This is issue #10 of Loose Fillings, which has appeared more-or-less quarterly since early 1999. The newsletter is distributed to approximately 70 people in Australia and through Max Fisher to nearly 20 more in New Zealand, and continues to be largely filled by the readers themselves. Listings in The Log show there has been a welcome level of recent air-cooled activity, while the Classifieds are a reminder that some very nice air-cooled classics are still available.

BITS & PIECES

- * The ex John Snow Mk IV Cooper Vincent, nearing the end of a long restoration by Garry Simkin, has recently been painted Snow blue. Its 998cc Vincent engine is in the car and running, after a total rebuild by Vincent specialist Terry Prince.
- *Alan Hindes, original operator of the Ralt Vincent before Todd Hamilton bought it, now runs a farm near Kempsey on the NSW north coast. He bought the car from Peter Wilkins, and ran it with Comet and Black Shadow engines. This car was one of the five or six "production" Ralts laid down (though not necessarily completed) before Tauranac went to England in 1960.

LOOSE FILLINGS

Logging on: recent performances by air-cooled cars included Mike Bendeich's 150 cc JMW at the HSRCA Eastern Creek meeting in September (right) and John Coffin's Robbins BSA 500 in the paddock at the MG club's Rob Roy hillclimb in November (below). That's Bruce Walton having a look behind the Robbins' rollbar.



O Steve Or



- *Fastest time by a Historic car at the recent Australian Hillclimb Champion-ships at Mt Cotton was made by Peter Quayle in the Jolus Minx, the last of the Jolus series built by Bob Joass, who continues the story of his pre-Jolus air-cooled cars elsewhere in this issue. Also running at Mt Cotton were Terry Wright (Walton JAP) and tireless special-builder John Wynne.
- *The Ewing special, built and run in NSW by the late Ron Ewing in the '50s and early '60s, has been bought from long-time Victorian owner Malcolm Thorne by Bob Morey in Canberra. Bob plans to return the car to Historic racing using its Ewing-built Harley-Norton twin.
- *There will be a GEAR day at Wakefield Park on January 16, to follow the January 15 celebration in Goulburn of the 12-mile 1927 Australian Grand Prix.
- * The "Australian Specials" historic race meeting at Eastern Creek in September had Garry Simkin's JBS, the Hallidays' Mk V Cooper and Mike Bendeich's JMW competing, and the Hallidays' ex-South Australia JCW 500 on display. In the spectator area but unable to gain admission to the pits was Alan Harper's 1940s JAP-powered 500, its restoration visibly progressing.
- * Wakefield Park's November historic meeting not only saw the Hallidays' Cooper finish all its races, but also saw the debut of new owner John Gale in the ex Mike Gosbell Mk IV Cooper 1100. John enjoyed himself so much one experienced observer considered giving him a lemon to suck, to take the smile off his face.
- * Air-cooled enthusiasts on two or four wheels are always welcome at the Pearson's, 15 Roselands Ave, Roselands, in Sydney. Maurie has restored many classic racing motorcycles, as well as a Manxpowered car of unknown origin, and Nan makes excellent coffee.

THE LOG

- THE Log lists those occasions since the previous Loose Fillings where air-cooled cars have actually run in public
- * July 8, Wollongong SCC, Huntley, Dapto, Terry Wright, Walton-JAP.
- * August 5 NSW Hillclimb Championships, Ringwood, Terry Wright, Walton-JAP.
- * September 8-9 historic races, Eastern Creek – Garry Simkin (JBS Norton), Andrew Halliday (Cooper Mk V Norton), Mike Bendeich (JMW 150)
- * September 29-39 Australian Hillclimb Championships, Mt Cotton, Terry Wright, Walton-JAP.
- *October 10 GEAR club day, Wakefield Park – Rob Gunnell (Cooper Mk IV JAP 500)

