 150 mm. Subsequently, it was alleged in the press that the dimension was only 120 mm., which would have meant that the car was literally giving away litres to its competitors. The reason for the secrecy is not clear, but perhaps a production crankshaft was used to save expense, most probably with the 140 mm. stroke of the standard 40 h.p. car.

There were three main bearings and the



STRAIGHT EIGHT: D. M. Weigel at the wheel of his 1907 Grand Prix monster (above) with 2-speed gearbox. BELOW: Six cylinders—an overhead camshaft Mercedes which was raced experimentally in 1913 but was not used in the Grand Prix.

aluminium crankcase was split along the centre line. The overhead camshaft, which was not enclosed, was driven by a vertical shaft and worm gears. The cams pressed against rollers on the ends of the extremely long and curvaceous rockers, and the valves were inclined at an included angle of 90 deg. The inlet valves were in cages but the exhausts seated directly in the head, which was non-detachable, the valve springs being of the volute type.

In my sketch, which Theo Page has kindly redrawn for me, I have left out as many of the details as possible to avoid confusion. A cross-shaft at the front of the unit drove a water pump at one end and a high-tension magneto at the other. The power unit was mounted in a conventional chassis with 3-speeds and shaft drive; an oil tank holding 12 gallons suggests that the Weigel consumed a lot of lubricant or, more likely, flung it all over the place. Unfortunately, both the Weigels spun off on the first corner of the first lap in the 1908 Grand Prix, and though they eventually rejoined the contest they had neither speed nor reliability.

It is regrettable that, in addition to designing racing cars, Weigel indulged in the practice of writing provocative letters for publication in the motoring magazines. The high priest of this cult was, of course, S. F. Edge, who always knew how to keep his name before the public. Most unwisely, Weigel tangled with the great S. F. and made the mistake of libelling him and his Napiers. Retribution followed swiftly, and the consequent proceedings cost Weigel a packet, while the full-page apologies that Edge forced him to insert in the motor papers played havoc with the reputation of his product. It is sad that Britain's first Grand Prix representative had ceased manufacture by 1910, and no more racing or touring cars emerged from the works in Goswell Road, London, E.C.

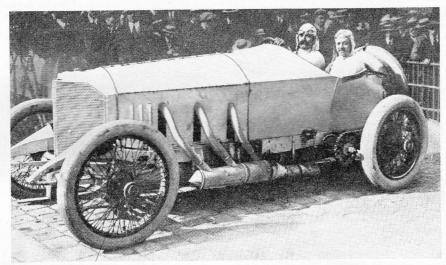
The Clément-Bayard was a very different proposition; indeed, there is reason to believe that the 1908 G.P. car was the fastest road racing machine in the world at that time. Adolphe Clément began constructing cars in 1898, and as he was both an engineer and a business man, he pros-

ROLLAND PILAIN: The low build is remarkable for a car with a long-stroke, overhead camshaft engine. Rudge Whitworth wire wheels and chain drive are featured.

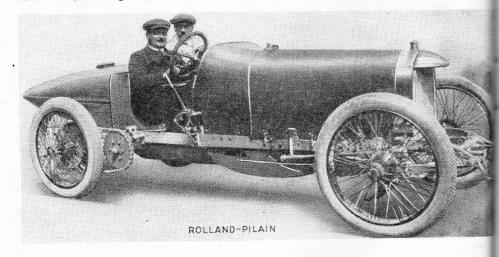
Grand Prix with a Clément-Bayard of 160 mm. by 160 mm. (12,868 c.c.). While practising for the 1907 event in a similar car, he slid too wide on a fast curve and struck a heap of stones, with fatal results.

In spite of this tragedy, Adolphe Clément fielded a full team of three cars for the 1907 race. His 1906-design cars, with sidevalves in 7-heads, finished eighth and ninth, whereupon he instructed his designer, Sabatier, to prepare new engines for the 1908 event. The regulations limited the bore of the cylinders to 155 mm., but M. Sabatier bravely specified a crankshaft which gave a stroke of 185 mm. and a capacity of 13,963 c.c.

The engine was of conventional construction with an aluminium crankcase and cast iron cylinders in pairs. However, an overhead camshaft was used operating very large valves inclined at 45 deg. (i.e., 90 deg. included angle). The inlet valves were in cages and the exhaust valves seated directly in the block, with normal helical springs. A large single updraught carburetter was mounted at chassis level and four separate exhaust pipes joined in an expansion chamber beneath the car. In front of the engine, the timing gears drove a cross shaft with a magneto on one end and a water pump on the other. Bevel gears drove an open vertical shaft with universal joints top and bottom and a vernier coupling in the middle. This shaft and the camshaft



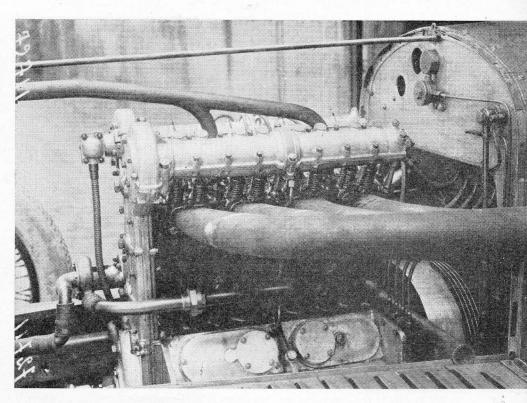
pered in the new industry. He pioneered the low-built racing car, both in the voiturette and unlimited categories. His son, Albert, was a superb driver and led the works team, finishing third in the 1906 appear small to modern eyes, but the moderate revolutions, gentle cam contours, and light valve springs ensured that the loading was not excessive. The many external oil pipes have been left out of the



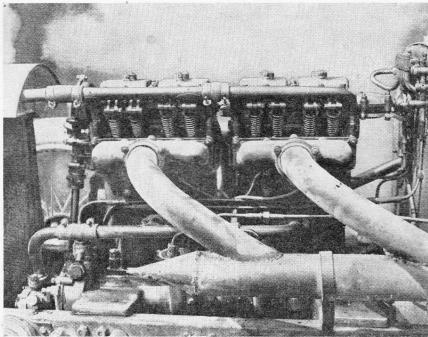
drawing to avoid confusion, as have some other non-essential details.

It was stated that about 135 b.h.p. was developed by this engine at around 1,600 The cars were extremely fast and would certainly have won the Grand Prix if their tyre consumption had not been begins that that of their rivals. As it was, Right finished fourth, at an average speed of having changed nineteen tyreshe had detachable rims on his wooden wheels so at least he was spared the lever and pump routine. The road surface broke and, except First seven places fell to German cars. With all due respect to Mercedes, Benz, and Opel, it would be fair to say that if French tyres had stood up to the terrible conditions, the result might have been very different, for all the Clément-Bayards were timed at over 100 m.p.h. Yet, in the Grand Prize of the A.C. of America in the same year, Clémer t-Bayard could do no better than fifth, so perhaps any conclusions are wishful thinking!

In addition to Maudslay and Mercedes, Isotta-Fraschini also preceded Clément and Weigel in building cars with overhead camshafts, and the little Isottas so equipped appeared in *voiturette* races in 1908. Ettore Bugatti was also designing overhead camshaft engines for Deutz of Cologne. It would, however, be reasonable to say that the Clément-Bayard was the first successful O.H.C. Grand Prix car.



TWIN OVERHEAD CAMSHAFTS: The Peugeot engine with camshaft drive by gear train and exposed valve springs.



SIXTEEN VALVES: The engine of the 1912 Rolland Pilain which ran in the Grand Prix. With four cylinders of 110 mm. by 165 mm. (6,272 c.c.), it was smaller than most of its competitors.

A variation in the name occurs throughout the years. The first cars were simply called Clément, but from 1904 onwards the name of Bayard was added. The Chevalier de Bayard was a noble knight, a French national hero of long ago, so the hyphenated Clément-Bayard was equivalent to Smith-Mountbatten or Jones-Marlborough in English! For some odd reason, the cars were called Bayard-Clément in the race reports of 1907-08, but the production cars

of later years still retained the earlier title. Small- and medium-sized cars, some resembling Renaults, continued to be built until after the first war, the Vintage Clément-Bayard being a conventional 3-speed touring car of 85 mm. by 115 mm. (2,601 c.c.). The great make had run its course, however, and the firm was absorbed by Citroën; but if Albert Clément had lived. . . .!

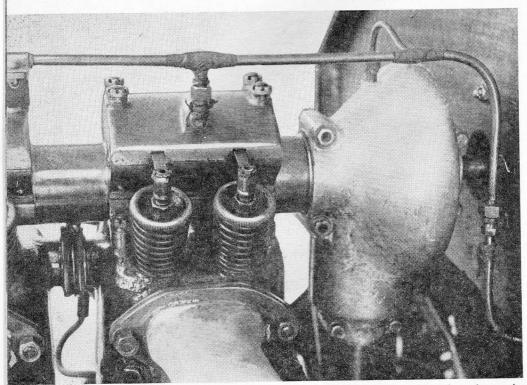
As is well known, the German grand slam in 1908 caused the French manufacturers to sign an agreement not to race. This meant that the French Grand Prix, which was the race of the year, was abandoned, and without French participation any other race would be pretty small beer. After an interval devoted mostly to some

extremely exciting voiturette racing, fullscale Grand Prix racing came back in 1912. Overhead camshafts were now considered normal wear, and four valves per cylinder were greatly favoured. Fiat had even a production engine with an overhead camshaft and 16 vertical valves for 4-cylinders, which won the rather farcical Grand Prix of 1911, but Rolland Pilain built perhaps the first Grand Prix engine with an overhead camshaft operating four inclined valves per cylinder. Thereafter, four inclined valves per cylinder quickly became almost universal for racing, operated by an overhead camshaft. After Henry produced his victorious twin overhead camshaft design in 1912 for Peugeot it was copied far and wide and has been standard racing practice during the last half century, with two or four valves to choice.

After the first war, the overhead camshaft invaded the luxury car market. Napier, Lanchester, Leyland, Hispano-Suiza, and Delage among others took the overhead camshaft into aristocratic circles. There were plenty of sports cars so endowed, the 16-valve Bentley 3-litre being the best known example, its design resembling that of a typical pre-war racing car. Ettore Bugatti, who had been a pioneer designer of overhead camshaft engines, was using the principle in all his production models. Cheap little cars, like the Singer and the Wolseley, had overhead camshafts, and eventually even the £100 Morris had an O.H.C. engine.

It is curious that all these "real" engines

It is curious that all these "real" engines vanished almost without trace. Popular cars and even sports cars went back to the decadent push rods. The side-valve engine, which was supposed to be dying in 1920, had made a spectacular comeback by 1935. The necessity to cut costs during a world depression contributed to this sad state of affairs, but the truth of the matter is that



MERCEDES: The camshaft of the 1914 Grand Prix Mercedes was driven from the rear by a vertical shaft and bevel gears.

most of the early O.H.C. units, while ideal for the propulsion of an open tourer or a fabric Weymann saloon, were too noisy in a pressed-steel car, especially when idling.

a pressed-steel car, especially when idling. Most of the earlier overhead camshafts were gear driven by bevels and a vertical shaft. It is difficult to avoid backlash in such a drive and the classical train of spur wheels, pioneered by Peugeot, usually clatters like a mangle at low speeds. The modern form of chain drive, developed by A.C., has now altered all that, and the Jaguar engine, with twin chain-driven camshafts, has proved that the O.H.C. engine is suitable for the most luxurious car.

The side-valve engine is dead, though it took an unconscionable time a'dying. Push rods and rockers are an untidy makeshift and it's time that they were gone. With 60 glorious years of overhead camshaft experience, it should not be beyond the wit of the production engineer to apply it to the sports car of today and the touring car of tomorrow. I predict that the overhead camshaft will return, this time for keeps, and no designer should lay down a new engine without this feature.

Motoring history is a fascinating subject, and the preparation of an article such as this is an absorbing if laborious task. The most painstaking research can lead one to wrong conclusions, for works of reference may prove unreliable, especially when written from memory by the pioneers themselves. If I have blundered, I hope that a shower of letters will tell me so, in no

uncertain terms!



COUNTY CAR CLUB DINNER

PHOTOGRAPHY BY

LEFT: Assembled in cordiality are (left to right) Henry Taylor, Edward Harrison, mine host Joe Waldron, Bobbie Leapingwell, John Harrison and Tim Parnell.



BRIAN GRIFFIN, the first winner of the AUTOSPORT trophy, receives it from Peggy Taylor.



JOHN DALTON receives the President's Trophy, watched by Alan Plumrose.



JOHN HAYES has his rubber suspension working overtime as he slides the front of his Austin-Cooper in the Dublin University Club's Grafton Cup Trial.

NIGHT AND DAY RALLY

BRIAN KEHOE, navigated by Ed Pearson, took his Volkswagen over 450 miles of snow- and ice-covered roads to win the Irish Motor Racing Club's Night and Day Rally on 19th-20th January. Possibly due to the shocking road conditions and the incredibly cold weather, only 16 crews set out from the start at Dundalk on the Saturday evening. Three crews were out by the time Athlone was reached on the Sunday morning for the breakfast stop. Mike Bassett navigated David Glover's Mark 1 Sprite through the night without loss of marks. Brian Kehoe and Ed Pearson dropped 40 marks, and Cecil Vard and Dudley Reynolds dropped 60 marks in their Austin-Cooper. Jim Cooney and Des Bradley in an M.G. Midget were fourth with a loss of 70 marks, followed by Charlie Gunn and Ricky Foot (Mark 2 Sprite) with a loss of 90 marks. Noel Smith and Leo Conway (N.S.U. Prinz 4) and Ronnie McCartney and Terry Harryman (Morris-Cooper) had lost 110 marks each.

