

# Pioneers of Air-Cooled Racing - Harry Hartz

Part 2 by Terry Wright

HARDLY had the results of the Venice Junior Vanderbilt races of 10 January 1914 been published, than it was announced that there would be a race over a two-mile, properly roped-off course. Ed Pendleton had a deal with Harry Culver, real estate speculator and developer of neighbouring Culver City, to use a rectangle of his new roads on Saturday 21 March.

There was extensive publicity throughout the Los Angeles area. Top drivers Barney Oldfield, Teddy Tetzlaff, Earl Cooper and now Frank Verbeck were again going to be in charge.

The Venice format of heats for single and twin-cylinder cars, and a free-for-all final, was again adopted for a field of 35 cars. Things were getting bigger and the cars more serious. Already Pendleton was talking of the boys appearing later at the big track up in Tacoma, Washington, and in San Francisco the following year.

The *Los Angeles Times* commented, 'Out of the ranks of these youthful drivers many a world's champion driver may come with his first victory gained on the Culver City course.' It wasn't far wrong about one future champion. Winner of the Culver City 30-lap free-for-all was young Harry Hartz, who was to be placed in the top four at Indianapolis no less than five times during the nineteen-twenties, and win the American Automobile Association championship in 1926. In the 'thirties he had two wins and two sec-

*In the last issue we reported how February 2014 saw the centenary of the release of the first Charlie Chaplin 'Tramp' film with California youngsters going motor racing in air-cooled cars they had built for themselves. During 1914 'kid racing' became a well established form of motorsport under the patronage of the US West Coast's leading 'big-car' drivers. It pioneered the purpose-built, mid-engined, single-seat racing car*

ond places in the Indy 500 as a car owner.

Hartz' win must have been a close thing, because, as Sid Howland crossed the line in second place, he swerved to avoid a photographer and collided with Hartz, and third place Al Van Franklin, before all three went into the crowd. Only the photographer was hurt, with a broken arm and internal injuries; the boys seem to have emerged unscathed.

The following week it was announced that the Junior Racing Association of

This mid-engined car, at Tacoma in September 1914, shows how much design had developed in a few months. The outboard Indian engine was located to optimise weight distribution on anti-clockwise tracks. Photo Tacoma Library.