- * October 14 NSW Hillclimb Championships, King Edward Park, Terry Wright, Walton-JAP.
- * 11 November hillclimb, Chelsea Rd, Auckland – Allan Kerr (Cooper Mk 6 Triumph, outright 3rd ftd!)
- * November 24-25 historic races, Wakefield Park – Garry Simkin (JBS Norton), Andrew Halliday (Cooper MK V Norton), John Gale (Cooper Mk IV JAP 1100)
- *November 25 MG Historic and Classic, Rob Roy – John Coffin (Robbins BSA 500), Graeme Noonan (Cooper Mk 7 Norton), Terry Wright (Walton-JAP)

BMW STREAMLINER

AN Garmey, who sent the photograph of the streamlined BMW (below) owned Jim Miekle's famous SNECMA pulse jet-powered Mk V Cooper between 1981 and 1993. Ian's son Tony did a lot of work restoring the Cooper and it was eventually sold to Seattle. Tony now works in Seattle, at Vintage Racing Motors - which does work on the Cooper.

The BMW streamliner is something of a mystery. It is said to have been built by BMW in the late 1940s, but Ian notes there is no mention of it in the BMW books. In fact BMW was barely back into motorcycle production in the '40s.

The car does appear to have BMW-type rack and pinion steering. It has a twin-tube chassis, and the engine is behind the front axle line, so it's probably not one of the Nardi-BMWs which were shown in late-'40s UK magazines.

The car, which is painted silver with blue wire wheels and upholstery, is currently in Invercargill, where it is being supercharged and modified for the February 2002 Southern Festival of Speed.

NEW ZEALAND PARTS AVAILABLE

*Castings: rear uprights in LM25, Mk 6-13; backing plates, Mk 2-13; wishbone trunnions, Mk 2-Mk 7; gear levers, Mk 2-13; JAP engine plates, Mk 6-13; Norton engine plates (front) Mk 9-13.

*Wishbones front and rear, Mk 2 - 13; rack and pinion steering boxes, Mk 5- 13; *Front uprights, Mk 2 - 13; complete chas-

*Front uprights, Mk 2 — 13; complete chassis frames, all types; re-sleeved and rebuilt brake parts (on exchange); all brake hoses. *Can offer a complete bodywork and chas-

* Can offer a complete bodywork and chassis service, Max Fisher, 141 Mellons Bay Rd, Howick, Auckland, NZ, phone/fax 09 5342245.

CLASSIFIEDS

- * For sale: Cooper Mk V Norton, ex Bob Gerard (UK), immaculate. Don Hall, 08 9386 2346
- *For sale: Cooper Mk V JAP 500, history in UK and Australia with Tom Hawkes and Bill Patterson, run with 500 and 997 JAPs, won 1954 Aust. Hillclimb C'ship, etc, Brian Reed, phone/fax 03 5439 5296
- * For sale: Cooper Norton the Murray Rainey supercharged 750cc Manx, originally Mk 9 but factory wishbone front suspension, John Caffin, 03 9744 1807.
- * Wanted: photographs of swing-axle rear suspension of Ron Tauranac/Merv Ward.

REPLACEMENT COOPER CASTINGS

John Dymond, of Penrite, sent a lengthy email (since lost in a computer crash) to advise he still has some new alloy Cooper cast wheels from the initial batch, and that he is planning to cast a small run of replacement "triangles," the casting which Coopers used to mount the final drive and inboard brake. Call John on 03 9729 0488 (bus).



HE Cooper 500 is a simple, strong and effective little race car, built by people who wanted to race but not break the bank. Coopers were a continued development on a basic theme. Remember, Cooper's never made anything if a standard part could be used, even if highly modified. So rebuilds become an easier task if you can identify parts and their origin – although while Cooper's was a Vauxhall agent very few parts came from this make.