Navigation was a simple matter on the Sunday run back to Dundalk, and marks lost during the night could be redeemed in a total of eight driving tests. Fastest through the tests was Ronnie McCartney with a total of 395.2 marks. Brian Kehoe's total came to 419.4, and Cecil Vard had a total came total of 425.6. David Glover's total came to 480.7 which was 61.3 secs. slower than Kehoe's total. Brian Kehoe therefore redeemed the 40 marks lost over Glover, and won the rally by 21.3 marks. Glover finished second, and Vard third. Navigators' awards went to Mike Bassett, Ed Pearson and Dudley Reynolds.

Results

Results

Premier Award: Brian Kehoe (Volkswagen),
459.4 marks. Sports Cars: 1, David Glover (A.-H.
Sprite, Mk. 1), 480.7; 2, Charlie Gunn (A.-H. Sprite,
Mk. 2), 558.3; 3, Jim Cooney (M.G. Midget), 561.7,
1,000 c.c. Saloons: 1, Cecil Vard (Austin-Cooper),
485.3; 2, Ronnie McCartney (Morris-Cooper), 505.4;
3, Noel Smith (N.S.U. Prinz 4), 544.8.

Over 1,000 c.c. Saloons: 1, Dickie Barrett (Ford
Anglia), 766.3; 2, Jack Fildes (M.G. 1100), 941.0.
Navigators' Award: 1, Mike Bassett, 0; 2, Ed Pearson, 40; 3, Dudley Reynolds, 60. Team Award:
Kilkenny Motor Club: Brian Kehoe, Noel Smith and
Ronnie McCartney.

GRAFTON CUP TRIAL

KILKENNY was snowed under on Sunday, 20th January and the Kilkenny M.C. had no option but to postpone their Traders' Cup Trial, a Hewison event. Traders Cup Irial, a Hewison Cyclic.
Tommy Connolly, Hon. Secretary of the
Kilkenny M.C., had all the Kilkenny
"regulars" notified by phone. Seamus
Griffin had already left before word reached his house and after battling through a blizzard he had to about turn and face another 70 miles journey back to Dublin. Noel Smith also set out in his N.S.U. Prinz 4. The Gardai in Naas were asked to keep a look out for Smith who was duly stopped and sent home again! Dublin University had a real "meaty" course laid on for their Winter Rally on 26th January. Eight foot drifts on many sections of the route put paid to this Hewison event so D.U. held their Grafton Cup Trial instead. The Grafton was fixed for 5th January but had to be cancelled due to the weather. This event was given Hewison status, instead of the Winter Rally, and was a test trial held in the snow-free North Co. Dublin area. Thirty-five drivers competed in the Grafton and the Premier went to Cecil Vard by

BRIAN FOLEY'S

Report From Eire

seven-tenths of a second from his brother, Leslie Vard. They both drove Austin-Coopers. The Griffin brothers, Shay in his Griffin-Ford and Stee in his G.T.S., finished third and fourth.

Results

Results

Grafton Cup: Cecil Vard (Austin-Cooper), 179.5
marks. First-Class Awards: Leslie Vard (Austin-Cooper), 180.2; Seamus Griffin (Griffin-Ford), 182.6; Stephen Griffin (Gr.T.S.), 185.7; Johnny Moore (Austin-Cooper), 191.4; Des Cullen (Sprite), 191.8; Reggie Redmond (M.M.3), 194.7. Second-Class Awards: Leslie Fitzpatrick (Midget), 197.4; David Glover (Austin-Seven), 200.9; Michael Ivis (Austin-Cooper), 201; Charlie Gunn (Sprite), 2021; David Leonard (Sprite), 207.4; Alex Malcolm (Buckler), 210.3. Undergraduates' Award: David Leonard.

TWO HEWISON TRIALS

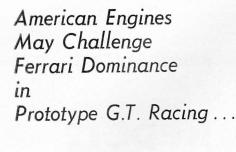
TWO HEWISON TRIALS

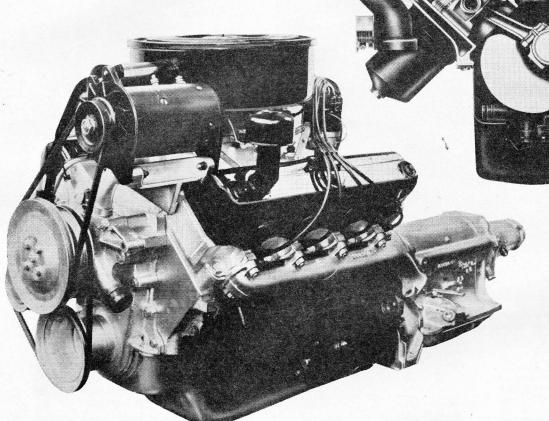
The first 10 in the Limerick Motor Club's Winter Trial, a Hewison event, on Sunday, 27th January, were as follows: Shay Griffin (Griffin-Ford), 337.1; Paul O'Flynn (Morris-Cooper), 346.0; Johnny Moore (Austin-Cooper), 362.0; Brian Kehoe (Volkswagen), 370.7; Pat O'Callaghan (Volkswagen), 370.7; Pat O'Callaghan (Volkswagen), 371.3; Tom Burke (Volkswagen), 381.7; Noel Smith (N.S.U. Prinz 4), 384.3; Jack Fildes (M.G. Midget 1100), 384.8; and Michael Ivis (Austin-Cooper), 386.3. Competitors having to travel any distances home from Limerick experienced distances home from Limerick experienced one of the worst fogs of the year. The dyed course laid out by the County Monaghan Motor Club for their Hewison Trial on Saturday, 2nd February, was covered in ice and hard-packed snow. The nine driving tests were held in a quarry at Castleblaney, Co. Monaghan. Johnny Moore took the Premier Award and three Ulster drivers, Mervyn Johnson (Austin-Cooper), W. (Morris-Cooper) filled the next three places. Cecil Vard's Austin-Cooper has a bored-out engine and he was placed second to Elliott's Volkswagen in the over 1,000 c.c. Saloon Class. He would have been unplaced if his engine was under 1,000 c.c.!

Results

Premier Award: Johnny Moore (Austin-Cooper), 500.5 marks. 1,000 c.c. Saloons: 1, Johnny Moore; 2, Mervyn Johnson, 508.6. Over 1,000 c.c. Saloons: 1, W. Elliott, 527.6: 2, Cecil Vard, 530.4. Open Cars: 1, Seamus Griffin (Griffin-Ford), 539.2; 2, Charlie Gunn (Sprite), 345.6.

(Continued on page 237)





V8

POWER-PACKS

BY GREGOR GRANT

The ever-increasing use of V8 engines is one of the outstanding features of modern racing. Already this type of power-unit has swept the board in 1,500 c.c. Formula One racing, winning every single grande épreuve during 1962. Now, many experts declare that it is only a matter of time till V8s oust the long-established Offy "four" from Indianapolis.

In sports-car and G.T. racing, the ready-made American engines have many obvious advantages. They are fairly cheap to acquire, replacement parts are readily available, and increased use of light alloys in their construction produces a power-weight ratio which must appeal to designers. In addition, they are wonderfully compact, and are capable of being tuned to develop immense power whilst retaining torque characteristics giving remarkably good acceleration.

A number of high-performance cars are listed with American-built V8 engines. These include Bristol, Jensen, Facel-Vega, Cobra (A.C.) and the sensational new Lola G.T. Also, several manufacturers produce their own V8 engines, for instance

Daimler (Jaguar), Maserati (5-litre), Rolls-Royce and Bentley, and BMW. It is also rumoured that the new Mercedes-Benz will have a V8 unit.

Every single American manufacturer builds V8 cars, ranging from the 3,525 c.c. Buick/Oldsmobile to the 7,050 c.c. Lincoln Continental—the largest capacity engine in series production at the present time. Smallest V8 available is the 2.5-litre Daimler, which, in standard form, gives 140 b.h.p. at 5,000 r.p.m. This engine, originally found in the SP 250, is now used in the new Jaguar-built Daimler. The B.R.M. racing engine of 1.5 litres, with Lucas fuel injection, gave 194 b.h.p. at 9,000 r.p.m. in its 1962 World Championship-winning form. Ferrari has also developed V8 engines in

Ferrari has also developed V8 engines in several sizes, but one feels that, in the larger classes, he will still stick to the amazingly successful V12. The Maranello concern is the only one which builds a V12 automobile engine.

Ford of U.S.A. have concentrated on constructing their V8 engines from cast-iron alloys, and new methods of manufacture have ensured blocks and cylinder heads

which are as light in weight as those built from aluminium alloys. General Motors, on the other hand, have been developing light-alloy units, and the aluminium block fitted to the 3.5-litre Olds and Buick V8 compacts has been extremely successful. It is worth noting that certain models have been equipped with turbo-supercharging, with a resultant power increase of from 180 b.h.p. to 215 b.h.p. Studebaker have also adopted bolt-on centrifugal superchargers on Golden Hawk and Avanti. The standard V8 engine of 4,740 c.c. produces 210 b.h.p. at 4,500 r.p.m., which rises to 250 b.h.p. at 5,000 r.p.m. with low-pressure boosting.

It is difficult to assess the actual poweroutput obtained on tuned versions of American V8s. In full racing trim, Mickey Thompson reckons that the Corvette units to be fitted in the Harvey cars will give over 350 b.h.p.—or 100 b.h.p. more than the production Corvette Stingray of 5,360 c.c. Maserati claim 350 b.h.p. from their 4,950 c.c. fuel-injected unit, but this has two overhead camshafts, whilst the American engines have push-rod operation. So far no G.T. car has been able to challenge successfully the 3-litre Ferrari, and in several cases sheer power has not resulted in the speed and reliability achieved by the Italian V12s.

The installation of American V8 engines in other chassis is far from being a new idea. The Cadillac-Allard showed the way, over a decade ago, whilst Cunningham also persevered with "eights," and, indeed, nearly pulled off a victory at Le Mans. Nevertheless chief credit for obtaining vast power increases from basically production engines must go to the "hot rod" community in the U.S.A. It is significant that a great deal of the work done on power units is now accepted as perfectly logical by

ever, the presence of Grand Prix-inspired, rear-engined machines presents a real threat to the old-established "conventional" Indy-car. The performance of Jack Brabham in his 2.7-litre Cooper-Climax gave American racing-car constructors seriously to think, and even their confidence in the "Offy" is shaken by the prospect of 350 b.h.p., and more, projectiles, with road-holding and suspension developed through Grand Prix road-racing.

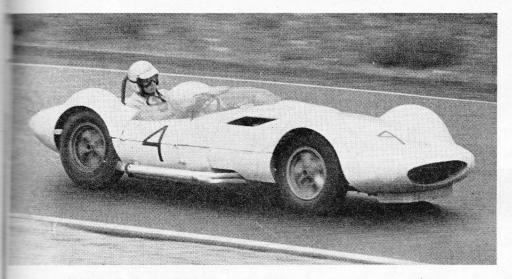
Sebring, next month, should see the most serious effort yet to topple Ferrari from their dominance in sports-car and G.T. racing. The Texan Chaparral with its Corvette V8 engine is said to be even faster than in 1962, and if reliability can be obtained, it could

The decision to use an American V8 engine is a sensible one, for the most powerful British engine available (the 2.7-litre Coventry Climax) cannot be regarded as a proposition for series-production. It is, in effect, a compromise unit, being basically the older 2.5-litre four-cylinder Grand Prix unit enlarged originally for Brabham's Indianapolis car and now used mainly in Formule Libre and certain sports-racing events. It is significant that Ecurie Ecosse is also thinking in terms of a V8 engine for the Tojeiro, another challenger for G.T. prototype honours. It was raced during 1962 with a Coventry Climax engine, and showed promise, but the sponsors encountered several problems which only continued development can solve. Broadley, of course, will also have problems. His car is not fully completed, and has yet to be track-tested.

Rallies have also been invaded by V8 cars, and the performance of the Falcon Futura in the "Monte" will be talked about for some time to come. In British circuit and sprint events several V8 cars have appeared. Dizzy Addicott's Lotus-Buick

A SERIOUS CONTENDER for G.T. Prototype honours at Sebring in March will be the Texan Chaparral (left). This V8 Chevrolet-engined car proved itself to be immensely fast last year in American events and Jim Hall was second in the Riverside Grand Prix, beating all the lightweight cars—bar Roger Penske's single-seater Cooper "sports car."

BEST V8 SPORTS CAR to appear on the British tracks was surely Dizzy Addicott's Buick-powered Lotus 15 (below). Several V8 American-powered cars are promised for this coming season.



the manufacturers themselves. Speed equipment, listed in their catalogues, has been developed from the extensive modifications carried out by specialist engineers, in the search to obtain the maximum possible b.h.p. from readily available engines.