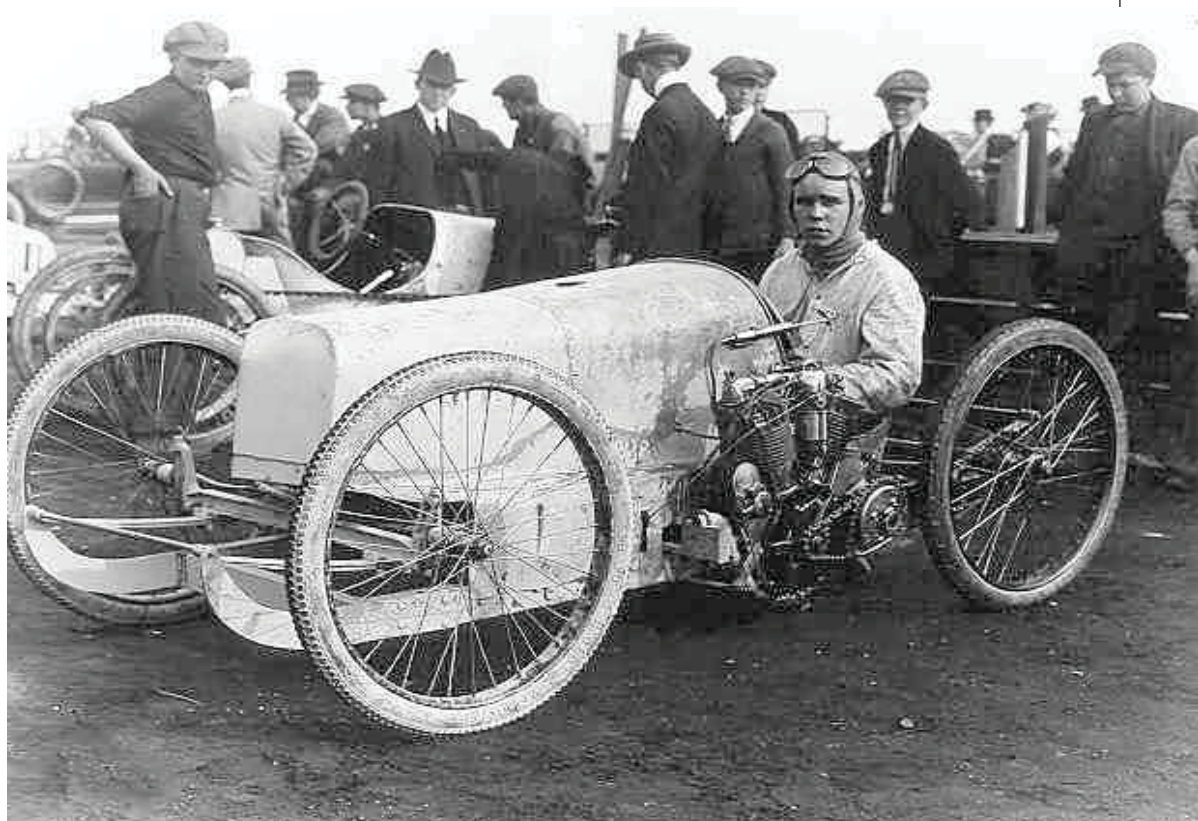
## LOOSE FILLINGS

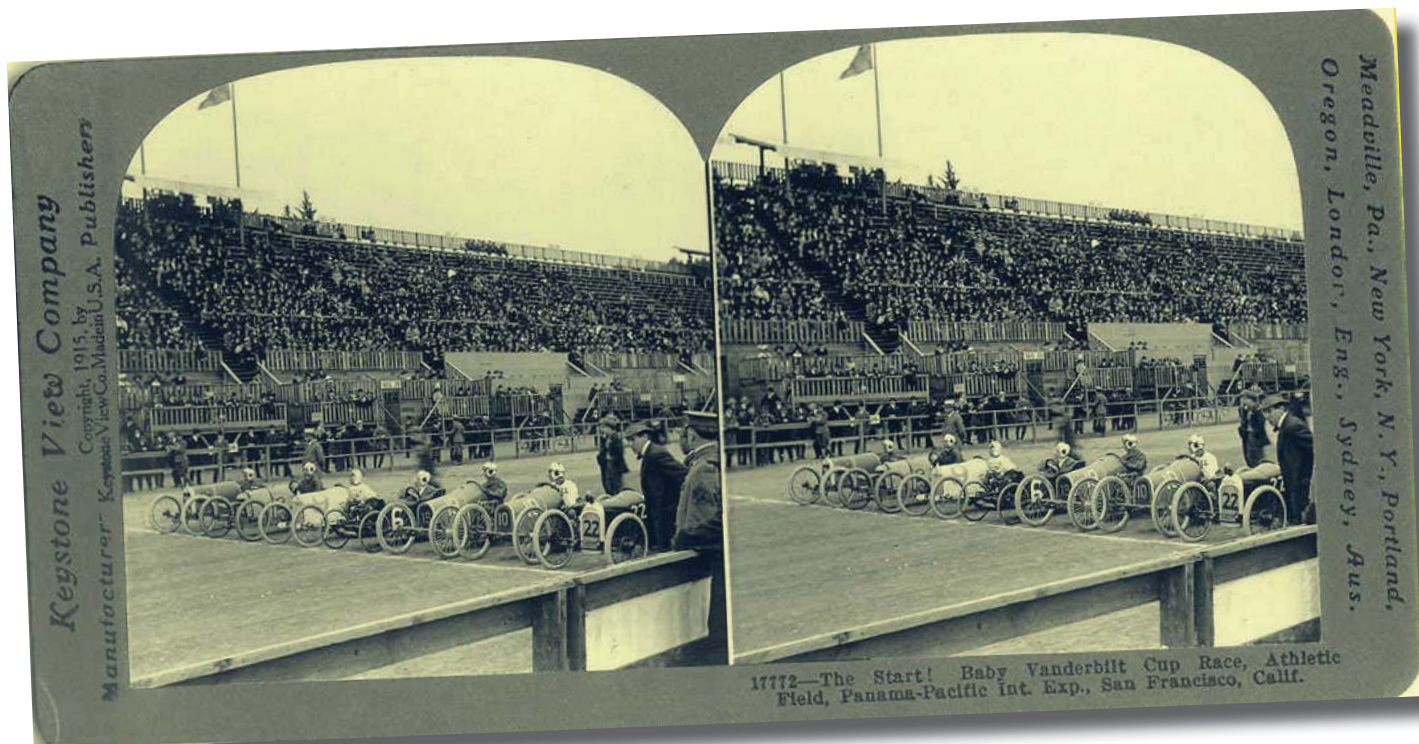
America had been formed ... 'for the purpose of fostering juvenile racing and mechanical endeavor.' All the young cyclecar enthusiasts in Los Angeles had signed up, reported the *Times*.