All the earlier cars (Mk 2, or T2, to Mk 5, or T17, 1946-1951) used a box section chassis with tubular cross members and a fabricated tower at each end to carry the transverse leaf spring and the bottom wishbones. This chassis was progressively lightened and stiffened by addition of a tubular upper structure parallel to the box section. The next development for the Mk 6-7 (T18 and T27, 19522-53) was a fourtube tubular chassis, still using the towers at each end..

With the Mk 8 (T31, 1954) came a curved-tube chassis, with all the suspension mounted on chassis brackets, and with four-piece bodywork directly attached and hinged front and rear for access. Development of this idea was continuous through to the Mk 13 (T42) of 1959. Development ended with introduction of Cooper's first Formula Junior car – which used a number of 500cc components.

FRONT SUSPENSION & BRAKES

All Mks use the transverse leaf spring, either clamped to the tower as with Mks 2-7, or thereafter located using a top curly leaf to increase the radius length. Front wishbones were mounted on cast alloy trunnions on cars up to and including Mk 7, after which chassis-mounted brackets – "Bradnack lugs" – were used. Shock absorbers were either Newton Bennett or Woodhead Monroe. For rebuilds, use either Spax or Koni, both of which are adjustable. Check out the ones on the front of a Mini, or modify the Mini rears by changing one end.

Uprights were of Cooper manufacture, the first type being of H-section, later ones being fully boxed. King pins are E93A Ford Prefect, as are the stub axles, modified. A word of caution here: these stub axles should be crack tested, because although very strong they are subject to heat-treatment stress cracks. Fordson utility are better as they are stronger and have more meat where it counts. Wheel bearings are standard Ford Timken taper bearings, and seals are standard E93A. Hubs are of Cooper manufacture up to Mk 7, after which they were combined with the front wheel casting.

Much of the front brakes are 2LS Lockheed as used in MG TD and other

Cooper Bits

Sources of Cooper components by Auckland's Max Fisher

English cars of the period. Drums were cast into the wheels, and the backing plates were also Cooper manufacture. Replacements are available ex New Zealand. Wheel cylinders are PBR 4595 (straight) or (offset) PBR P4687 LH or PBR P4686 RH ex side-valve Morris Minor or early Hillman Minx.

Replacement cups are P22 or P22B. Note: do not sleeve the above cylinders with anything but stainless steel. Bronze is a waste of time. Front brake hoses are PBR H548, 3/8 BSF each end, 18 5/8" in length. The chassis fixing nut is 5/8 x 26 tpi. As far as linings go I have found that a good quality car type lining is suitable. Hard racing linings are not necessary as in general Cooper 500s are over-braked.

STEERING

Cars to Mk IV used either Fiat Topolino or Burman modified ex Ford Prefect. These used a two-piece track rod and Vauxhall/Bedford ball joints from a GA Bedford drag link – 7104086 RH and 7104087 LH. Other English cars of the same era possibly had similar units. Later cars used Cooper rack and pinion using some production components (eg the rack ex s.v. Minor, and rubber boots ex Minor ACH6016/F71 KW, inner ball joints Minor s.v. along with the side shafts. Outer ball joints are as the earlier cars, ie Bedford. Replacement racks to original specification are available ex New Zealand.

Note: steering arms of Cooper manufacture should be crack tested, because they are prone to cracking where the bolt flanges meet the arm, due to lack of radius in the centre of the fork. Note also that with rack-and-pinion cars a safety clamp should always be used on the steering column on the underside of the top bearing, to ensure that the steering wheel and column cannot be pulled back off the pinion spline. A Jubilee clip is all that is required. Do not rely on the clamp bolt only.

MASTER CYLINDERS

Early cars used Morris 8 units, either Series E or 8/40, but more likely used the Girling three-bolt flange unit as used in Mk VII Jaguar or early Land Rover. From Mk 6 onward the master cylinder was a side-mount two-bolt fixing ex Austin A40 Somerset. Both cylinders use the same rebuild kit, PBR K57X. If a new piston is needed, try a Toyota part, 0431120033, or make one from stainless steel rod. Again,

do not waste time with brass re-sleeving - use only stainless steel.