The situation is on a par with that obtaining in Great Britain, where skilful tuners have produced remarkable power-outputs from production units such as Ford 105 and B.M.C. Series A. The present twin-o.h.c. engine used in the Lotus-Cortina can be traced definitely to the efforts of Costin and Duckworth (Cosworth) with Formula Junior engines, and the application of a fully hemispherical cylinder head with two overhead camshafts by Harry Mundy, who was also largely responsible for the development of the original "fire-pump" Coventry Climax engine. There is no reason to suppose that the "modifiers" in this country cannot equally deal with larger-capacity V8 engines.

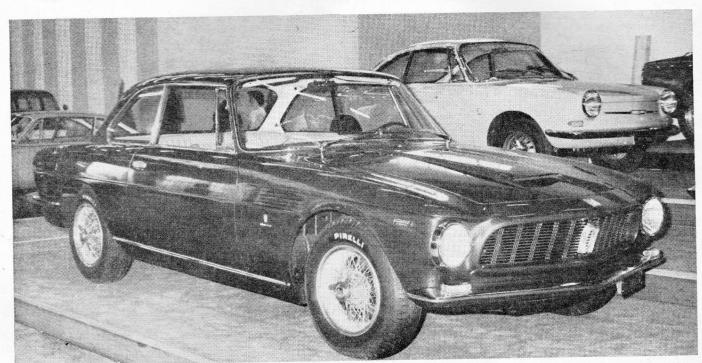
That Ford of Dearborn firmly believe that their V8s can be made raceworthy is evident by the commission to Colin Chapman to build a couple of Indianapolis machines. Although General Motors have no competitions policy, Ford have made announcements of participation in International motoring sport. The coming battle at Indianapolis will see the G.M.-powered Harveys and the Ford-engined Lotuses in competition with each other. No matter what G.M. politics are, the general public firmly believes that it is a prestige struggle between the two Detroit giants. Meanwhile the "Offy" enthusiasts carry on as before, depending on the incredibly reliable twin-o.h.c. "four," with its immense torque and unparalleled record of successes on the "brickyard." How-



easily become a serious contender. In the past the Corvettes have not been prominent in full-scale International racing, and have been outclassed by the much smaller-capacity G.T. Ferraris. However, the latest Stingray coupe represents a considerable advance, and many observers maintain that it is only the reluctance to equip the car with disc brakes that prevents it from giving a better account of itself in long-distance races.

Le Mans will probably see the debut of the exciting Lola G.T. This machine represents the approach of a Grand Prix designer to the Grand Touring prototype class. Eric Broadley has realized that in seeking to build a car for an outright win, there is no substitute for genuine power. was a clever conception, whilst Chris Summers' Cooper-Chevrolet is being replaced by a Chevrolet-powered Cooper Monaco. Mike Anthony tried hard with his V8 "Chevvies," but experienced a great deal of mechanical trouble, believed to have been overcome in the latest engines.

In the sprint world Sydney Allard's supercharged V8 Dragster has been outstandingly successful, winning the Autosport National Sprint Trophy by a considerable margin from competitors. In point of fact Allard's machine is inspiring others to construct special sprint cars, and there are signs of a considerable increase in popularity of short-distance dashes—an art entirely different from circuit-racing, and a proved spectator attraction when





GRAND TOURING V8. Bertone-bodied Iso-Rivolta uses an American Chevrolet Corvette engine (above). It caused a sensation at the Turin Motor Show.

G.T. PROTOTYPE V8. The new Lola G.T. car also has an American V8 engine to propel it (left). Introduced at the Racing Car Show, this car is powered by a 4,262 c.c. Ford engine producing 350 b.h.p.

outright winner. Ferrari has built up a fine business on the results of his successful racing programme, just as Jaguars did when they competed with the C-type and D-type sports-racing machines. It was also a planned part of the Mercedes-Benz comeback, to win at Le Mans, whilst the Aston Martin victory eventually produced the present DB4 series.

It would be a fine thing for all concerned if the 4.5-litre, V8 Daimler engine could be developed for G.T. prototype racing. This is a superbly engineered unit in every way, and it seems a pity that its potential should be ignored, when there is every sign that the

be ignored, when there is every sign that the V8 engine is the coming wear in the world of

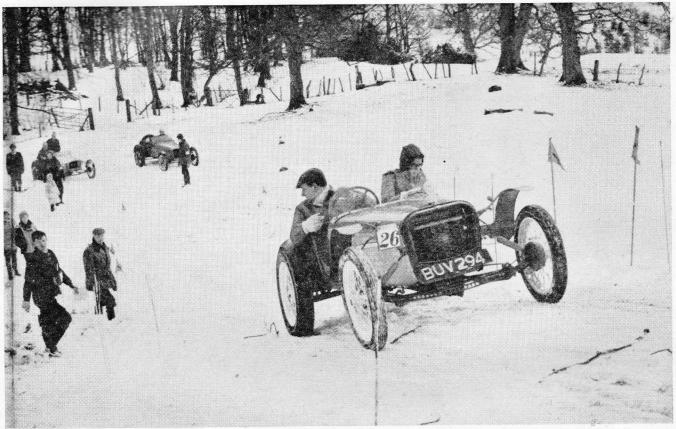
motoring sport.

it produces projectiles such as the brain-child of Summers and of Allard. In Florida, a certain "speed-shop king", of proved ability, has been quietly working on twin-o.h.c. heads for his V8s. It is said that the factory responsible for the produc-tion engines is keeping a close watch on the tion engines is keeping a close watch on the results, and if the increase in output appears to justify the additional costs, it is prepared to subsidize the construction of a limited series, for installation in a prestige, European-style, G.T. car, and, if necessary, bring out a sufficient number to qualify for stock-car events.

All this emphasizes the serious competition that will be offered to Ferrari, Aston Martin and others. In International racing, the biggest publicity must go to the

A VERY FAST Grand Touring car is Carroll Shelby's A.C. Cobra. This car, like the Lola, uses a V8 Ford engine which, in its most powerful form, is claimed to give the car a maximum speed in excess of 150 m.p.h.





A DIFFICULT "CLEE"

Another Win for Frank Lewis

WHILST the majority of football clubs failed yet again to provide the public with its usual "entertainment", on 3rd February the Hagley and District Light Car Club decided in the interests of motor sport to continue with its preparations and to hold the Clee Hill Trial at all costs, despite the fact that the venue for this restricted event was at Norton Manor, Presteigne, some 50 miles from home.

It took no panel of experts to decide that Hagley member Frank Lewis (Cannon) was the true winner by a 16-point margin from Lol Hurt (Cannon) from Sheffield who took the Bell Cup. Frank, partnered by his wife Betty, was on top of his form following his win in the John Bull Trophy Trial the previous week.

Starting order throughout the event was varied from hill to hill and Frank Lewis drove with true brilliance in deep snow which prevented all but Land-Rovers and trials cars reaching the Manor from the roadway. In third place was another Hagley man, Ivor Portlock, followed by R. A. Jager who led Don Rawlings by one

All sections had to be cleared of snow the day before by willing marshals and with the help of Land-Rovers, without which the event could not have been held. Despite this, most competitors had trouble with some sections, particularly the first three, these being very steep with Hill No. 1 incorporating a sharp left-hander which stopped everyone. Lewis, Hurt, Jager and Rawlings, together with Geoff Newman, however, climbed the second section.

Section No. 6 held 16 of the 22 starters on the line to lose 12 marks each, but again the incredible Frank Lewis lost only 3 marks, making by far the best climb.

In the afternoon, similar sections were used with Rawlings outstanding on Hill No. 4 and Lewis and Jager losing only 2 and 3 marks respectively on Hill 5.

Disappointingly, but understandably, only two-thirds of the entrants for this B.T.R.D.A. event appeared at the start and

CHARLES POLLARD in his Cannon finds the first embankment hard going at Norton Manor, Presteigne, in the Clee Hill Trial. Like so many other trials recently (that were not cancelled!), the "Clee" was run in Arctic conditions.

also noticeable by his absence was the winner for the last two years—Rex Chappell. The sun did shine however and the competition went off slickly to finish in good time to allow competitors to make their slippery way home.

MAX TRIMBLE.

Results

Clee Hill Trophy: F. T. Lewis (Cannon), 101 marks. Bell Cup: L. Hurt (Ford Special), 117. Michael Lawson Trophy: I. Portlock (Cannon), 132. First Class Awards: R. A. Jager (Cannon), 135; D. J. Rawlings (Cannon), 136.



GORDON HOLDRUP gets his wheel close to the tree in the hope of getting a good grip on the icy surface. Like the majority of other Trials contestants these days, Gordon chooses to drive a Cannon.



As viewers saw on the B.B.C. Grandstand programme last Saturday, well-known International rally drivers indulged in a proper mudbath over a circuit laid out in the car park at Brands Hatch. This programme was hurriedly arranged by Raymond Baxter and the London Motor Club, to fill in for football (heaven be praised!), cut by the weather. Actually, instead of having rally-stars in action in snow and ice, a sudden thaw converted the course into a morass and spectators saw some quite remarkable sport.

The event was run in several heats, and the plot was for each entrant to attempt to beat his imposed handicap time over two laps. The narrowness of the starting area forced the adoption of in line starts, but in no way affected the drivers' urge to race one another, and many exciting scraps developed. Some drivers took to the conditions admirably, but others could not get going at all. Studded tyres were of no use whatsoever, although Dunlops had brought along a huge assortment. Many people used either chains or straps, but Timo Makinen was content to retain the "porcupine" SPs that he successfully used in the "Monte".

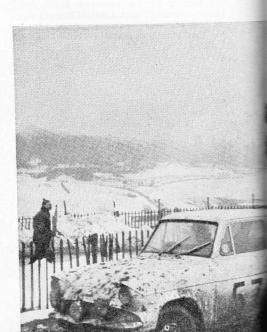
In Heat 1, none of the four starters managed to beat their standard time, best being Logan Morrison (M.G. 1100) with 4 min. 30 secs. (3 min. 47 secs. s.t.). Peter Harper (Sunbeam) slid into a mud-bank, after hitting a mysterious pile of snow which suddenly appeared, managed to finish, but

took no further part in the contest. Paddy Hopkirk (Cooper-Mini) and Pat Moss (Anglia) had a fine scrap in Heat 2, the Irishman beating his time of 3 mins. 48 secs. by 4 secs. In the third heat, Makinen went off at a tremendous pace in the big Austin-Healey, but finished up in the same bank that had stopped Harper, leaving Sydney Allard (Allardette) to win by a comfortable margin from Tony Ambrose (Cooper-Mini). Henry Taylor (Cortina) stuck fast, and could not get off again. Eric Carlsson (SAAB) made it look all too simple in the 4th heat, but only managed to beat his time of 3 min. 50 secs., by 1 sec. His three rivals, Alan Allard (Allardette). David Seigle-Morris (Anglia) and Peter Procter (Sunbeam), slithered along to finish behind the "Monte" winner in that order.

Makinen shook everyone rigid by beating his 3 min. 30 sec. (scratch), by 3 secs. His throttle control on the mud was delightful to watch, and his passage over the bump on the straight, more than a trifle shattering. The unfortunate Taylor stopped again in the same spot; Seigle-Morris had to be pushed out of a mudbank, leaving Tiny Lewis (Sunbeam) to snatch second place from Johnny Sprinzel (Vitesse).

The Hopkirk-Moss duel continued in Heat 6, Pat winning on the "road", but taking second place on time by 1 mark. Pauline Mayman (Cooper-Mini) stuck in a snowdrift for some time. In the next heat, Sydney Allard drove brilliantly to keep in

AUTO



LEFT: The winner, Timo Makinen, hits a hump just after the start in one of the heats. RIGHT: Paddy Hopkirk chases Pat Moss. The battle between these two was a feature of the afternoon-their cars touched at least once!

BELOW: Pat Moss leads Eric Carlsson, who eventually ran into ignition trouble and ended the day on only two cylinders. Not that you could really blame the wiring! BELOW RIGHT: Tiny Lewis's Sunbeam Rapier gets in the way of the mud thrown up by Paddy Hopkink's Ministry by Paddy Hopkirk's Mini. Hopkirk took second place.

> PHOTOGRAPHY BY GEORGE PHILLIPS

front of Carlsson. However the Swede equalled his handicap time to take first place, and the supercharged car failed by 8 secs., with 3 min. 45 secs. (3 mins. 37 secs. s.t.).

In yet another superb exhibition, Makinen beat his imposed time by 4 secs., to achieve B.T.D. so far (3 mins. 26 secs.), but this margin was also recorded by Morrison, in a fine drive with the M.G. 1100. Ambrose came

BOG.





to rest in a bog-cum-snowdrift, and Lewis struggled along to finish third.

Pat Moss once again finished ahead of Hopkirk, but not on a time basis. With windscreen wiper trouble, he had to open his door on several occasions to see through the mud thrown up from the Anglia's wheels. Allard, after breaking a chain, stuck in a mud-bank, and Carlsson had to tour round on two cylinders after ignition bothers developed.

The final produced Makinen, Morrison, Pat Moss and Hopkirk. The Finn was in a class by himself, setting a new course record of 3 mins. 25 secs. Pat and Paddy had such a battle that on one occasion their cars touched. The Anglia once more finished in front, but Hopkirk had the better time-difference.

So to Timo Makinen went the Dunlop Trophy for best performance of the day, and all other contestants received a souvenir award presented by Tom Wisdom, on behalf of the British School of Motoring.