Within a few days the it was announcing the Association's first race meeting at Ascot Park, a one mile horse track where California's prohibition of betting on horses from 1910 had made motor racing a more attractive proposition for its owners.

There were 53 entrants, all of whom had built their own cars. The age limit had been raised to not more than 18 years. Senior drivers would be parading in their race cars. There were to be one mile, five mile, 10 mile, 15 mile and 20 mile races.

Sid Holland was disqualified for being over age, but only after he had won the single-cylinder race. Al Van Vranken again featured in his Brownie, running second in his race while cheekily sporting a rubber cigar. PC Carr ran away with the twin-cylinder, 15 mile race in a car that was described as ... 'chiefly engine and smell'. Alex Pabst, a 15 year old Los Angeles schoolboy, won





17712—The Start! Baby Vanderbilt Cup Race, Athletic Field, Panama-Pacific Int. Exp., San Francisco, Calif.

both 20 mile races.

On Saturday 30 May, the Indianapolis Sweepstakes race was replicated at Ascot, if only over 40 miles. Fifty-six junior drivers raced look-alike cars and dressed up in the same outfits as the Indianapolis drivers they represented. Indy 500 race positions, which came in by wire, were posted on the scoreboard lap by lap throughout the afternoon.

'A new kid speed king was unearthed at Ascot Park yesterday afternoon,' reported the *Los Angeles Times*. 'Just about 12,000 motor-race fans saw the finish of the forty-mile Junior Sweepstakes race which was won by Harry Hartz. The forty-car start was described as sounding like an 'overstocked menagerie and smelling worse'.

The report said little attention had been paid to Harry Hartz, who had started at the back of the 40 car field after engine problems in practice. He now had a new car, 'a low red creation with big black wheels.' It was a Mercer replica labelled 'D.D.D' for 'Dare Devil Derkum', Paul Derkum being a champion motorcycle racer turned promoter who had become Hartz' mentor and patron.

One by one Hartz passed the field until he came up with the lead 'Baby Buick' on the thirtieth lap. The two went into a turn side-by-side, touched wheels and the Buick leapt several feet into the air, skidding across the track, leaving Hartz in the lead. Then Hartz dropped a chain which he had to stop and refit, putting him back to fifth place.

Soon the cars in front started to drop

out, leaving Hartz to cross the line a close second. However, after lap scores were checked, he was declared the winner and proclaimed 'Master Junior Driver of the World', a title which he was successfully to defend at Culver City the next year.

There were more races before the summer holiday break, including a 100 miler at Ascot on July 4. Some of the boys went north to the two-mile Tacoma speedway in Washington later in 1914, but it was both a wash-out and a flop. In 1915 the season opened at Ascot on 21 March when there were 60 entrants and there, and at Culver City on 10 April, Hartz was unbeatable with a brand new 8-valve Indian engine.

At the San Francisco Pan-Pacific International Exposition, where the prestigious Vanderbilt Cup and Grand Prize races had been run in March, the boys raced on 8 May on a kidney-shaped one-mile dirt track which shared the big races' start and finish area. For once Hartz didn't win, and the first-place money of \$100 for a 50 mile race went to a local hero, Harold Linley. The following day's 75 mile 'Grand Prix' race was postponed for a week because of rain. Hartz won after a see-sawing battle for second place over the first 35 laps.

It has been suggested that entries then began to fall off, and that the Association lost momentum, but it is possible this simply reflects less press coverage as the novelty wore off.

*To be continued ...*

Top: Stereoscopic photo card showing the grid for the 1915 San Francisco Exposition race of May 1915. Hartz is in pole position. Photo: Library of Congress. Bottom left: Harry Hartz and team-mate, probably in 1915. Photo: Racemaker Press.



THE Cooper Car Company of Surbiton in the UK produced about 320 air-cooled cars between 1945 and 1960. Many of them left the factory with 500cc Speedway JAP engines made by J.A. Prestwich, London.

We might ask why this unlikely engine was so popular? There were three good reasons. They were available. They were simple, and they were good for 40bhp. But why were they unlikely? That question makes an interesting study.