REAR SUSPENSION

Like the front suspension, the rear suspension is by transverse leaf spring and bottom wishbones. Wishbones were trunnion-mounted until the Mk 6, which introduced chassis plates, and the leaf spring was clamped to the tower until the Mk 9, which introduced a curly leaf on the rear. Rear shock absorbers were as the front – Newton Bennett or Woodhead Monroe – and in later stages Armstrong or Girling. Here again Spax or Koni are suitable replacements.

Rear uprights were Cooper fabrications up to Mk V, then for safety reasons the Mk 6 introduced a new cast upright with revised hub/shaft assembly. Replacement uprights cast in LM 25 are available ex New Zealand and can be machined to suit either original bearings and shafts, or modified Hillman Imp quill shafts and hubs. Drive-shaft flanges are either five-spline Ford 100E or Triumph Herald diff flanges. Both need modifying.

REAR BRAKES

These can be either leading/trailing shoe with hand-brake attachment, or the more usual 2LS system as fitted to the front, using the same alloy backing plates and wheel cylinders. The rear brake hose is PBR 524, 16 5/8" in length with 3/8" BSF fittings and a 5/8 x 26 tpi mounting in the chassis bracket. Note: all solid brake lines must be steel. Do not use copper.

From the Mk 9 an HRG disc brake was optional, and from the Mk 10 it was standard. We replaced the HRG brake with a Ford Consul unit, which was much more efficient and a simple modification. Note: if a disc brake is fitted, check the top tubes of the engine-bay section of the chassis where they meet the rear seat hoop. There should be gussets at these joints down to the level of the top tubes running past the seat. Without gussets cracks can occur at this point of the chassis because the rear brake loading is fed directly into the chassis and is not cushioned by the suspension.

DRIVE LINE

Always use good quality chain, Reynolds GP or equal (eg Tsubaki). Some Coopers used a split final drive sprocket, which is easier to change. Universal joints were Hardy Spicer needle roller (K5GB150) as standard, but solid bearing crosses were available ex Repco which used bronze bushes and had a larger bearing section. They could take higher loading but needed more lubrication..

Finally, preparation is the key to a reliable 500. All threads used by Cooper were BSF. Always check and lock everything, by wiring, split-pining or Loctiting.

The Bob Joass Story

AVING abandoned the "500" scene after completing the Marshall Triumph 500 as per Loose Fillings #6, late in 1954 I changed employment to work at a service station on Parramatta Rd Lewisham, got married and bought a house. Around 1957 I decided to start again with another venture into the wonderful world of air-cooled, but at least this time with access to much better facilities

Using the then-current range of UK cars as idea starters, I decided on a four-tube chassis with Cooper-type suspension, but rather than 500 cc going for 650cc in the form of a Triumph Thunderbird, which was by then becoming available in increasing numbers amongst the wreckers. By pure coincidence a regular at the service station who lived at Padstow told me of having seen a batch of bits at another service station in his area which he thought was the beginning of a 500, but he felt the owner had run out of enthusiasm or money to continue. Thus began my Triumph 650 special.

After the usual haggling, what I got for (as I recall) 150 pounds was four Fiat 500 lower wishbones, two front uprights, backing plates complete, steering arms, stub axles, all pivot pins and king pins, etc, brake drums which had been modified with shrunk-on alloy fins, two new Fiat master cylinders, brake hoses, and four new Fiat 500 wheels which had been drilled for lightness, everything brand new and most parts still in protective coating – plus two fruit cases which contained a

completely dismantled Vincent 1000 engine/gearbox assembly.

