

June 2011

North Birmingham News

NEWSLETTER

Mid Week Run 1

June 8th mid-week run, sadly without photo's as my camera developed a water leak.

Flaming June!! Well not quite but my run did attract 23 entries with more variety than ice cream flavours available at the proposed stops en-route. Machines ranged from an immaculate LE Velocette to Roger Slater's mighty '66 Bonneville via the Empsall's Triumph combination, a matching pair of Velo's, with Matchless, BSA's, more Triumphs, Trevor Bull's Sunbeam and my infamous Dratsab making up the remainder of the entry.

The route left Tony's Diner, Quatford and headed out for Six Ashes, onto the Sheep Walks with it's spectacular views across the Stour Valley, through Kinver, Cookley and along the canal to the The Lock at Wolverley for the first of my three proposed ice cream stops. However, Tony's offer of Liver, Bacon and Onions for £3-99, what a bargain, and a short sharp shower prompted a race to the finish for most.

Sorry guys and gals the ice cream you missed was delicious!!

Showers having past we motored up to Shatterford and wandered through Alverley, Half Penny Green, Tuckhill and onto our finish at Tony's.

All went well with no breakdowns to report, and on my arrival I was pleased to note all concerned 'tucked' into their lunches.

Thanks guys and gals for your support and donations and I hope to see you on my Severn Valley Run on the Sunday 26th June for more fun, ice cream and hopefully some glorious sunshine

Bill Danks

Please note the new date for the Long Mynd Run on the last page



Norton's Unit Six—Fifty

Norton was one of the last manufacturers in the world to make big motorcycles with separate engines and gearboxes. Even in the 1970s, when pretty well everyone except Harley-Davidson was totally committed to unit-construction, Norton's Commando stuck to the pre-unit format.

All-in-one bottom-ends were adopted by many Continental and some British makes in the pre-war years. Triumph converted to this neat arrangement in the last fifties, gradually taking unit-construction up their capacity range. BSA soon followed, so why didn't the other leading British makes, Norton and their parent AMC Company, join in?

The fact is that Norton did start work on a new-generation big twin in the late 50s. Prototype 650cc unit-construction engines were built, run and partially developed. But when AMX closed Norton's Bracebridge Street headquarters and moved all motorcycle production to Plumstead Road, Woolwich, the unit engine disappeared.

Like most projects that don't ultimately bear fruit, the Norton that might have superseded the Dominator and radically changed the AMC range was almost completely forgotten: indeed few people are aware that it existed at all.

Some factories destroy all traces of abandoned schemes, but the remains of Norton's Unified Twin, as it was called, have survived. They are now in the hands of Tony Curzon, an avid Norton enthusiast from Croydon. He's a member of the Hy-Cam group of AMC/Norton hybrid machine owners: his 750cc P11 Desert Sled

was featured in *Classic Bike* April 1987. Tony's long-term plan is to build and run an engine from his collection of parts.

He bought the bits from Midlands Norton specialists Fair Spares in the early 1980's and has 90% of a complete engine and gearbox unit, major castings plus a crankshaft for a second engine and a pair of partially machines crankcase castings.

Even loosely assembling the castings gives a clear picture of what Norton's forgotten engine looked like. In terms of more familiar machines, it could be described as a cross between the Dominator and the Jubilee/Navigator lightweight twins, with strong BSA influence.

Not surprising, really. The design work was carried out during Bert Hopwood's term as managing director of Bracebridge Street, Hopwood had created Norton's mainstay Dommy twin in the immediate postwar period, then moved to BSA before being installed at Norton again by AMC's management in 1955. He fathered the 250cc unit-construction Jubilee that preceded the Unified experiment, before returning to the rival BSA-Triumph group in the early sixties.

Among the team that put the unit 650 together were two senior figures in today's British industry. One was Doug Hele, chief development engineer at Bracebridge Street

and the other was Brian Jones, who was chief engineer on Matchless production at Newton Abbott.