Initially, JAPs were reluctant to sell their speedway engines for use in 500cc racing cars because they considered them unsuitable for that purpose ... which, in theory, they are. Designed solely for a few quick laps on a speedway track, they seem to have two obvious limitations for sustained full-throttle road racing conditions ... namely a primitive total loss lubrication system that discharges used oil onto the track, and inadequate cooling fins on the cast-iron cylinder and head.

Despite these apparent flaws, early Cooper JAP cars somehow managed to take the first four places in a 50 mile 500cc race at Silverstone in 1948. That such a simple primitive single-cylinder air cooled speedway JAP engine driving a car could survive a 50 mile road race does seem remarkable. How was it possible? Well let's look first at the suspect oiling system. It works like this.

Oil gravitates from a supply tank into a camshaft driven Pilgrim pump. These small oscillating plunger pumps have an adjustable delivery rate, and a little plastic window through which the anxious tuner can observe oil flowing into his engine. The term 'flowing' is actually a misnomer. An intermittent spurt of oil is more descriptive. One side of the pump directs these spurts of lubricant into the end of the timing side mainshaft, and from there toward the all-important big end roller bearing, being assisted inwards and upwards by the centrifugal 'suction' of the rotating crankpin.

Meanwhile, a very small amount of oil is fed to the overhead valve gear from the other side of the pump. Even when the engine is revving hard, and the pump adjusted for maximum delivery, total output of lubricant from both outlets is little more than a dribble. A standard 80mm JAP piston uses two compression, but no oil ring, so inevitably some oil gets up into the combustion chamber making oiling a plug an ever present possibility. The Lodge R49 plug was the plug to use in 1950, but today something around the NGK BHS 8 range

# The Remarkable Speedway JAP Engine

by Chas McGurk

is a good alternative.

Oil that is not burnt is discharged to atmosphere through non-return valves in the lower timing side crankcase. On a speedway dirt track this carefree loss is acceptable but on a road circuit we must obviously collect this used oil. The amount of oil that we collect in the catch tank during a race gives us a very good idea of how much oil went into the engine during the race. Experience has shown that during a 15 minute race at, say, Winton a typical Pilgrim pump would deliver about half a litre from our supply tank, and what was not burnt or did not leak out somewhere, would collect in our catch tank.

Half a litre is a comparatively small amount of oil for 15 minutes running under race conditions, and is a fraction of the volume of oil which, say, a dry-sump BSA /Norton motorcycle gear pump would circulate in that time frame.

How then does the JAP speedway engine survive on such a meagre ration of oil? Well, we can only surmise, but the fact that it does survive is probably due to a combination of the following.

First, the only oil a JAP engine gets is



new oil. So it's always clean, fresh, and cool. This is in direct contrast with recirculated oil in a dry sump system, which may be fuel diluted, and hot and frothy. Oil aeration in a recirculating dry sump system is inevitable to some extent, because the return side of the oil pump is designed with a larger capacity than the delivery side. The return pump will therefore return a mixture of both hot oil and hot air back to the main supply tank. In the absence of an oil-cooler and air separator, this hot, churned-up lubricant just recirculates.

Obviously this is not the case with the JAP pump, because it gets all its oil new and fresh from the supply tank. This means there is no point in running a JAP engine to warm the oil. It also means that because the JAP uses only ball or roller bearings, a brief warm-up is all that's necessary prior to a race, and this is done primarily to get some heat into the piston. In fact the cooler the oil going into a roller bearing engine the better, provided of course it can flow freely from the tank and keep the pump always well supplied.

This means that provided we have adequate piston clearance, a JAP engine can be started and run flat out almost straight away, without fear of bearing failure or piston seizure. This is definitely not the case with a plain-bearing engine, where the oil temperature and pressure are inter-related and critical. Running a plain-bearing engine at high revs with cold oil will show a high initial oil pressure on the gauge, because the cool (thick) oil will favour a short circuit through the pressure relief valve, in preference to forcing its way through the close tolerance plain main and big end bearings. The high gauge reading in this situation actually indicates restricted oil flow through the bearings.

On the other hand, the unsealed ball and roller bearings in the JAP offer little oil flow resistance, irrespective of oil temperature.

So, in summary, we can say that while the oil used in the JAP total loss system is certainly less in QUANTITY, the actual QUALITY and lower temperature of the oil is superior to that recirculated by a dry sump system ... because the JAP is getting brand new fresh cool lubricant ... at all times, with emphasis on the cool!