Quite a few Vincents had been used in air-cooled cars of the day, usually with not-so-good results. So as I gazed at the conglomeration of parts – and there were literally hundreds of them – I took the decision to stay with my original plan for a 650, and did a deal in which I got a Thunderbird engine and gearbox in exchange for the Vincent, and collected 100 pounds to go on with. Thus I now had an engine and gearbox, a lot of useful Fiat bits, and 100 pounds to buy tubing for the chassis and still have money left over.

My four-tube chassis used 1 1/4" 16g main rails with the top centres four inches further apart than the lowers, thus allowing some elbow room. To achieve six degrees caster for the front suspension the four tubes were all bent immediately in front of the cockpit, which may have looked a little odd but made the setting up and assembly of the front end much simpler, and did away with the need for unequal-length lugs for the spring and shock mounts.

It also meant all the chassis vertical members could be made to the same length, as were the lower horizontals and the upper horizontals (which of course were four inches longer).

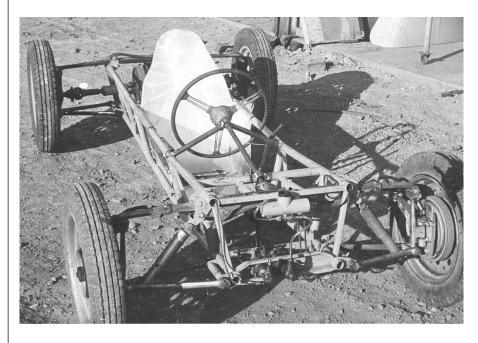
I was fortunate in having a mate who worked in an extremely well-equipped toolroom, and he machined these to size using a mill with a 1 ¼" cutter, which made assembly and accuracy a snack. All the lugs (the type known as Bradnack lugs on Coopers) were also made as foreign

orders by the same friend. Spring location was also as per later-model Cooper by means of curly-leaf springs (the front mounted under the main spring) which located the main springs laterally while allowing more roll-stiffness than bump-stiffness.

Another acquaintance, long since gone, was Jim Madsen, who operated from his home on Parramatta Rd in Haberfield and owned the recently-completed Cooper BMW. This car had caused more than a little grief between Jim Madsen and Charlie Ogden, who had handled all the installation of the BMW engine into the Cooper chassis. Charlie got the diff upside-down so the engine rotated backwards when the car was pushed forwards, leading to an acrimonious court case.

Charlie was very popular in the speed-way and motorcycle racing fraternity, and the outcome of the case did not raise Jim's popularity to any great degree. Jim and I, however, got along very well, and I often used to visit him and gaze in awe at what was at that time the latest air-cooled Cooper in town. Jim sold me the surplus Cooper oil tank for use on my car, and loaned me a spare rear upright which Bob Brittain promptly duplicated for me. Knowing Bob, he probably still has the pattern.

Rear drive axles were machined and splined from forgings (can't remember the origin), as was the centre shaft for the final drive. All the splines adapted to Hardy Spicer 1100-series companion flanges, and the sliding-spline drive shafts were made





from shortened Austin A40 prop shafts. The final drive assembly was fabricated from two triangular pieces of 1/8" sheet steel separated by welded-in tubular spacers, and the centre drive axle was carried on two Fafnir Flangette self-aligning bearings, and this unit was anchored into the chassis by three bolts through six welded-in lugs. Rear brake was Morris 10 (or 12?), chains were ½" x 5/16" primary and 5/8" x 3/8" secondary. The final drive sprocket was sandwiched between the companion flange and the universal joint, likewise the brake drum on the opposite side.

The steering box was machined from a Ron Tauranac casting and used a rack and pinion made as another foreign order by my toolroom friend. Tie rods used Fiat 500 outer ball joints and Renault 750 inners attached to the rack.