Hele recalls the thinking behind the several of the twin's obvious features: 'unit-construction was the coming thing then-everyone was going that way,' he says. 'We were going for shorter strokes too. To get better breathing with bigger valves and a shorter engine overall.'

The cylinder barrel is noticeably squat, with bore spigots plunging deep into the vertically-split crankcase, 'Oversquare' 77.5 x 68.5mm bore and stroke dimensions gave a capacity of 646cc.

Shorter strokes were a key part of Hele's development work on Norton's single-cylinder racing engines at the time, and the 250cc Jubilee had set a precedent for oversquare roadsters at 60 x 44mm.

The higher crankshaft loadings that can result from shortening strokes are one reason cited by Hele for using a bottom-end that is visibly meatier than that of the 500 and 600cc Dominators. Although of similar pattern to the production twins' shaft, with forged steel halves bolted up to a central flywheel, the short-stroke crank has 13/4" mainshaft journals, giving an increase in diameter of nearly 50%.

They run in correspondingly big main bearings, with a roller-bearing on the drive side and a ballrace at the other end. The journals of the plain shell big-ends are of 13/4" size too, with the shape of the crank giving a generous overlap of metal between them and the mainshafts. An interesting feature of the prototype's conrods is that they are all-alloy, instead of having the steel big-end caps normally used in production engines. The most striking resemblance to the engine's 500 and 600 twin

contemporaries is in the rocker boxes. Like the Dominator's they make a V-shape from above, but instead of being cast integrally with the cylinder head they are formed from a detachable casting.

This, Hele explains, is not just for ease of assembly and maintenance. 'It made for a cheaper head' he says. 'Even in the Commando days, heads had to be sand-cast: they could never be die-cast because of their complexity.'

The usual inspection plate covers the inlet-side tappets, but screw-in Vincent-style hexagon caps are used above the exhaust rockers. As on the lightweight twins, a push-in system is used for mounting the exhaust pipes to the head. 'It was supposed to be cheaper that way,' is Hele's comment.

Functionally, the cylinder head follows Dominator practice closely. As Hele says, the established design was proving to be a very good one, so few revisions were needed.

A slight change was made to the inlet valve angle, steepening it a few degrees nearer vertical – a modification that some tuners were to adopt years later on Atlas and Commando engines. They did it to accommodate bigger valves, but on this engine it had more to do with valve gear geometry.

The camshaft runs across the crankcase behind the cylinders, not in front as on the Dommy. The pushrods run in tunnels inside the barrel and head on either side of the inlet tracts, sloping forwards to meet the rockers in the centre portion of the rockerbox.

Hele recalls that this BSA-like cam positioning was intended to ensure unobstructed air-cooling, avoiding the masking effect of frontal pushrod enclosures. 'Also, Triumph experience had shown that cams in the rear of the crankcase received better lubrication,' he says.

Drive to the camshaft is by chain, giving a simple and clean timing-side layout. Inboard of the mainshaft sprocket, skew gears drive an adapted Dominator oil pump, while contact-breaker points for the coil ignition are placed outboard of the camshaft chainwheel. The lower run of the chain has a slipper tensioner and a timed crankcase breather is pegged to the inner face of the upper sprocket.

The long camshaft has two widely-spaced pairs of lobes. They operate the pushrods via pairs of hollow tappets rubbing against each other. Dominator style. Tony Curzon has a camshaft specially made for use in testing and development, with provision for moving the lobes relative to each other.

On the drive side, the layout that because standard on large capacity unit twins is employed. The alternator fixes outboard of the primary drive, which uses a duplex chain and an adjustable tensioner. The clutch is almost identical to the familiar AMC-Norton type, but with duplex sprocket teeth.