Another vital engine survival factor is

Left: this 1931 engine, with horizontal, left side inlet and two exhaust ports, shows how scant the finning on the speedway head and barrel always were. Photo: Terry Wright.

that the JAP engine is designed to retain a small quantity of oil in the crankcase before it escapes to atmosphere, or in our case, into our catch-tank. There is an overflow level in the engine just above the lower rim of the flywheels. This means there will always be some residual oil in the crankcase. This oil is continually picked up by the flywheels and flung up the cylinder, where it cools and lubricates the underside of the piston, plus everything else it lands on. This may cost us a horsepower or two in drag, but it also keeps things slippery. So in the light of the above observations, we now have some clues as to how a single cylinder air cooled 500cc JAP in the back of a racing car, can punch out near 40bhp and keep doing it for 50 miles ... (although to be honest, for lots of other reasons some won't!)

To achieve this reliability in the past, it was vital to use the traditional vegetable based Castrol R for these engines. Castrol R is very good for this application, and when burnt it smells wonderful. However it is soluble in methanol fuel, which means if very rich mixtures are deliberately used for cooling reasons, oil dilution may result in scuffed pistons and bores. Modern oils not soluble in methanol, designed for roller bearing engines, (eg Harleys), have been proven to reduce this cylinder scuffing tendency. In this case, if the engine is jetted rich for cooling, the collected oil comes out of the engine as a white emulsion. This is not an issue provided it is not recirculated.

The other questionable speedway JAP design feature mentioned earlier, is the skimpy cooling fins on both the head and cylinder. For a bike race lasting just four minutes, in a country famous for white Christmas's, engine cooling is not an issue. On the contrary a quick warm up is desirable; the standard cast iron JAP cylinder heads and cylinder fins are deliberately miniscule.

That design feature alone would seem to make the engine unsuitable for our car use. However the problem is not insurmountable, because in order to produce their 40bhp, speedway JAPs run on very high 14 to 1 compression ratios, which necessitates the use of methanol fuels. This fuel requires carburettor fuel flow up to three times more than for petrol, and fortunately, the cooling effect, or the latent heat of evaporation, of this extra volume of methanol fuel helps keep engine temperatures down to workable levels. However, most of this fortuitous liquid cooling favours the



cylinder head, leaving the cylinder temperatures still higher than desirable. This necessitates cold piston skirt clearances in the order of 8 to 10 thou, and even with these significant clearances, piston seizure through overheating was, and is, the most common JAP engine failure when in car use.

The problem is made more acute by having the hottest cast iron engine parts hidden behind the driver and away from the cooling breezes. Fortunately, by 1950 J.A.Prestwich realized the sales potential of their engines for the car market, and changed engine design to address the lubrication and cooling issues. Some special engines were built specifically for 500cc cars with a conventional double gear pump recirculating oil through a remote tank. More importantly, a finned alloy iron lined cylinder was made available for car use, (illustrated).

The alloy cylinder was cast around the liner, and gave a marked improvement in heat transfer and dissipation over the skinny JAP cast iron cylinder. This new replacement cylinder was marketed under the trade name of Alfin, and was a quantum leap forward in JAP engine race reliability ... in the writer's view far more important than the improved dry sump oil pump system.

There are lots of other features of interest about this great little engine, and how it competed, sometimes on equal terms with the famous Manx Norton, but we'll cover that in a future *Loose Fillings*.

Chas.



The 'Type 6' JAP, with beefed up crankshaft and main bearings, and an Alfin barrel on an aluminium crankcase, was designed for 500 racing. This one found its way to Rockhampton, Qld. Photos: Paul Stanley.

## CLASSIFIEDS

For Sale. "The World's First Pulse Jet Car", Cooper Mk5-12-5 currently in F3 500 specs with a four-stud JAP and AMC Norton gearbox and has been refreshed and repainted. The SNECMA pulse jet engine and all its ancillary equipment will go with the car with a huge scrap book and history file. Expressions of interest invited, [garmey@xtra.co.nz](mailto:garmey@xtra.co.nz)

For Sale. BB Ariel. Well known air-cooled car built by Brian Schlireck in 1958 and raced at Amaroo, Oran Park, Catalina, Silverdale and Bathurst hillclimbs, Calder and Hume Weir. Car is complete with spare engine. Has CAMS logbook. Ideal for Lb racing or GEAR events. Chris Tracey 0418 441 314.