Installation of engine and gearbox was quite straightforward using the original engine suitably cut about and attached to chassis crossmembers, and the gearbox was mounted in similar fashion. There was no primary chain adjustment. The original Triumph clutch was of the oilbath chaincase variety, well known for their ability to leak even when not being used, and creating all sorts of problems when they eventually ran dry. The clutch was therefore modified by throwing out all the cork inserted plates and replacing them with undrilled Ford Prefect clutch facings suitably notched around the circumference to fit into the driven housing of the original clutch case. This arrangement worked like a charm and never even needed adjustment during my time with the car. Both chains were lubricated via rubber hoses by discharge from the crankcase breather. Try

Constructor Bob Joass having fun with his 650 Triumph special - before valve dropped - at Schofields in 1958.

getting away with that these days!

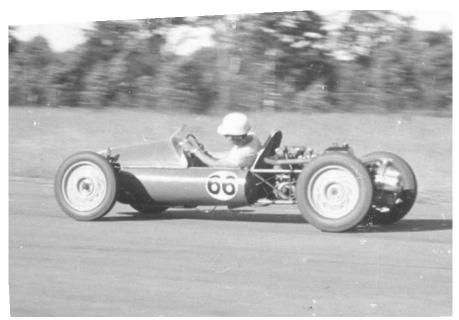
I do not recall the origin of the tubular shock absorbers, but they certainly didn't come from the Fiat 500, which used piston type operating off the inner end of the lower wishbones. I believe the mould for the fibreglass nose was taken off the Blake/de Bord Mk 8 Cooper. My car's side panels were simply rolled alloy which only covered the sides. A separate undertray was attached to the lower chassis rails.

Fuel was gravity fed from a sprint tank mounted above the final drive. Strangely enough, this never gave me any fuel starvation problems.

The engine was run in standard form until I got carried away at a Schofields meeting at HMAS Nirimba in June 1958 when while trying (ho ho, what a prat) to keep up with Frank Gardner's D-type Jaguar I forgot to change gear – with the inevitable result that a valve head parted company from the stem and proceeded to turn the piston into something resembling a volcano crater. I bought a pair of 8.5:1 pistons, and with a bit of jet resizing gave myself a surprise at Foley's Hill by getting FTD. In the process I became friends with Tony McAlpine, who didn't have a lot of luck with his Cooper Vincent that day.

At an early Silverdale meeting, while we gathered at the top of the hill after our runs, I was approached by one of the Austin Healey 100 boys who asked if he could sit in my car and try it for size. He climbed





out and announced to his Healey mates, "Feels great. I'm going to have me something like this one day." I noted the name on his car: "Driver – Frank Matich." A prophecy well and truly fulfilled.

When I had been about halfway through building the Triumph at the service station in Lewisham, a friend of the proprietors' was a regular caller, and decided he would build a duplicate. First thing he needed was to get someone to make the chassis. At that time I didn't have the time or inclination, but about a year earlier the service station owners nominated me as chief volunteer for a stock car, which was to race at Sydney Showground plastered with garish advertisements for the business.

The chassis bracing, roll cage etc was done by a jobbing welder from Ashfield named Eric Lamont who, being an eager beaver, I nominated as the likely fabricator for the proposed twin of my Triumph car. This became a triple when another starter approached Eric to build something for him. The proprietor's friend was Tom Bridson, and the other starter was a Five Dock builder, John Lumb, who had a friend called Henry Nehrybecki. Tom Bridson's car was ultimately completed with a 500 single, and John Lumb's with a Square 4 Ariel. This car was named the Scarab - a Nehrybecki idea as I recall and at one time was owned by Bill Boldison. I never saw either of these cars

In mid-1958 I sold my car to Ray Ellis and became involved with Formula Junior. I designed and built three Juniors, christening them "Jolus", but that is another story altogether. Also, between 1958 and 1962 I managed to construct other sundry devices including: a BMC-engine F2 Cooper style car using 1500cc engine and VW gearbox for Bill Machin; a rear-engined sports car using BMC engine and VW transmission for Jim Sandy, which he christened "Gryphon" and registered for road use; a front-engined 203 Peugeot-based sports car for Alan Yuill, which is now owned by Ray Bell.