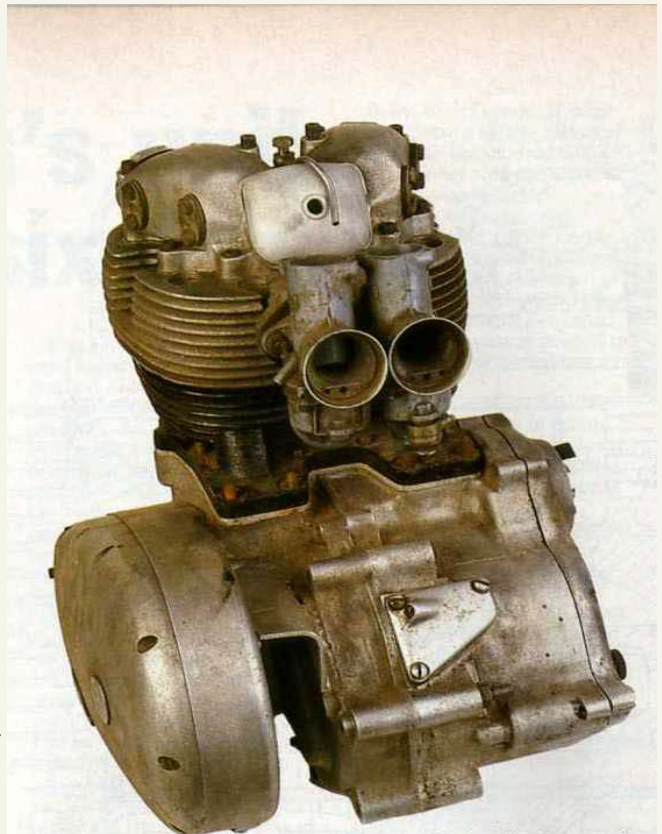


Plate on rear of integral gearbox carries clutch cable. Concentric carburettors were not original fittings