On the whole, most of the entrants enjoyed themselves thoroughly, but hap-

piest man was Stuart Turner, whose B.M.C. cars took the first three places. GREGOR GRANT.

Result

- Dunlop Trophy. Timo Makinen (Austin-Healey 3000), 3 m. 25s. (-5).
 Paddy Hopkirk (Cooper-Mini). 3 m. 50 s. (+2).
 Logan Morrison (M.G. 1100). 3 m. 53 s. (+6).
 Pat Moss (Ford Anglia). 3 m. 45s. (+8).

Best Times of All Competitors (Standard Times in Parentheses)

- (Standard Times in Parentheses).

 1. Timo Makinen (A.-H. 3000). 3.25 (3.30).

 2. Logan Morrison (M.G. 1100). 3.43 (3.47).

 3. Paddy Hopkirk (Cooper-Mini). 3.44 (3.48).

 4. Pat Moss (Ford Anglia). 3.45 (3.37).

 6. Eric Carlsson (SAAB). 3.49 (3.50).

 7. Tiny Lewis (Sunbeam). 4.01 (3.44).

 8. Tony Ambrose (Cooper-Mini). 4.06 (3.48).

 9. Alan Allard (Allardette S). 4.09 (3.37).

 10. John Sprinzel (Vitesse). 4.17 (3.37). One run only.

 12. David Seigle-Morris (Anglia). 4.29 (3.41).

 13. Pauline Mayman (Cooper-Mini). 4.30 (3.48).

 14. Peter Procter (Sunbeam). 4.33 (3.44). One run only.
- only. 15. Peter Harper (Sunbeam). 5.31 (3.44). One run
- only.

 16. Henry Taylor (Cortina) —— (3,37). Did not complete course.



NEW ZEALAND

The Waimate "50"

BY PETER GREENSLADE

With the four-race international series over, and the Hastings sheep farmer Angus Hyslop definitely the winner of the Association of New Zealand Car Clubs 1962-63 Road Racing Gold Star and the New Zealand Racing Drivers' Club national road racing title, the local boys moved in on Waimate, in South Canterbury, for the final round in both series on 2nd February—the 70-mile "round-the-houses" Waimate "50" New Zealand championship road race.

Those with a major interest in the outcome of the race were Hamilton's Jim Palmer and the Wellingtonian Tony Shelly, lying second and third on the Gold Star ladder respectively, and both with a chance of finishing runner-up to Hyslop.

Generally speaking, there were few people who did not agree that Hyslop would win the race hands down. But that was not to be. In the early morning training session on the day of the race the crown-wheel went in the 2.5-litre Hyslop Cooper, and so the New Zealand champion was left on the sideline.

So it was that Palmer, with his 1.5-litre Cosworth-Ford-engined Lotus, came out the eventual winner, breaking lap and race records which had stood since 1960, and in the process he completed a Waimate "50" double.

Shelly, driving his old 1,960-c.c. Cooper-Climax, finished in second spot, and third was Roly Levis, of Putaruru, with a 1,500-c.c. Cooper-Ford. He completed 49 of the 50 laps. There were 14 starters and seven finishers.

Palmer cut out the 70 miles in 59 mins. 56.2 secs. to average slightly more than 70 miles an hour, and put in his fastest lap in 1 min. 8.7 secs. The previous records were established by the late John Mansel with a 250F Maserati in 1960, and were 60 mins. 46.5 secs. and 1 min. 11.2 secs. respectively.

As things turned out, the most serious contenders for Waimate "50" honours this year were the Christchurch sprint specialist Maurice Stanton (Stanton Corvette) and Timaru's David Young (1.5-litre Cosworth-Ford Cooper). Stanton led out from the start, exploiting the tremendous power of the 5-litre Corvette engine, and led by nearly 4 secs. at the end of the first tour. But in his second circuit he overdid things and buried the monster in some straw bales. Losing almost a lap and dropping to the tail-end of the field, he pressed on

regardless and fought his way back to seventh spot after 21 laps.

There followed a pit stop and a consultation on brakes, and then Stanton resumed at diminished pace with virtually no stopping power—something that is a prime requisite at Waimate.

requisite at Waimate.

David Young held on to Palmer for quite some time, but the Lotus driver gradually drew away and ultimately he had a 30 secs. lead when Young was forced out with a broken universal joint after 29 tours. This let Shelly into second place—he had been about 3 secs. behind Young—and that was that.

Palmer's win meant that he rounded off the season runner-up to Hyslop in the Gold Star series with Shelly in third place and Bruce McLaren fourth.

With the exception of Chris Amon, who had headed off to Australia for the Warwick Farm meeting, everybody who counts in New Zealand racing was in Waimate. The townsfolk and the promoting club, the South Canterbury Car Club, had all in readiness on the night before race day, and there were large groups of locals in every garage around the town inspecting the cars and generally chewing the fat. The enthusiasm for the meeting is tremendous in South Canterbury.

Late sleepers should stay well away from Waimate as the one and only training session is held early on the day of the meeting itself. For some, trouble came early. Hyslop put in a couple of slow tours with the Cooper, to run in a new set of bearings, and was just beginning to pull out the stops when there was an ominous "clonk" and his day's racing was over. Shelly, whose 2.5-litre Lotus-Climax had been shipped to Warwick Farm, brought out the 1.9-litre Cooper and proceeded to motor quickly—too quickly in fact, for he ran out of road and ended up in the straw bales on the outside of a right-angled right-hander and thereby marred the coachwork slightly but did no real damage either to the car or himself.

Palmer proved to be the quickest, and with him, posted for the front row of the grid, were Stanton, Shelly and Young. After the lunch break, taken by many of the record crowd in the most convenient hostelry to their vantage points—the circuit is virtually littered with these welcome adjuncts—the field came out for the feature event.

Stanton shot off like a rocket with Palmer and Young close behind, and Levis, John Histed (1,500-c.c. Lola-Ford), Bill Thomasen (1.9-litre Cooper-Climax) and Shelly also prominent. The Stanton-Corvette was well clear of Palmer at the end of the first tour. But next time round Palmer was in front with Young, Levis, Histed, Thomasen and Shelly next. There was already quite a gap back to the rest, and Stanton was busily engaged in burrowing out of the straw.

At the conclusion of nine tours, Palmer lapped Frank Turpie (1,500-c.c. Lotus-Ford). Young was about 7 secs. back, and Shelly had moved up to be third, with Levis next and just holding off Thomasen.

Palmer completed his 17th tour with the Lotus running like a clock, and 17 secs. ahead of Young, who was now being challenged by Shelly. Levis was next, but quite a way behind, and he was followed by Thomasen and Lionel Bulcraig with the 3-litre monoposto Aston Martin.

Shortly afterwards Stanton lost a lap when he made his pit stop, and at that stage Palmer and Young had lapped the rear half of the field.

Bulcraig was next to make a pit stop.

The Aston was well and truly on the boil, and it was some time before he could resume. With 26 tours completed Palmer had lapped everyone with the exception of Young, Shelly, Levis and Thomasen, and there appeared to be little doubt about the final result. Then Young disappeared and that let Shelly into second place, the position he was destined to hold for the rest of the journey. Levis seemed fairly safe ahead of Thomasen, who was lapped by the three leaders after 36 tours. It was then that Cottle, who was tailing Thomassen, struck trouble. A fuel line burst and the



THE LYCH-GATE of the Waimate Anglican Church, attractive as it may be, does not distract Waimate "50" winner Jim Palmer as he bowls the Lotus-Ford through the tricky lefthander

little Lola caught fire. Cottle wasted no time about stopping and soon had the flames under control.

To all intents and perposes the race was over. Moffatt was holding sixth place with the 2-litre Lotus, having made a couple of pit stops. Histed was in the process of pushing his car back to the pits, and everyone was sitting back waiting for the chequered flag to fall. Palmer made it by a good margin from Shelly. Then came Levis, a lap back, and Thomasen a lap behind him.

Waimate Notes

Palmer and Shelly flew to Sydney after the meeting to compete in the Warwick Farm international race and others that are to follow... Palmer will probably visit Britain later this year to gain some more experience. He is cast in the Bruce McLaren, Denis Hulme-Angus Hyslop mould, and should be well worth watching, especially as his lap times this season have been almost on a par with the overseas boys... Cottle, another good 'un, finishes the season sports car champion.

There is talk about a 2.5-litre engine

There is talk about a 2.5-litre engine capacity limit for next season, accompanied by the banning of "witches" brews" in favour of good old gasoline, but more about that later.

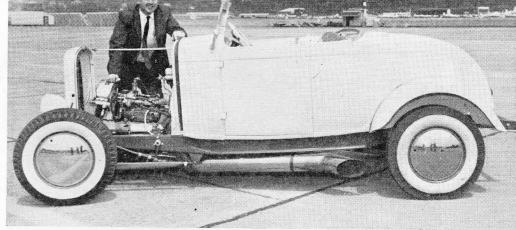
TURBINE **POWERED** FORD

by TONY HOGG

In its present stage of development the gas turbine does not appear to be a practical form of automobile propulsion and, so far, no manufacturer has had the temerity to market such a vehicle. However, one die-hard American enthusiast named Len Williams has constructed his own turbine-powered car for a very small financial outlay and, with certain reservations, it has given him swift, trouble-free and exciting driving for several months.

Len Williams is a turbine engineer at the Boeing Company, but, like all other employees, he is specifically forbidden to take anything out of the factory other than his knowledge and experience. So, when he was offered an old Boeing turbine by a surplus dealer for \$500, he immediately bought it and installed it in his 1932 Ford Roadster. The '32 Ford is a vehicle beloved of the American hot-rod set, and Williams's car has had a number of different engine installations previously, including an Oldsmakila with which he clocked just under mobile with which he clocked just under 150 m.p.h. for the mile at Bonneville.

Fortunately, the installation was remark-



This unit is one of the simplest and most direct approaches to turbine engineering and it develops 175 b.h.p.; however, it also consumes fuel at an impoverishing rate. Williams drives the car to work every day and gets 3 to 5 m.p.g. depending on traffic conditions which, even in oil-rich America, is something to be reckoned with. For-tunately, the turbine will run on almost anything that is liquid and combustible, and he is currently using a cheap brand of diesel fuel. In order to make sure that he not only gets to work, but also gets back again, the boot of the car houses a specially constructed 35-gallon fuel tank, and also two 12-volt batteries because the starter is a 24 volt unit.

Starting a turbine is a little different from starting a piston engine. First of all one pushes a button which heats a glow plug in the combustion chambers. Then one pushes another button which operates the electric starter, and it is necessary to watch the rev. counter to make sure that the starter is spinning the gas producer turbine at 3,000 r.p.m. before one pushes a final

Len Williams with his 1932 turbine-powered Ford.

Photo: The Boeing Company.

doing it all himself.

Due to the relationship of the gas producer and power output turbines, the power unit has the effect of a torque converter, and the need for either a clutch or gearbox

is eliminated.

At idle the car has a strong tendency to creep and it is necessary to keep the brakes applied. However, once under way the operation of the turbine is unbelievably smooth and, with a practically flat torque curve, the rate of acceleration above 25 m.p.h. remains practically constant until the peak revs. of 36,000 r.p.m. are reached. One of the disadvantages of a turbine is that to increase the speed, one introduces more fuel into the combustion chambers. However, throwing in more fuel creates dangerously high temperatures and. in consequence, it is necessary to carefully regulate the introduction of the fuel. As a result, there is a certain sluggishness in the initial stages of acceleration which can be overcome by building up the revs. in the gas producer turbine with the brakes applied, and in this way extremely rapid starts can be made and it is easy to spin the wheels.

On the road the car, with its two-pedal control, is responsive and simple to operate although the steering and road-holding of the '32 Ford take a little time to get used to. Due to the axle ratio, the maximum speed is confined to 75 m.p.h., which represents a turbine speed of 36,000 r.p.m. However, Williams is planning to install a different ratio which will give 115 m.p.h. because he feels that this would be more in keeping

with the car's potential.

Next to the acceleration, the most impressive thing about the car is the noise. Surprisingly enough, the exhaust, which is ducted along each side of the car in 6 in. diameter pipes, is comparatively quiet and produces a dull booming noise when throttle is applied. However, the compressor and the two turbine wheels create some remarkably loud screams and whines which are typical of the jet age and, due to a certain lack of floorboards, there appears to be more noise inside the car than out at the present time. It is not too difficult to silence a turbine by the judicious application of glassfibre padding, and Williams plans to make this his next project.

In its present form Len Williams's turbine-powered Ford roadster is unlikely to replace the Cadillac. However, it is a most interesting and impressive amateur effort, and also a great source of pride and joy to its owner who, whenever the subject of turbine-powered cars comes up, can truthfully declare, with a yawn, that he drives one to work every day.