I had dropped out of the air-cooled scene, but about 1981 I bought an F2 Cheetah, less engine, and built a new rear section into which I fitted a four-cylinder 750 Suzuki. It was great fun and lovely to drive, but I had overlooked the basics in that it was a fairly heavy car, and a 750 four does not have bags of torque to get the chassis moving. So I exchanged it for a one-owner Lotus Europa – which was even more fun.

After that I restored Tony Caldersmith's ex Saywell/Myers/Peter Williamson Mk IV Cooper (now owned by Matt Segafredo) and moved to Port Macquarie and restored Andrew Miedecke's F2 March.

WALTON-on-the-HILL

TERRY WRIGHT GETS THE WALTON-JAP UNDER WAY

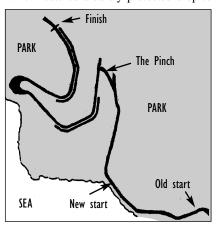


ILLS are the Walton's natural terrain so hillclimbing seemed the obvious thing to do in 2001 after some Gear days at Wakfield Park had sorted out a modest number of bugs with a car that hadn't moved since 1969.

First up were two club meetings at Huntley near Dapto south of Wollongong where there is a club series as well as a round of the NSW Championship.

There was another state titles round at Ringwood north of Newcastle, the Australian titles at Mt.Cotton, Brisbane, in October and then the first, for me, of the classics at Newcastle's King Edward Park.

Bruce Walton had taken the NSW title here in 1956 running an unblown 8/80 JAP with a time of 56.0 sec. For 2001, the start had been relocated further along from the original to exclude the first fast corner which featured a barely protected drop to



Above: The Walton takes off from the start at Rob Roy (map right). Photo by Elgee Words and Pictures. Bottom: King Edward Park

the sea below

Opinions varied as to whether this was a shortcoming because the new start was very close to a turn. This meant that traction here was at a premium, testing the quicker drivers considerably.

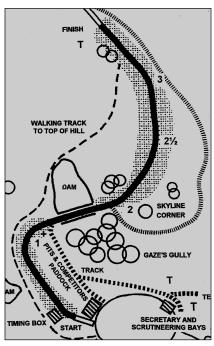
Anyway, this right hander launches you into a fast run up the main valley of the park heading for the bandstand and the Pinch ... where you sling the car left into a little path that connects top and bottom roads around the park. Then it's fast, fast right above the sea into a right hairpin and a left to the finish. Best time: 45.64.

The last meeting of the season was at Rob Roy, the Walton's spiritual home, where for Bruce the "sweetest moment of all" had been taking the 1957 Victorian titles with a blown 1100 JAP from Lex Davison (Cooper-Vincent) by getting an extra point for a course record of 24.40 on his final run

He beat that again a few months later but never bettered it in the Walton-Cooper, which he started to use mid-1958, before the hill was closed for many years in 1961.

At Rob Roy you start below the paddock and then wrap yourself around it into the 100 deg Tin Shed Corner before accelerating across the dam into the 'Wall', a sudden 1:3 or so climb.

As you go up the Wall you have to turn into the blind left hand Skyline which is



followed by two more flat-out left hand apexes and a dash to the finish. You have to get stuck in from the off and when you start to go quick your stomach goes woops as you hit the Wall. Stirring stuff. Best time? 26.21, fastest pre 1960 time of the day and good enough to win the Bruce Walton Trophy of all things!

Bruce and Camille Walton came along and gave lots of useful advice on everything from the psychology of starting to gear change points. Should I get into top before the Wall? Better to do the whole final stretch concentrating on driving said Bruce. It worked - worth all of 0.2 seconds.

The current track is like a billiard table compared to the Walton's original days but it is still the same delightful spot. The meeting was a credit to the MG Car Club and you should note next year's date as one to remember - November 24.

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