For Sale. Aussie air-cooled project built in late 1940's by Eddie Thomas, but with no race history. Originally fitted with JAP 500, then at some stage modified to fit a Vincent V-twin, both sadly gone. Essentially a rolling chassis with some panels, fuel tank, BSA M20 gearbox, engine plates. Open to offers, may consider swap for motorcycle or parts. Email for pics Alan 0413 031 075 or 02 9627 3290, [harper6t@aol.com](mailto:harper6t@aol.com).

## THE LOG

► Derry Greeneklee, Cooper Mk5 JAP 1100, Brian Simpson, Cooper Mk9 JAP 1100 and Garry Simkin competed in the HSRCA summer meeting at Wakefield Park on February 22-23.

► Graeme Brayshaw, Cooper-Norton (Mk8-26-54) and Max Rutherford (JBS-JAP) both had a full weekend's trouble-free running at the Waitemata (Auckland) branch of the Vintage Car Club of NZ Roycroft Trophy meeting at Hampton Downs, 8 and 9 March. Graeme won the Roycroft Trophy for his fine efforts.

► Easter weekend saw Brian Simpson and Derry Greeneklee competing at Mallala, South Australia.

# Sidney special back in Bob Minogue's hands

Bob Minogue has recently bought back his first race car which he hillclimbed and roadaced in the early '60's, using JAP, Manx Norton and Vincent twin engines. This car was featured in *Loose Fillings* #26. It was built by a chap called Len Sidney, who was employed by Bob Chamberlain, proprietor of the Rolloy Piston Company in the early/mid 1950's, as a tool maker.

Phil Irving was also employed there and Bob was told by Len (with whom he worked as an apprentice at McPhersons Machine Tool Works) that Phil suggested he should build a car in the style of those of Lex Davison and Reg Hunt. Len also said he and Phil sketched it out on the workshop floor, with some input also from Bob Chamberlain. Len had successfully raced a Mk8 KTT Velocette prior to the war, but

felt his age precluded him from competing after the war, so the idea of a car appealed to him. Construction was commenced circa 1952 and was completed in about 1958. His attention to detail is quite outstanding. Financial constraints made a Vincent H.R.D. out of reach, so he fitted a 500c.c. 1938 Rudge Ulster four valve engine. In this form it held the outright lap record at Darley, jointly with Bert Flood in Jack Godbehear's speedway JAP-engined JGS.

## NZ BITS & PIECES

Tim Ross reports from the UK that his partner in the purchase of Max Fisher's cars, Ted Sharpe, had a major accident in the RGR at the final Prescott of last season, losing it in the Esses and clouting the guardrails on both sides of the track, being pitched out head-first on the second impact. He has recovered fine, but the RGR chassis was bent and cracked at all four corners. It's a major repair job, now underway, but it will not be finished for this season, hence the purchase of a Mk9 to tide them over, in addition to their efforts with Max's Mk4 Cooper.

The other bit of news is that they have dismantled Max's two-seater and embarked on a full restoration of the Billy Lee Cooper. Fortunately, chassis, wheels, suspension and other major bits were intact and they have obtained some correct-period MK III bodywork to go with them (not complete unfortunately). A long and painstaking job, but meanwhile Max's loving work on the two-seater was not in vain either, since they are re-building that as well, with a different chassis. Outwardly the pretty little body is unchanged.

Billy Lee's Cooper was fitted with a V-twin soon after arrival in New Zealand and they are very much in the market for any V-twin bits that emerge. They are also keen to find a Norton engine or major bits, as an alternative for the RGR. They are perfectly happy with the JAP engines in the RGR and Mk4, which were built up from Max's spares, but are equally aware that in New Zealand the RGR also ran with a Norton, in the hands of Ron Learnan, Nigel Roskilly (with whom they made contact before he died) and Brian Skudder (with whom they are still in contact).