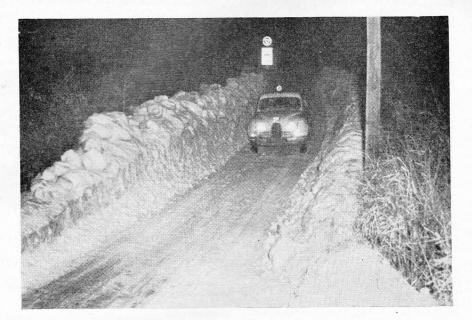
Burner Exhaust Fuel Reduction Gears Compressor Air Output Gas Producer Turbine Free Power Turbine

ably easy, due in part to the dimensions of the turbine, which are $3\frac{1}{2}$ ft. long, 2 ft. wide and 2 ft. high. The unit is an extremely simple one which incorporates a gas producer turbine, and a free power turbine, which are not connected mechanically. The gas producer turbine drives a compressor which blows air into two combustion chambers alongside the unit, where fuel is introduced and ignited. The resulting blast drives the gas producer turbine itself, and also the free power turbine which drives the propeller shaft through reduction gears.

The Boeing gas turbine as fitted to Len Williams's car.

Photo: The Boeing Company.

button to introduce fuel into the combustion chambers, causing the turbine to light up and tick over at a mere 15,000 r.p.m. Starting is quite a tricky operation because, if it is not timed correctly, it is possible to burn the blades off the turbine wheels. In consequence, under normal circumstances the cycle of operations is set in motion automatically by pressing one button, but Williams prefers the sporting approach of



GEOFF ALLEN (MINI-COOPER) WINS A "PUSHING AND HEAVING" YORKSHIRE RALLY BY GRAHAM ROBSON

For the first time in several years, seasonable weather graced the occasion of the Yorkshire Rally and the "Yorkshire Brass" awards for clean sheets can stay in Mike Wilson's cupboard until 1964. Many lesser motor clubs would have cancelled their big rally outright in view of the Arctic conditions prevailing all over Yorkshire, but the organizers of the "Yorkshire" welcome a bit of bad weather, and merely cancel controls, cancel directions of approach, allow turning round in controls, etc., where appropriate.

In the original route were listed 70 controls, but during and just before the event, no fewer than 21 of these were scrubbed, and the approach direction on several others was amended. Typical also of the spirit of this event was the casual way in which competitors drove through controls more than once in order to circumnavigate blockages, and everyone seemed to enjoy themselves thoroughly! After Control 44 the allowable lateness was extended to 60 minutes, but even this was not enough for anyone to visit all "reachable" controls.

After a long, hard night's work, Geoff Allen/Barry Hughes (Mini-Cooper) achieved victory with penalties of four Fails and 98 penalty minutes lost. Reg McBride and Don Barrow in an Allardette 1500 were second (5F, many minutes lost), with Brian Harper/Ron Crellin (Sebring Sprite) third, on six Fails. Allen and Hughes visited all open controls with the exception of Control 12 and the northernmost trio, while McBride missed four of the northernmost points. Even with the penalties charged against these heroes, the mileages covered must have been incredible.

A sudden decision to stage an ice autocross for B.B.C. TV caused the defection of Procter and Kempley's Rapier, other non-starters including Mike Sutcliffe/Phil Crabtree in a Mini. The two hours or so previous to the "off" had seen

frenzied plotting in the lounge bar of the "Rose and Crown", and several long, learned tactical discussions, with local experts, Mike Wood and Mike Kempley, in the chair!

The first section led gently away from Ilkley to the first control near Askwith, where the serious stuff was to begin. Immediately this proved to be too serious for Peter Bolton in a borrowed works TR4, who had quite a serious collision with a non-competing Land-Rover, and was forced to abandon on the spot. In spite of assurances made in the regulations, several of the sections now seemed to incorporate "Yorkshire miles", and a one minuter and three minuter in the West End area livened things up considerably. This may be the last occasion that West End can be used as the area is shortly to become a reservoir.

Control 10 was placed on the steep climb up onto Low Moor, near Beverley, and most hitherto clean sheets were lost here, but it then became immediately obvious that the exit to the B6265 was blocked, and the entire front of the field became stuck and unable to turn. Ken Lee and Phil Simister arrived on the scene and were able to turn and retrace through the Control, and were then first arrivals at Control 12, almost impossibly sited on Silver Hill, with 1 in 4 gradients forming the only approach!

Simister's Allardette was bounced and heaved to the summit, 28 mins. late, boiling merrily, but on leaving found that a vital Time Card was missing and was forced to retire. Going strongly here were McBride in his Allardette, Masheder in his SAAB, and Derrick Astle in his Morris 1100. Brian Harper took one look at the chaos before this control, shuddered, and pressed on! Roy Fidler was also in trouble with boiling here, and was seen later, miles off route, trying to quench his Allardette's thirst with coffee and Lucozade—it worked too!

THE SAAB of E. B. Masheder and E. W. Peters heads away from Control 26 at Sutton under Whitestone Cliffe. The little Swedish car is almost dwarfed by the piles of snow on either side of the road!

After this fun and games, a further detour was needed to reach Control 13, then the route led through York to Riccall Airfield and special stage 1. This was a 1-mile stage set at 40 m.p.h., presided over by Mike Wilson from his warm caravan, and was perhaps the twistiest, slippiest 1-miler your correspondent has ever seen! Times of 4 mins. were commonplace, and Don Grimshaw claims slowest time (over 5 mins.) with his Healey, which must have had an unusable excess of about 200 b.h.p.! Hereabouts a non-competing Humber was observed trying to climb a telegraph pole, while Ian Terry's Allardette was in trouble with a non-charging dynamo.

After petrol, near Easingwold, the pileups became more frequent, as all the next 15 controls were within five miles of Sutton Bank. This famous climb was open, but the nearby Boltley Bank was blocked and



CONTROL 25. Don Grimshaw and Geoff Haggie check in with their Austin-Healey 3000. The glass-fibre bonnet opened once, but Don just thought that the fog was a little thicker!

more back-tracking ensued. While approaching Scawton, McBride and Barrow spied what appeared to be a dirty snowdrift, which proved to be Ralph Broad's grey Morris 1100 trying to turn round. The well-known section through Cadell Mill, north of Old Byland, proved impossible to all but five heroes, and Messrs. Astle, Rupert Jones, Broad, Grassick and Corbishley deserve honourable mentions.

After Control 47 at Appleton-le-Moors, competitors were faced with a long thrash

After Control 47 at Appleton-le-Moors, competitors were faced with a long thrash to the next available point (Control 52) near Danby, which was the start of eight closely spaced points in Esk Dale. As it was essential to visit at least some of these controls for a high placing, most crews opted for the B1257 through Chop Gate, but found to their horror that this was blocked. It was known that the A169 over Fylingdales Moor was also solid, and so several people then made tracks all the way round via Scarborough. Some unfortunates discovered the existence of a really chassisbreaking ford near Scarborough, and Derrick Astle claims that his 1100 is now hump-backed with the gearchange lever in a (Continued on page 235)

CORRESPONDE

There Isn't Room for Both Organizations

There Isn't Room for Both Organizations

The starting grid at Silverstone at a Club Meeting—one minute to go—suddenly a horde of cars screams round Woodcote Corner! There follow panic braking—phenomenal avoidances—acrobatic mechanics—a minor shunt or two—and another scoop for George Phillips. But fortunately no personal injuries. The Clerk of the Course looks at the Secretary of the Meeting. "What on earth is happening?" he asks. And the Secretary replies, "Oh, it must be the Independent Motor Racing Association again!" Far fetched? Yes, indeed, but only because Silverstone is a private circuit, inaccessible to all and sundry. But on the Queen's highway something very like this happens most week-ends, through lack of centralized control over rallies. It is, of course, the public who suffer, and the public who complain to the only known organization—the R.A.C. This despite the care the R.A.C. have taken, in conjunction with organizers, to ensure that rally territory is rationed. territory is rationed

How can an unaffiliated club possibly know when it is duplicating another club's route, except retrospectively, after the complaint has come in, and after a couple of cars have met head-on in a country lane.

Mr. Sneddon will note that I use the word "unaffiliated", not "pirate". The latter I consider to be derogatory to the people conserved.

"pirate". The latter I consider to be derogatory to the people concerned. Most of them are responsible organizers whose only offence is that they do not appreciate the harm that can be done by independent action and organization, however well it is conceived and executed. I can quote a particularly good example of a club which started from virtually nothing, applied for affiliation last autumn and then proceeded straightway to organize one of the finest driving test meetings I have ever had the pleasure of attending, and my unqualified advice to other unaffiliated clubs is to follow suit, to apply to the R.A.C. for recognition and then derive the benefits for itself and for its members. It should not be forgotten that every aspiring rally its members. It should not be forgotten that every aspiring rally driver in the country must, of necessity, possess either a restricted or a F.I.A. competition licence, issued only by the R.A.C. Without such a licence there is no possibility of progress in the sport. There are now a licence there is no possibility of progress in the sport. There are now over 700 affiliated clubs throughout the United Kingdom—surely this over 700 affiliated clubs throughout the United Kingdom—surely this gives the would-be competitor a sufficient choice to enable him to begin and to continue his rally career (in his own bread-and-butter, every-day-to-the-office car, as most of us do) with people who enjoy the confidence of what is, after all, the governing body? More than 18,000 active competitors in the U.K. think so.

There is, of course, the possibility that Mr. Sneddon and his Association enjoy the mandate of more than 700 active and experienced clubs, and more than 18,000 individuals. In this case possibly the R.A.C. might consider applying for affiliation with the A.I.M.C.? I am not being sarcastic, Mr. Sneddon—there just isn't room for both organizations.

organizations.

HAYES, BROMLEY, KENT.

RON AMBROSE.

Climb Those Mountains, Chaps!

As an enthusiastic reader of Autrosport, I must say that there isn't any A magazine like it. I remember a Touring Car race at the Nürburgring at the beginning of last year: no German newspaper I know mentioned it, but you can imagine how surprised and pleased I was to see a com-

It, out you can imagine how surprised and pleased I was to see a comprehensive report of it in Autosport.

Reading the "Correspondence" column, I often see your British readers complaining of poor T.V. coverage—the German race fans are even worse off! The last race to be televised was last year's German Grand Prix—and then only 15 minutes of the race were shown at 11 p.m. that day!

But the main reason I am writing it and the properties of the race were shown at 11 p.m. that day!

11 p.m. that day!

But the main reason I am writing is to ask a question: why don't any British racing drivers enter the European Mountain Championship events? For many years I have watched an event counting for the championship, the Freiburg hill-climb. This usually is a very fine meeting and the only British driver I have ever seen competing in the sports car class was Patsy Burt in a light blue Porsche RS in 1961. I am sure that the European Mountain Championship would be much more international and more interesting if British drivers took part in these events and a British event counting towards this championship was included. included. GRONAU, GERMANY.

Ford Cortina Features

ANDREAS GESCHER.

WITH reference to John Bolster's and Patrick McNally's Ford road test, I was astounded to find a front-engined, prop-shafted leaf-sprung, rigid-axled car described as "One of the most interesting cars introduced during 1962". These eminent journalists should surely know better.

know better.

How a car with an unlocated rigid rear axle can produce "handling like a sports car", I fail to see. Of course, many sports cars have unlocated rigid rear axles! As for the remark "that this will be a Cortina year on the circuits", with 140 b.h.p., 14 cwt., Chapman's rear suspension, works backing and Jim Clark up, one should accept this. The report's conclusion, "We predict that these people (imported-car enthusiast critics) will be forced to eat their words by the competition successes of the Cortina", is the whole point of Ford advertising. A "prestige" car is not new, e.g., "D"-type Jaguar, Mercedes, W.196, etc., etc. The competition successes of these prestige cars boosts the sales of the "bread and butter" vehicles, without, let it be carefully noted, actually proving that the "bread and butter" vehicles contain equally advanced engineering features. That John Bolster and P. McNally should have been "taken in" by this elementary piece of sales psychology leaves me gasping. My belief in these two eminent of sales psychology leaves me gasping. My belief in these two eminent journalists is completely shattered.

KIDLINGTON, OXFORD.

L. S. COLEMAN.

Racing Car Show

We would like, through your columns, to put forward a number of comments on and criticisms of this year's Racing Car Show at Olympia, as the majority of people we spoke to afterwards weren't so enthusiastic about the show as Mr. Bolster appears to have been in his report of the show.

First of all, however, we wish to thank Mr. Ian Smith and his organizers for at least attempting such a project as this, for we are all agreed that the material gathered under one roof was excellent. It was the method of display and the "we're not really very interested" attitude of some of the personnel on certain stands which has turned us a little "anti."

us a little "anti."

Why was it that the cars exhibited in the categories "Grand Prix Contenders, Sports Car Parade, etc." were not freed of some of their Contenders, Sports Car raraue, etc. were not freed of some relations contended to the public might inspect powerplant installations, suspension systems and other details? We are all well installations, suspension systems and other details? aware of what the cars look like from photographs.

Why was it that personnel in attendance on some of the stands were not prepared to, or could not, talk sensibly about their products? You can fool some of the people all the time we know, but this was

ridiculous!

As to Mr. Bolster's comment about there being an "atmosphere" that was different to Earls Court, there was indeed, but it embraced a general air of scruffiness and impermanence. And couldn't something have been done about the bars and eating arrangements? The conditions under which they were operated were disgraceful.

Of course, the basic idea is good and we do not want to see the show become extinct. But more attention to detail and more initiative in the presentation of displays, we think, would make for a happier showgoing public.

PINNER, MIDDLESEX.

Anthony Howard, J R. Pennell, T. Colin-Brookes.

Trade Support on the "Monte"

RE your Editorial about trade support for the Monte Carlo Rally, the use of service cars en route is becoming absurd and completely

eliminates any chance of a private owner getting anywhere.