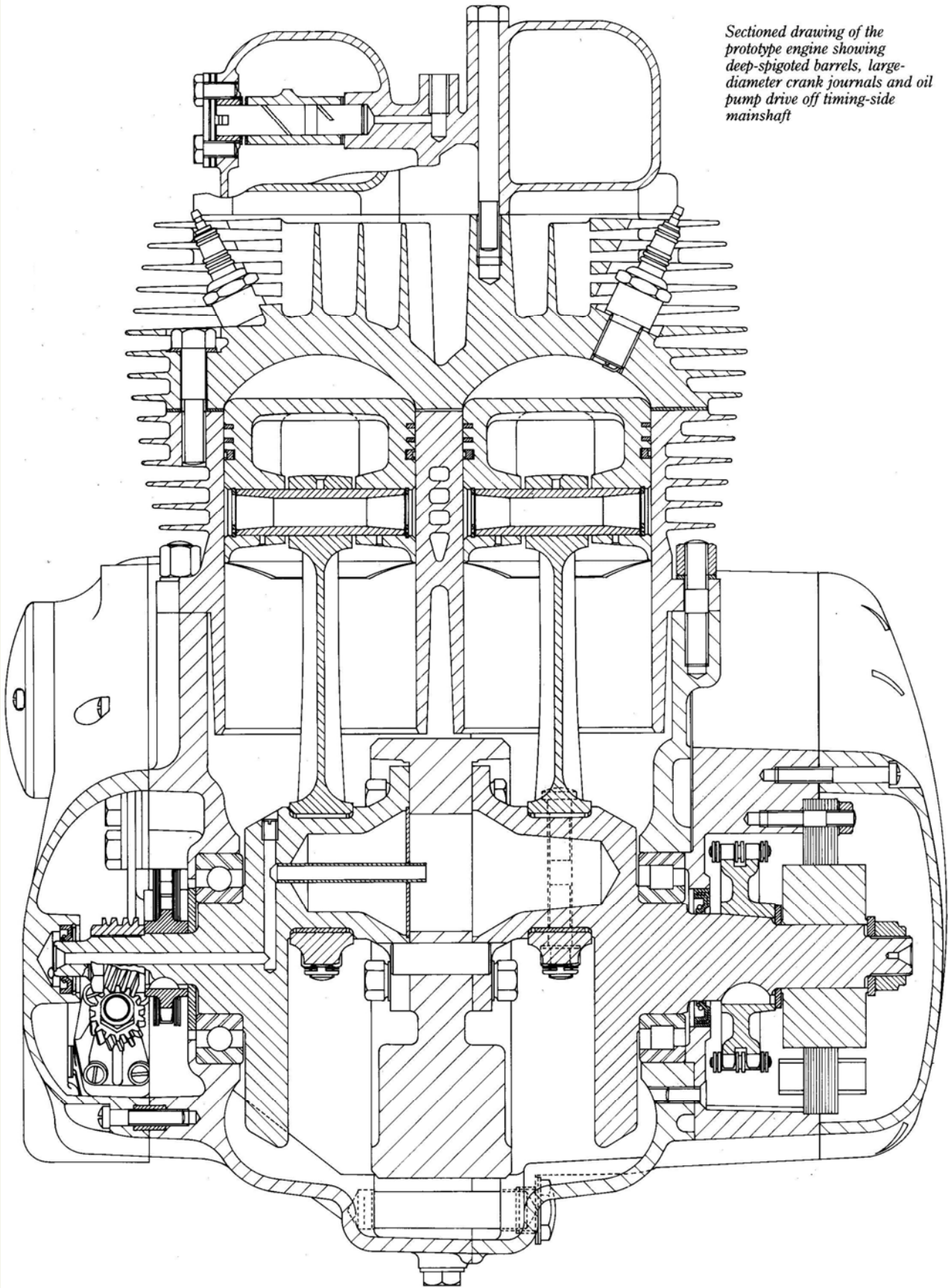


Left: crankshaft has hefty journals, conrods are all-alloy

Below: crankcase/gearbox castings: single camshaft's bushes are in upper portion



Sectioned drawing of the prototype engine showing deep-spigoted barrels, large-diameter crank journals and oil pump drive off timing-side mainshaft



Other transmission components appear to be standard AMC four-speed items. The main-shaft lies about 2in higher than the crank's central axis, with the lay-shaft set below and slightly behind it. The clutch operating mechanism is arranged so that the cable emerges from the back of the gearbox. Hele says Norton's design team felt this to be a neater scheme than the box-top cable outlet on the normal heavyweight AMC-made box.

The main castings are all embossed with the letters PD, standing for Project Design, the department involved with prototype work. Among the few parts missing from the near-complete engine are pistons. According to drawings unearthed by Brian Jones, these should be flat-topped with three rings. Tony is hoping to find suitable replacements.

The drawings show a single Amal Monobloc carburettor, but Hele recalls that a second instrument was soon added during development.

One of the heads has been fitted with a pair of concentric on a manifold, but they are of too recent origin to have been part of the original project. One set of barrels appears to have been over-bored at some time.

At least two of the Unified engines were running around 1960; one on the test bench and another in a machine.

'We generally got about 44bhp from it on the brake,' Hele says. 'We did get up to 48bhp, but it was overheating like hell at that point.' It was found that while the cast-in pushrod tunnels allowed a healthy flow of cooling air around the exhaust side, they blocked the draught around the rearward portion of the head and barrel. Hele believes the problem was aggravated by the lack of exposed metal on the short, deeply spigoted barrels.