Below: A young Bob Minogue in the wet with the Sidney. Photo: Bruce Wells Collection/autopics.com.au

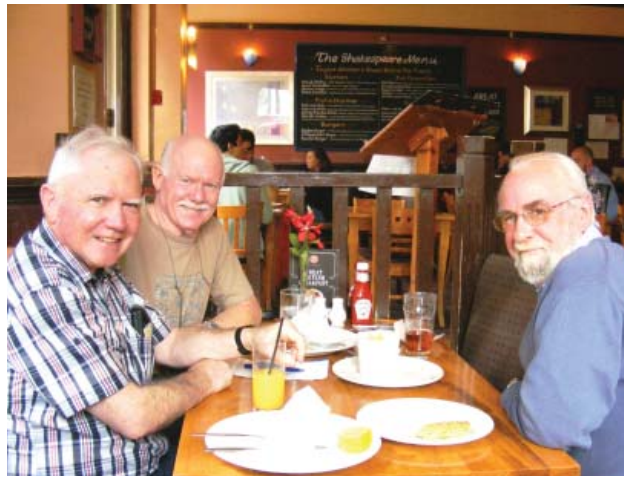


## RIP DAVID MCKINNEY

With regret we announce the passing of David McKinney on 25 February this year. David's contributions to our own **Loose Fillings** were always a good read, with quite amazing detail about the cars and the people he wrote about.

Born in NZ on 8 April 1945, David's younger years in Auckland were spent watching race meetings on beaches, grass tracks, aerodromes, hill-climbs and speedways. During this time he was totally mesmerised by Maserati 250F cars as driven at Ardmore by Prince Bira, Stirling Moss *et al* and this was to prove fortuitous in later years. According to Graham Vercoe's **Historic Racing cars of New Zealand** David raced and/or owned a Cooper Norton Mk10, a Lotus 6 and a Mallock U2. When not participating, he would often do the commentary at race meetings at tracks such as Levin or Manfield, both north of Wellington. David also learned the art of bumpy high-speed reading when a friend offered him the navigator's seat in a rally car.

Writing was his forté. His abilities as a scribe, together with an interest in politics, soon had him heading south to Wellington to be based in Broadcasting House. David wrote astute political editorials for NZ press and radio from 1962 till 1974 as well as being editor for the Wellington Car Club bulletin. He started doing race reports and car articles for publishers in NZ and later



Left: Kerry Smith, Dave Williamson and David McKinney (right) dining in London last year.

Bottom: The Hall and Hall Maserati 250F which Doug Nye arranged to be on display at David's London funeral. Photo: David Beard  
NOTE: any readers who can offer photos or stories etc for David's unfinished project can email Milan Fistic in at [fisticm@yahoo.com](mailto:fisticm@yahoo.com)

his work was sent worldwide, gaining him a reputation for accuracy and clarity. In 1969 he joined the Parliamentary Press Gallery for one year then moved on to the NZ Press Association for three years. After working as Press Secretary to the Minister of Transport, he started as Managing Editor for **MotorAction** and then **NZ Motoring News** from 1979 to 1985.

In late 1985 he left NZ for England to begin writing for the UK magazines **Motor Racing** and **Auto Classic**. He became associate editor of **Historic Race & Rally** and European Editor of **Historic Racing** and the US magazine **Victory Lane**. In 1987 he wrote **The Dunlop Book of New Zealand Motorsport**.

A few passionate enthusiasts, David being the main one, wanted an accurate online discussion forum about historic racing and so **The Nostalgia Forum** on the Autosport.com website was born. His contributions to TNF and later to **Old Racing Cars.com** gained him immense respect.

His latest project was to be a history of NZ racing up until 1969; this work is now to be taken over by Milan Fistic in NZ [see above]. In 1999 he wrote **Can-Am Cars, 1966 - 1974**. However, his childhood passion was always about the Maserati 250F and this fuelled a slow and very detailed research

project that took him many years to finalise, as the lineage of the 250F is complicated and plain messy. Together with assistance from Barrie Hobkirk and Donald Capp, David slowly unravelled the 250F mystery and in 2003 finally produced his **Maserati 250F** book, which is without doubt the 250F Bible.

David's funeral was held at the Enfield Crematorium, North London on Friday 7 March followed by an informal get together at the Salisbury Arms, Winchmore Hill, attended by his ex-wife and daughter. Historian Doug Nye organised for a Maserati 250F to be borrowed from Hall and Hall and this car was put on display in the car park at the pub. A collection was organised and £250 was given to the League of Friends of St Bartholomew's Hospital in David's memory.

*Dave Williamson*



## LOOSE FILLINGS

*Loose Fillings* is published digitally and in print about 3 times year. To receive copies, send your email address to Garry Simkin. Recent issues can be found in pdf format at [www.hsrca.com](http://www.hsrca.com).

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