I think all competitors should be made to carry from start to finish all tyres needed on the Rally, perhaps excluding the "Monte" race. ALLARD MOTOR Co., LTD., LONDON, S.W.4. S. H. ALLARD.

Monte Carlo Rally Report

HAVE read with interest your report on the above event and as a

After day with interest your report of the above event and as a competitor I can endorse many of your remarks regarding the event. Your description of the Twigdon/Chilvers saga was not correct however. After driving with a broken screen from Boulogne this was eventually replaced at Angers by a local garage at a cost of 15 mins. of lateness, due to a misunderstanding with the control marshal. The second hand screen was again shattered after only a few miles, although no further lateness was incurred up to Chambery.

no further lateness was incurred up to Chambery.

After Chambery, as you are aware, conditions became a little rugged and with snow and wind entering the Sprite, 19 mins. of lateness was incurred over the first three special stages, making a total of 34 mins. of

Unfortunately, this crew experienced the worst part of the fog on the Col de Pertz and Mont Revouse as a result of which—like your correspondent—we were unable to reach Pont Charles Albert within the time allowance.

How do I know? I'm still blue with cold.

CHESTER.

LES CHILVERS.

The Clinkard Alvis "4.3"

was most interested to read the Alvis article in your issue of 28th December, particularly as I am the owner of the 4.3-litre car you mention as having appeared at various sprint meetings. I would, however, be most grateful for your assistance in scotching the rumour that this car is an H.W.M. with an Alvis engine. It has no connection whatsoever with H.W.M.

soever with H.W.M.

The chassis is a very simple ladder type tubular effort built at the Meadow Works, Bradfield, Essex, in 1954. The 4.3-litre Alvis engine, slightly modified with regard to bearings and water circulation, propels the device via an Alvis gearbox and Alvis rear axle. The suspension and brakes are all Alvis components although modified in many respects—usually in the endeavour to "add more lightness." The Shorrock supercharger is one of three specially made for Lieut.-Col. Gardner's record-breaking M.G. I believe it gave some 30 lb. boost to his engine, but naturally cannot give the Alvis engine more than 10 lb. The body, which is no doubt responsible for the H.W.M. rumour, is from an E-type E.R.A.—I understand it was fitted to the ex-Peter Whitehead car but only appeared once, at Goodwood. Certainly, when I accuired it. but only appeared once, at Goodwood. Certainly, when I acquired it, it had never been painted. As to the performance of the car I suggest you ask John Bolster who drove it around Brands Hatch some years ago. He will, I hope, be pleased to know it now goes even better! The estimated b.h.p. is around 210 and starting line weight 19 cwt. The best half-mile sprint time to date is 23.3 secs. and maximum speed 130 m.p.h.

The other 4.3-litre car mentioned is the ex-Chevell car now owned by

Tony Charnock. I doubt if Dr. Pinkerton achieved much success with it and am almost certain that Gerry Dunham has never owned or raced it. He did, however, win the Manx Cup race in June 1951 with his 2½-litre Speed 20 engined car.

Assington, Colchester, Essex. B. H. Clinkard, Lieut.-Cdr. (Retd.)

The Editor is not bound to be in agreement with opinions expressed by readers.

Glub News

By MICHAEL DURNIN

M ost of you will have probably heard of the Trio race meeting at Brands Hatch—now there is to be a Trio sprint meeting and the clubs involved are the Sutton and Cheam M.C., the East Surrey M.C. and the Mid-Thames C.C. Starting at 1 p.m., the meeting takes place on 3rd March and practising takes place in the morning. Each driver will have two chances of lapping the 1.24-mile club circuit twice. There are to be no classes as such, apart from up to and over 1,100 c.c. sports-racing cars. up to and over 1,100 c.c. sports-racing cars. Competitors are to be numbered after the receipt of all entries in the order of anticipated performance, starting with the slowest cars and working through to the fastest. Competitors will practise in as near this order as possible, they will have two chances of lapping twice and the fastest run will count as the official practice time. Afterwards the entry list will be set out in order of practice times list will be set out in order of practice times achieved and will then be divided into a series of groups, probably seven. Then the official sprint itself starts and awards will be given to the best drivers in each group. Two necessary precautions have been taken: should a competitor record what is obviously a slow prac-tice time he will be asked to run again and if in the competition itself an improvement of more than 5 per cent is achieved that competitor will be ineligible for an award. Well, now—this should prove quite interesting as now—this should prove quite interesting as long as the timekeepers are up to scratch and no driver enters with the sole object of messing everything up! The entry list closes on 22nd February and regs. may be obtained from Miss Beryl Jacobs, 12 Somers Road, Reigate, Surrey.... The Sporting O.D.C. advise us that their 6e Rallye Dubonnet, which takes place on 16th-17th March, is taking rather an unusual form. This year Wales is not being used, but the club hope to maintain the high standard of past events both on the public roads and by including special stages at two racing circuits including special stages at two racing circuits—
Finmere and Castle Combe. The rally will start near Dunstable and will finish near Chippenham after some 300 miles of motoring.
The special stages carry more importance than just being tie deciders, while the club are bening for a high proportion of finishers and than just being tie deciders, while the club are hoping for a high proportion of finishers and only one winner. Secretary of the meeting is J. S. D. Ayers, 65 Ullswater Crescent, Kingston Vale, London, S.W.15, from whom the regs. will be available shortly.... Cemian M.C. was host to over 100 guests at its annual dinner-dance held at Hotel Rembrandt, Kensington, on 1st February. Among the guests were our reporter Lloyd Roberts and navigator Barry Burn who were presented with the premier award gained on the Coronation Rally last year.... Starting at midnight on Friday. last year. . . . Starting at midnight on Friday, 12th April, is the Scottish Sporting C.C.'s Highland Rally. This year the event will be centred on Perth, though, of course, Perth and its environs will not be included in any tight sections of the route. Saturday and Sunday night will be spent at Perth and the road section will finish during the late afternoon of Easter Monday, outside Glassow. The event Easter Monday, outside Glasgow. The event is open to members of the B.T.R.D.A. and all recognized Scottish clubs, the closing date for entries is 1st April and secretary of the meeting is W. L. B. Callander, 100 West Regent Street, Glasgow, C.2, to whom all entries and enquiries should be addressed. . . . J. Berrisford, 88 Westfields Avenue, Barnes, London, S.W.13, is compiling a list of owners of Historic cars for invitation purposes etc. A qualis.w.13, is compiling a list of owners of Historic cars for invitation purposes, etc. . . A qualifying event for the R.A.C. Trials Championship, the Yorkshire S.C.C.'s 4/44 Trophy Trial takes place on 10th March. Last year, as an experiment, the venue was moved from Ilkley to Halifax and, being a success, the experiment will be repeated once again and the 4/44 will be contested on the slopes of Cromwell's Bottom and Ashday, while a few sections 4/44 will be contested on the slopes of croll-well's Bottom and Ashday, while a few sections across the valley in "Fairy Dell" have been thrown in for good measure. The trial is open to members of the following clubs: B.T.R.D.A., Hagley and D.L.C.C., Kentish

Border C.C., Lancashire and Cheshire C.C., North Midland M.C., Peterborough M.C., Sheffield and Hallamshire M.C., Shenstone and D.C.C., SUNBAC and Rotherham and D.M.C. Entries close on 2nd March and they must be received by P. F. E. Blatch, 25 Merrion Street, Leeds, 2... Another Championship Trial is the Sutton Coldfield and North Birmingham A.C. (SUNBAC) Colmore Trophy merrion Street, Leeds, 2. . . . Another Championship Trial is the Sutton Coldfield and North Birmingham A.C. (SUNBAC) Colmore Trophy on 24th February. Invited clubs are Bristol M.C. and L.C.C., London M.C., Shenstone and D.C.C., Hagley and D.L.C.C., Mid-Cheshire M.C., West Hants and Dorset C.C., North Midland M.C., Leicestershire C.C., Peterborough M.C. and Yorkshire S.C.C. The event starts near Stow-in-the-Wold. Entries must be received by next Monday, 18th February, by the secretary of the meeting, S. A. Nicholls, 444 Chester Road, Boldmere, Sutton Coldfield. . . The Maidstone and Mid-Kent M.C. will be holding their National British race meeting at Silverstone on Saturday, 27th April, and entry forms will be available on 1st March from C. A. Clarke, The Glen, College Avenue, Maidstone, Kent. Now, there's nothing like giving information well in advance is there! However, we continually receive regs. for various motor sporting activities from clubs too late for publication, so advance is there! However, we continually receive regs. for various motor sporting activities from clubs too late for publication, so nothing but praise should be given to the Maidstone club. . . The Kent and Sussex Group of the Forces M.C. were forced to postpone their Jack Frost Rally scheduled for 2nd-3rd February (guess why!). . . For those just putting the finishing touches to their mounts for 1963, the racing season starts on 16th March with a B.A.R.C. meeting at Oulton Park. This is followed by a Snetterton M.R.C. Snetterton meeting the following day, while the next weekend sees racing at Goodwood (B.A.R.C.) on the Saturday and Brands Hatch (B.R.S.C.C.) on the Sunday. Then the season really gets moving and according to our calculations Britain should have well over 100 race meetings this year! . . The Vintage S.C.C. Pomeroy Memorial Trophy Competition is to be held on 23rd-24th March. This

event is open to all types of cars—Edwardian, Vintage, Thoroughbred and modern—and will be run on a formula basis. There are two classes: up to and over 2,250 c.c. It starts at classes: up to and over 2,250 c.c. It starts at Silverstone on Saturday morning with various tests, including standing and flying quartermile and a one-hour reliability trial. The night will be spent at Banbury and there will be a road section, starting and finishing at Banbury and the starter of the section of the sect on Sunday morning. Entries close on 11th March and regs. can be obtained from T. W. Carson, 3 Kingsclere House Stables, Kingsclere, Newbury, Berks. . . . Today is the closing date for entries for the North London E.C.C.'s Jacobean Rally, to be run on 23rd-24th February. It is open to the London Counties Association of Motor Clubs and secretary of the meeting is Miss J. Bolton, 93 Baker Street, Potters Bar, Middlesex. The Jacobean is a 250-mile event, starting near Berkhamsted and finishing near Newport Pagnell. . . The United Hospitals and University of London M.C. are holding their Rosette Rally on 9th-10th March. It is a restricted B.T.R.D.A. Silver Star and L.C.A.M.C. Championship event of about 300 miles to be held in Northamptonshire. The invited clubs are the above plus B.A.R.C., Cemian M.C., Craven M.C., Cambridge University A.C., Hants and Berks M.C., Harrow C.C., London M.C. and M.G.C.C. (S.E. Centre). Regs. are available from Dr. D. G. M. Wood, 70 Stanborough Green, Welwyn Garden City, Herts. . . . The Southport M.C. will be co-promotting the Spring Trophy Rally with the West Lancs M.C. and the Wigan and St. Helens M.C. on Sunday, 17th February. It will be of the 60-mile evening variety covering South-west Lancashire, both the start and the finish being at the Wigan M.C. Clubhouse, Gathurst (M.R. 100/538081). The organizers advise that the plot is to sort out the competitors with short, sharp sections, the event being of the no-nonsense type. Full details may be obon Sunday morning. Entries close on 11th March and regs. can be obtained from T. W.

short, sharp sections, the event being of the no-nonsense type. Full details may be obtained from Barry Stephens, 13 Boundary

(Continued on page 237)

VALENTINE RALLY

BY RON AMBROSE

Sussex Car Club Event Produces Interesting Night's Motoring

Coinciding with the first real thaw since Christmas, the Sussex Car Club's Valentine Rally, the opening qualifying event for the Association of Central and Southern Motor Association of Central and Southern Motor Club's Championship, produced an interesting night's motoring on a wide variety of surfaces last week-end. There was black ice, white ice, wet ice, deep slush, frozen snow, drifted snow, and even some of the good old-fashioned stuff known as dry road surface. With conditions changing hourly, Clerk of the Course Leo Cruttenden took himself round the route on the Friday evening and as a the Course Leo Cruttenden took himself round the route on the Friday evening, and, as a result, produced an amended course, omitting his cherished special stage, and deleting his no-tolerance sections, on the recommendation of the R.A.C., who have now, as was anticipated, apparently caught up with this exciting little device.

The route, as finally presented, covered 180 miles on 168, 169, 181 and 182, starting from Haslemere and finishing in Brighton. It was considered to be "very nearly on, in the dry" by several noted crews, and it relied upon extensive use of white roads, concentrations of marshals where it hurt most, and the generally acclaimed method of directing competitors. There were no unmanned controls. Instead, all references were handed out half an hour before starting time (they were not in order) and approach directions. were not in order) and approach directions and order of visiting were given upon departure, covering the first half of the rally. Similar instructions for part two were imparted at the half-way stop.

The 57 crews were in for an early surprise—Frensham Common had actually been

Frensham Common had actually been omitted! However, their joy was short-lived, for Hankley Common, deep in virgin snow, the tracks uncharted, proved an admirable substitute, and by the fourth control just about everybody had resigned himself to his entry cheque being banked—clean sheets were to have been rewarded by a return of fee.



ONE WAY for marshals to keep warm this weather is to run about—a fact warmly appreciated by the crew of this Ford.

The route spidered across 169 westwards, The route spidered across 169 westwards, yellow roads, tight sections and the ground conditions being sufficient for the purpose of "sorting 'em out". A short excursion on to 168 sufficed to explore Micheldever Forest, before the itinerary looped back to further explore the delights of 169, halting after a total of 90 miles for refuelling at Borden Motors.

Here, most people were well down on time, for the usual variety of ingenious reasons, and those with an eye on the overall 30 minutes lateness took advantage of the suggestion that they resumed on standard time, although this was a modification of the supplementary (Continued on page 236)

SNOW STORM STOPS VINTAGE DRIVING TESTS

BY PAUL

WATSON

Not even the hardiest vintage enthusiast N could stand up to the driving blizzard that swept across Blackbushe Aerodrome last Sunday, forcing secretary of the meeting Tim Sunday, forcing secretary of the meeting 11m Carson to abandon the event after the morning's three tests. The weather had promised fair in the early morning, but by the time the first car came to the line the snow had started, sweeping across the bleak airfield and forcing the meeting to a standstill.

A good entry of 58 cars was received.

the meeting to a standstill.

A good entry of 58 cars was received, covering such varied marques as Austin, Jowett, Rolls-Royce, Riley, G.N., Fiat, Singer, Calthorpe, Bentley, M.G., Frazer-Nash, Lea Francis, Bugatti, Salmson, Alvis, Vauxhall, Sunbeam and Lagonda some makes such as Salmson and Calthorpe having long since ceased production. Nine non-starters reduced the entry to a respectable 49 which was somewhat down on previous years, the weather what down on previous years, the weather being the probable cause of this.

Several cars had trouble en route to Black-bushe; notable among these was James Crocker's Lagonda which was halted at Sunningdale, the occupants busily repairing a water hose sheared by the fan-belt.

Test 1 rejoiced under the name of a Zig-Zag and required negotiation of five pylons covering about 130 yards, with a flying finish. The second test covered a mere 60 yards with three garages that had to be entered in any order before stopping astride a line. The final test was 170 yards in length but was rather uninteresting, being a straight run up to two lines. The object was to stop with one's front wheels between these two lines. Three other tests were proposed for the afternoon but the meeting was cancelled before they could be

The initial class was for Vintage Touring The initial class was for Vintage Touring Cars and mostly consisted of light cars with the emphasis on Austin 7s. J. D. Rogers drove a pretty and very original twin-cylinder Jowett, and P. A. M. Page an equally pleasant Calthorpe of 1921 vintage, both combinations doing well to collect first class awards. H. Ferguson-Wood was running the splendid Jack Barclay Silver Ghost Rolls-Royce, and by way of direct contrast E. Biddle had an early way of direct contrast E. Riddle had an early G.N. which, although handsome, appeared to have no particular history. A personal favourite in this class was J. M. Hayward's immaculate Tipo 503 Fiat finished in a pleasing shade of dark blue and with handsome travelling trunk at the rear. C. R. Pack drove a fairly large Riley and L. E. Parks a 1927 Singer, the remainder of the entry con-

1927 Singer, the remainder of the entry consisting of various Austins, mostly Sevens.
Standard Vintage sports cars came next with A. B. Whitelegge leading off in a nicely unspoilt 4½-litre Bentley. A. A. M. Brash followed in his diminutive M-Type M.G. with sporty pointed tail; other M.G.s in this class included P. Lilley's beautifully turned out 14/40 finished in blue cellulose and polished aluminium and M. F. L. Allison's less attractive and later 18/80 Mk. 1 saloon. W. S. May drove an Anzani-engined chain-gang Frazerdrove an Anzani-engined chain-gang Frazer-Nash and J. Maylan a similar car but with

Meadows engine. These two Nashes did well and both carried off first class awards. Dudley Gahagan was present, as ever driving his racy little Type 37 Bugatti, and, making all the right noises, he blipped his way round to collect a useful second class award. Another Bugatti was driven by Sam Clutton, this being a Type 44 with less attractive body and rather less power. G. Weightman's Salmson was very pretty dressed in racing blue (dare I say French?) and with a spirited performance. The class was completed by a pair of Lea

Francis and a pair of Alvis.

Class 3 contained only four cars. L. J.

Wickham's well-known 12/50 Alvis, D. K.

Brown's similar car, Barry Clarke's rapid but
unattractive Austin 7 and, by far the nicest
car in the class, Tony Jones' maroon 30/98 Vauxhall.

Post-Vintage Touring cars came next with three Rileys of various types, R. G. Ball's Lynx, C. C. Buckoke's Falcon, and J. Chamberlain's 9 Tourer. M. A. Collis drove an unusually ugly Sunbeam limousine that typified the decline of this one-time great marque, although Collis drove well enough to gain a second class award; P. M. G. Perrow's Rolls-Royce was silent in the manner one expects of this marque and like Collis gained

A second class award.

Henry Buckley led off the P.V. Standard
Sports class with his most tasteful 1938
Lagonda V12 Rapide, a car as perfect in line
as silent in movement.

D. H. J. Clark drove
a 1934 M45 Lagonda and James Crocker,

having repaired his water-hose, the magnificent LG45 Rapide. All three Lagondas were beautifully turned out and a credit to their owners. The silence of the Lagondas was soon shattered by Messrs. Bowman and Harris who drove rakish 1,500 c.c. Frazer-have one against compact to be a little Nashes but once again seemed to be a little too powerful for the conditions. The class was completed by two Speed 20 Alvis in the hands of L. J. Merriott and B. Sismey, a 12/50 driven by P. A. C. Kneller, and G. Dick's pretty little Riley Imp, a car with a character all of its own.

The final class was somewhat short of entries with only two starters. J. F. Parkhouse drove his 1935 Riley and Tony Charnock the lethal 4.3 Alvis. Poor Charnock was rather embarrassed by an excess of power although he did some excellent work in test two sliding the tail round as he jabbed the accelerator of this very powerful motor car.

As mentioned earlier, it was hoped to run three more tests in the afternoon, but the weather had deteriorated to such an extent that it seemed pointless to continue, so Tim Carson reluctantly called it a day.

Results
Class I. First Class Awards: J. D. Rogers (1923 Jowett); P. A. M. Page (1921 Calthorpe). Second Class Awards: C. P. Marsh (1926 Austin 7); D. R. Marsh (1927 Austin 7). Third Class Award: J. F. Blake (1927 Austin 7).
Classes II and III. First Class Awards: W. S. May (1926 Frazer-Nash); J. Maylan (1928 Frazer-Nash). Second Class Awards: C. Evans (1929 Riley); D. H. Gagahan (1926 T.37 Bugatti). Third Class Awards: A. A. M. Brash (1929 M.G. "M"); B. M. Clarke (1924/9 Austin 7).
Classes IV, V and VI. First-Class Award: D. P. Harris (1934 Frazer-Nash). Second Class Awards: M. A. Collis (1935 Sunbeam); P. M. G. Perrow (1934 Rolls-Royce). Third Class Award: J. W. T. Crocker (1937 Lagonda LG45 Rapide).

Yorkshire Rally-continued

different place! But why did no one try the alternative via Thirsk and the A19 towards Guisborough? In the end most of the "experts" managed to get about three more signatures before breakfast, and this meal at Thornton Dale was especially welcome.

But even after breakfast the trouble was not over, as a detour to the first of the "liaison" controls was necessary. In making the detour, Kunz and Heppenstall's Herald hit a lorry and trailer and luckily escaped with bruises. Geoff Allen's Cooper also entered an impromptu waltz with Jenson's car, to the detriment of both, but the strongly fancied Allen was able to press on. Mike Wood was later seen working overtime, as trail-blazer, with a snow shovel in conjunction with the local council workers!

Riccall Airfield was again used for the second special stage (and this was even slippier by day than by night), then all remaining was a gentle run back to the Crescent Hotel in Ilkley. Arrivals here were few and far between, and some of the stories told were enough to bring tears to the eyes of even the most hardened reporters!

Hot favourite Tony Fisher had been stuck in the Low Moor convoy, then shortly afterwards was ditched, and departed muttering that "he knew who had done it." Grimshaw's glassfibre Healey bonnet flew open once—Don said he hadn't noticed at the time as it was very foggy! The Gerald Bloom/Alan Taylor Cooper suffered a broken water hose even before the rough stuff began, while Roger Sutcliffe's rally ended when the *Motoring News* entry spun in front of him and effectively blocked the road.

All in all, a really "vintage" Yorkshire.

Results

1, G. Allen/B. Hughes (Mini-Cooper), 4F/6077.5;
2, R. McBride/D. Barrow (Allardette 1500),
5F/7815.4; 3, B. Harper/R. Crellin (Sebring Sprite),
6F/6318.75; 4, P. Cooper/D. Kirkley (Mini-Cooper),
6F/7023.72; 5, Rev. R. Jones/T. Rowland (Mini-Traveller), 6F/7148.0; 6, C. Corbishley/D. Ralph (Standard 10), 7F/6301.27; 7, A. Lanfranchi/M. Lanfranchi (Minix 1600), 7F/7284.20; 8, D. Astle/M. Kempley (Morris 1100), 7F/7804.25; 9, A. T. Crusher/D. Gamble (Rapier), 7F/12024.3; 10, J. Foster/D. O'Connor (Cooper), 8F/6159.66; 11, J. Haxton/T. Griffith-Jones (Classic), 8F/6926.39; 12, D. Pollard/A. Baines (Rapier), 8F/7509.06; 3, E. Masheder/J. Peters (Saab), 8F/9727.14; 14, J. A. Wilson/B. G. Green (M.G.A), 8F/11846.86; 15, H. Clarke/A. Parkin (Vitesse), 9F/6732.41.

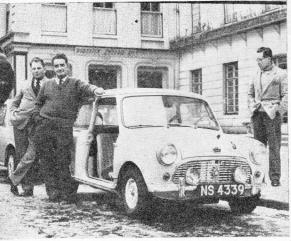
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THE WINNERS Ian Sutherland and John Young with their Austin Mini, without door, after winning the Highland Car Club's Snowman Rally. after

HIGHLAND C.C.

SNOWMAN RALLY

It's many years now since Ian Sutherland first rallied and his exploits with his brother on the Monte Carlo Rally, usually in Riley Pathfinders, are well known. However, Ian has not been seen around the rally world in Scotland since those days. Nowadays he is responsible for the Scottish stages on the R.A.C. rally, but on the first Saturday night in February he proved that he hadn't lost his touch in rallying and was as tough as ever. The event was the Highland Car Club's Snowman rally, the first of the Scottish rally championship events and Ian Sutherland with his Austin Mini with John Young was named the winner. What made his win all the more remarkable was that he covered the last 40 miles of the rally with no door and was almost frozen stiff at the wheel frozen stiff at the wheel.

The Snowman is always a tough event and

The Snowman is always a tough event and though the organizers claim they would like to have one with no snow on the roads the chances are slim. It starts in Inverness and in February that part of Scotland is usually well under a deep blanket of snow. This year

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was no exception and just to make things worse the snow started to fall again just before the start. A number of drivers were running on spikes and both Dan Robertson, last year's winner, and Hamish Wilson, who had dashed back from the Monte where they co-drove with Ken McLennan and John Melvin respectively, arrived at the start with the cars they drove on the Monte. The difference in this year's Snowman was that a number of *selectif* sections were included within the normal sections. These were timed to the succeeding minute and the organizers were quick to slap a number of them together in the sections. In all there were 46 selectifs, two being removed due to blocked roads, and over 30 time controls, not to mention passage controls. This called for over a hundred marshals on a bitterly cold

night in the snow.

The opening two sections warmed the competitors up and the fun started on the third section which included three *selectifs*. The conditions were very slippery but they did not deter Dan Robertson (Cooper-Min) who stormed through them all with no loss of time. In these early stages drivers who took things easy just lost marks by the score and it was obvious that everyone was going to have to press on all night. Tommy Dickson, the ex-Ecurie Ecosse driver, was out with his Saab and after taking a wrong slot even he could not make up time and he lost five minutes. Baulking was restricted mainly to those at the Baulking was restricted mainly to those at the back of the field but even some of the seeded drivers up front were involved. Bill Syer (Cooper-Mini) was baulked out of a minute and Arthur Jasper (Ford Anglia) was another. The T.A. army boys who entered two Land-Rovers and two Austin Champs had a lousy night. One Champ rammed the other at a control and the Land-Rovers just didn't get anywhere.

control and the Land-Rovers just didn't get anywhere.

At the halfway halt only four people were clean and of that four Iain MacDonald (Cooper-Mini) decided to call it a day, being exhausted, so leaving only three clear. Last year's winner, Dan Robertson, was one clear whilst Iain Loudon Cox (Volkswagen 1500 Estate Car) and Ian McIver (Volkswagen) were the other two

were the other two.

Frank Inglis (M.G.B) who did so well last year was dropping the occasional minute on the road, but was still well placed as was one of the dark horses in Scottish rallying, Hamish Wilson (Rapier). In the conditions it was not surprising that a number of cars disappeared from the route never to return and Mike White (NSU Prinz 4) was seen reversing out of a field, but he managed to carry on to the finish with no damage.

On the second half of the route conditions worsened. One road which had been in-spected six hours before and found clear was

spected six nours before and round clear was blocked and this caught out the early cars.

Both Robertson and Cox lost their clean sheets and were trapped in the snow. Ian Sutherland (Mini) made a quick detour and completed the section as did Bill Duff (Wolseley 1500) and one by one the others followed. However, in the process Sutherland removed the door of his Mini in a snow drift when the hinge pins broke. He drove on to the finish this way pausing only to reset the door with wire to avoid being penalised for body damage. As it was there was no damage done to the door whatsoever so he was in the clear, anyway. One by one the stragglers rolled in and door whatsoever so he had a server of the caledonian of the Caledonian Hotel was crammed for breakfast. There is no doubt that the Snowman is one of the toughest events on the Scottish calendar for the road conditions are grim but it certainly attracts a decent entry (almost 70) and no one really complains at the end; they are so glad it's all over.

Graham Gauld.

GRAHAM GAULD.

Results

1, I. Sutherland (Austin Mini), 300; 2, W. Duff (Wolseley), 350; 3. H. Wilson (Sunbeam), 650; 4, D. Lamont (Morris 1100), 770; 5, A. Jasper (Ford), 890; 6, J. R. Williamson (Cooper-Mini), 890. Team Award: F. Inglis (M.G.B), I. McIntyre (Cooper-Mini), D. Black (Renault R8).



EX-ECURIE ECOSSE driver, Tommy Dickson, tries his hand at rallying on the Snowman with his Saab.

Valentine Rally-continued.

regs. well adapted to the conditions of the

In the absence of last year's winners, Norman Pocock and Harry Duckham, the field was led by Douglas Ray, fresh from his fine run from Lisbon in the Monte, navigated by Stuart Gray. This was one of the few crew to run on spiked tyres, and they were about 20 mins. down in their Allardette—adequate comment on the going. The old firm of Milward Rogers and Julian Chitty, a very late entry, were paying the penalty of tail-end Charlying—they had come across a resident in his pyjamas (no dressing gown—in this weather!) who engaged them in pressing conversation for several minutes. After he let them pass, they motored the Rapier urgently in an endeavour to keep within time—they ran in an endeavour to keep within time—they ran 28 mins. late for eight controls before the pressure eased.

ressure eased.

The second half was somewhat easier, including as it did several liaison sections to avoid population. Although the original intention was to prohibit making up time in these links, the organizers' last-minute thoughts tended towards discounting this idea, and since no cars were held at appropriate controls, the intention must be considered to have been abandoned in deference to the need for been abandoned, in deference to the need for

been abandoned, in deterence to the need for having any finishers at all!

Most people, therefore motored on as quickly as possible alternately dropping time and picking it up (well, some of it!). The route moved south onto 181 and 182. H.M.S. Mercury seems to have lost its big guns, although a North approach to the slip road at

682189 was questionable. However, the marshal was tolerant towards the several crews

who circumnavigated his control.

The 1 in 2 uphill hand-brake turn at 117½168½ still confuses even experienced crews

117½168½ still confuses even experienced crews—it is a certain penalizer, even in the dry.

Just when everybody was indulging in selfcongratulation for a hard route well-covered,
came a real sting in the tail of the Valentine—
Steyning Round Hill was snow-blocked and
despite a "no-go" sign at the entrance to the
road, many red-faced crews charged up to a
very full stop, followed by a long reverse down
the slippery slope in little convoys.

Those who charged up the South Downs
fruitlessly at this point were generally unable
to find the time for a second and more profit-

to find the time for a second and more profit-

to find the time for a second and more profitable bite at the cherry, for the last three controls of the rally were located at a similar altitude a few miles east—behind Devil's Dyke. Surviving crews, many of whom were unsure as to whether they would classify as finishers, praised the Valentine for what it was—a first-rate, straightforward thrash, well-organized and splendidly marshalled. Instructions issued required officials to come to competing cars required officials to come to competing cars and to read the watches by navigating lights. This, conjoined with the use of the card system, ensured very speedy control-handling—other clubs please note.

Results

1, D. H. Ray/S. R. Gray (Allardette), 0 fails, 20 mins.; 2, J. F. Barnes/P. Brierley (Hillman), 0 fails, 26 mins.; 3, J. P. Otton/T. Weaver (Austin-Cooper), 0 fails, 31 mins.; 4, B. J. Head/O. N. Fowler (Mini Cooper), 0 fails, 45 mins.; 5, M. D. Bannerman/P. J. Hewitt (Anglia), 0 fails, 55 mins.

Club News .- Continued.

Drive, Hunts Cross, Liverpool, 25. . . . The Bolton-le-Moors C.C. have sent us details of their national Inter-Club Driving Test Challenge Trophy to be held at Blackpool on 10th March. The competition is open to nominated members of club teams, each team to consist of two members. Any club wishing to do so of two members. Any club wishing to do so may run more than two nominated cars in the morning event providing its two representative team cars for the Inter-Club event are nominated before the commencement of the afternoon runs. The start for the individual motoring event, which is not compulsory, will be at 9.30, while the Inter-Club event commences after noon. Regs. from the secretary of the meeting, D. J. Pilling, 13 Broadstone Road, Harwood, Bolton, Lanes.

CANCELLATIONS AND POSTPONEMENTS

SCHEDULED for last weekend, the Stroud and D.M.C.'s Cotswold Clouds Trial was post-D.M.C.'s Cotswold Clouds Trial was postponed due to the weather and a new date will
be announced. The Surrey Centre of the
B.A.R.C. were to have held their Pilgrim
Rally on 23rd-24th February. The route was
inspected last weekend by Bob Day who
Jund the route impossible—even the good
'yellows' were under three feet of virgin
snow! The North Midland M.C. had to
cancel their Kitching Trophy Trial, scheduled
for last Sunday, and have applied for a new
date. The snow at Rowlee Farm, the venue,
was well over waist high in places. The Surrey
Sporting M.C.'s Brands Hatch Sprint, which
was to have taken place last Sunday, has been
postponed until 24th February, while the
Motor Cycling Club's Exeter Trial, postponed
from 4th—5th January to 15th—16th February,
has now been cancelled! has now been cancelled!

Coming Attractions

Coming Attractions

16th February. Daytona Beach 250-miles, Daytona U.S.A. (S., P., G.T.).

16th-17th February. Fylde M.S.G. Shunpiker Rally. Starts Bromsgrove, Worcs. and Newton-le-Willows, Lancs, at 8.15 p.m.

Royal Military College of Science M.S.C. Rallye Militaire, Starts M5 Service Station, Strensham (M. R. 903400).

Per Ardua M.C. Odiham Rally. Starts Bordon, Hants., at 11 p.m.

Four Ways C.C. 2nd Filldyke Rally. Starts Colchester, Essex, at 10.30 p.m.

Humber Pupils' and Apprentices' M.C. Sunbeam Trophy Rally. Starts Three Spires' Motor Co., Ltd., Birmingham Road, Lichfield, Staffs., at 11 p.m.

Chiltern C.C. Chiltern Rally. Starts near Stokenchurch, Bucks.

Herts County A. and Ae C. February Ferment Night Rally. Starts Allan Moore's Garage, Travellers Rest, Edlesborough, Beds. (M.R. 147)9781781), at 8 p.m.

Redifon C. and M.C. Quo Vadis Rally. Starts Sargents Garage, East Grinstead, Surrey.

17th February. Daytona Continental, Daytona, U.S.A. (G.T. 2-3). Lakeside, Australia

Rotherham and D.M.C. Centenary Sporting

Rotherham and D.M.C. Centenary Sporting Trial.

Eastern Counties M.C. Production Car Trial. Starts Seckford Hall, Woodbridge, Suffolk. Vickers-Armstrongs C.C. Production Car Trial. Dudley and D.C.C., Lucas M.C. and Wolverhampton and South Staffs C.C. Production Car Trial. Starts Fred Corbett's Garage, Netherton, Dudley, Worcs. (M.R. 130) 942888), at 1 p.m.

Southport M.C., West Lancs M.C. and Wigan and St. Helens M.C. Spring Trophy Rally. Starts Wigan M.C. Clubhouse, Gathurst, Wigan, Lancs. (M.R. 100)(538081), at 7 p.m.

23rd-24th February. North London E.C.C. Jacobean Rally. Starts near Berkhamsted, Herts, at 9.30 p.m.

Herefordshire M.C. Welsh Marches Rally. De Lacy M.C. Seven Dales Rally. Falkirk M.C. Rally.

24th February. Daytona 500, Daytona, U.S.A. (T.)

(T.) SUNBAC Colmore Trophy Sporting tricl, Starts near Stow-on-the-Wold, Glos., at

SUNBAC Colmore Trophy Sporting
Starts near Stow-on-the-Wold, Glos., at
11 a.m.
Surrey Sporting M.C. Sprint, Brands Hatch,
near Farningham, Kent. Starts 12.30 p.m.
M.G.C.C. (Scottish Centre) Slalom. Starts
Corporation Car Park, Seafield Road, Portobello, Midlothiam, at 2.30 p.m.
Aberdeen University M.C. Refresher Rally.
2nd-4th March. Longford, Tasmania, Australia
(F.L.).
10th-11th March. Sandown Park, Australia
(F.L.).
13th-17th March. Portuguese Rally.

Report from Eire-continued

KILKENNY OFF AGAIN!

THE Kilkenny Motor Club must be completely out of favour with the Clerk of the Weather. Their Traders' Cup Trial which was cancelled on 20th January had to be cancelled again on 3rd February due to yet another severe blizzard in that area. A new date for this important Hewison fixture has yet to be announced. weather may upset the 18th March date for the Hewison Final unless the R.I.A.C. decide to lay out a course away from the Dublin-Wicklow mountains around the Blessington area, where last year's Final was held.

The Connacht Motor Club held their Henderson Cup Trial on 3rd February. This non-Hewison event was mostly contested by Northern and N.W. drivers. The Premier was won by W. H. Hagon in an M.G. Midget with 215 marks. First-Class Awards were won by: M. Johnson (Cooper-Mini), 223; W. F. Elliott (VW), 245.8; and W. F. Elliott (Cooper-Mini), 247. Second-Class Awards went to: T. E. Chivers (Ford Special), 263; D. McManus (Cooper-Mini), 270.4; T. P. O'Connell (VW), 278.4; and R. Heap (VW), 286.0.

RACE DATES SWITCHES

To their horror, Leinster Motor Club discovered that the 13th July date for their Dunboyne meeting clashed with the big horse race meeting at Navan. As Navan is but a few miles from Dunboyne, it would be impossible to close the main Dublin-Navan road on that date. Irish Motor Racing Club have agreed to switch dates and so the Leinster-Martell Meeting will now be held on 27th July, and the Phoenix Park Meeting will be held on 13th July.

1963 INTERCONTINENTAL COOPER FOR PRINGLE

BIGGEST news in Irish racing circles is that John Pringle has just taken delivery of a new 1963 Intercontinental Cooper. It is powered by the $2\frac{1}{2}$ -litre Coventry Climax motor from John's very successful 1959-type I.C.F. Cooper. With the older car, Pringle set up records for several Irish hills, as well as lap records for the Kirkistown, Phoenix Park, Rathdrum and Dunboyne circuits. He is undisputed Formule Libre champion at Kirkistown. At Craigantlet last August he beat Peter Westbury (2.5 Cooper-Daimler), Arthur Owen (2.5 Cooper-Climax) and Raymond Fielding (2.5 B.R.M.) and set up a new record for the hill. His new car will be particularly suitable for the hills and with this device he must be considered a strong contender for the R.A.C. British Hill-Climb Championship, depending of course on the number of Championship events in which he competes. Eire enthusiasts will be particularly happy to learn that Dan McAlister will be racing again this season. Dan has bought Pringle's car and is fitting it with the 1½-litre Coventry Climax motor from his pranged Cooper. Stan Ryan created quite a surprise last season when he turned up at the Dungarvan Hill-Climb with a $1\frac{1}{2}$ -litre Cooper-Climax. He has not announced any plans so far for this season, but we may expect something good! Gerry Kinnane has bought one of the successful 1962 F.J. Cooper-Fords from the Midland Racing Partnership. Dennis Kinghan will be out in Gerry's F.J. Lotus-Ford 18. Kinghan drove the Climax-powered Cliden (alias the Eric Brandon Halselec) very forcefully last season. John Black has bought a Lotus 18 and is powering it with an 1,172 c.c. Ford s.v. engine. It will be interesting to watch it racing against the light Crossle cars in Ulster Ford racing.



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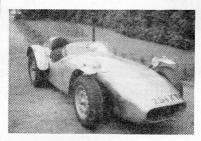
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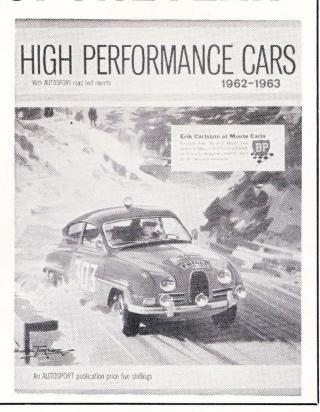
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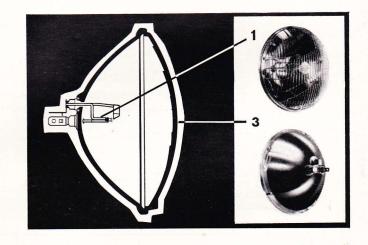


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