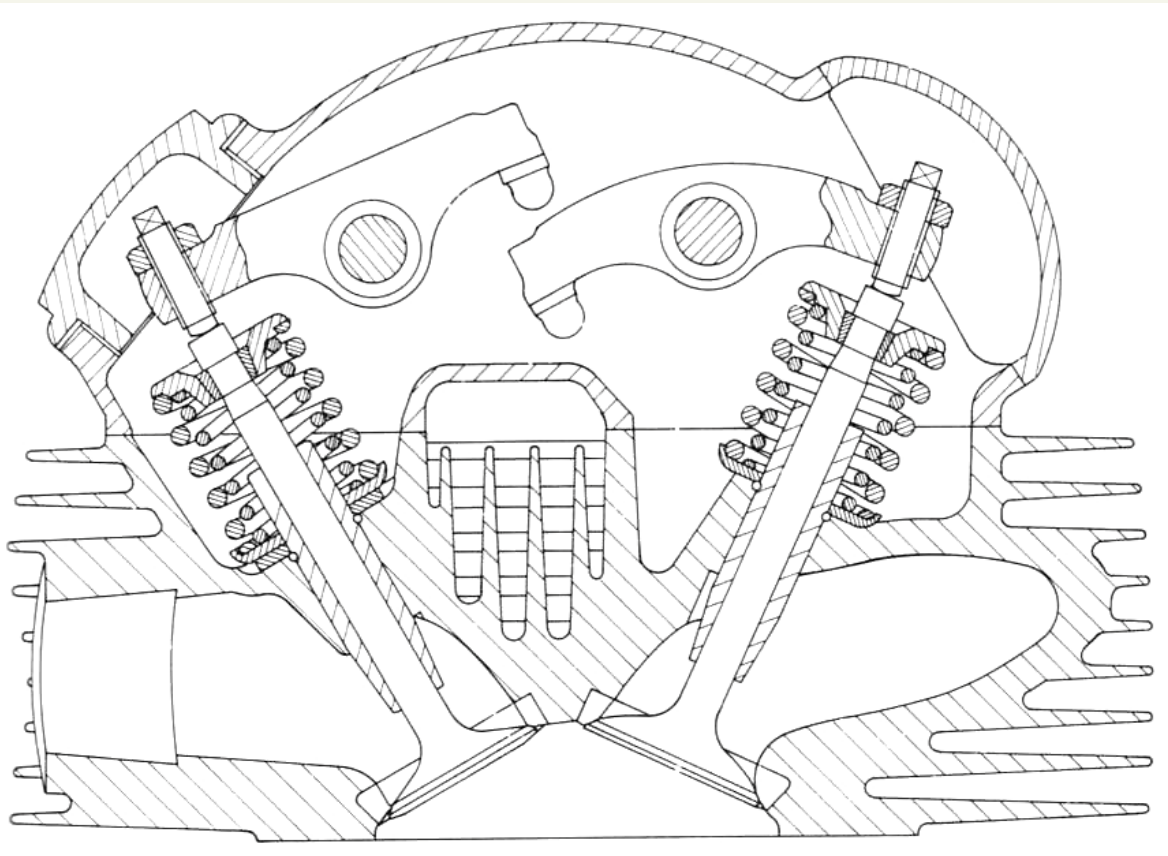
'The engine produced very good torque, and it was mechanically quiet,' Hele says. 'But power faded as it got hot.' Jones recalls that a

small design revision at the rear of the head improved air-flow, but the unit engine didn't show a significant improvement over the enlarged 650cc version of the Dominator, which was under development at the same time.

Track testing raised snags as well, according to Fred Swift. Now a development engineer at Shenstone, he rode the unit twin and concurs with Hele on performance.

'it was quite torquey, but no quicker than the Dominator. And there were seizures due to overheating,' he says. Swift recalls that the machine would reach 120mph at the MIRA test track, but handling problems would manifest themselves in a wobble at about 110mph. Amazingly, he says that the twin was not being tested in Norton's all-welded Feather-bed frame, but in a lugged-construction type like that used for the Model 77 sidecar tug.

According to Brian Jones, who was a regular visitor to the AMC plant at Woolwich at the time, the Unified



Twin was part of a plan to replace both the Dominator engine and AMC's three-bearing twin with a common engine.

Plumstead records held by the AJS and Matchless Owners Club appear to substantiate this. At a high-level AMC meeting in December 1959 the 'new integrated twin engine' was discussed.

Three sets of drawings were ordered from Bracebridge Street and the plan was to build six prototypes, with three allocated to Plumstead. Also, drawings for a new frame supplied by the Woolwich Project Department were discussed, and it was agreed to build and test a prototype.

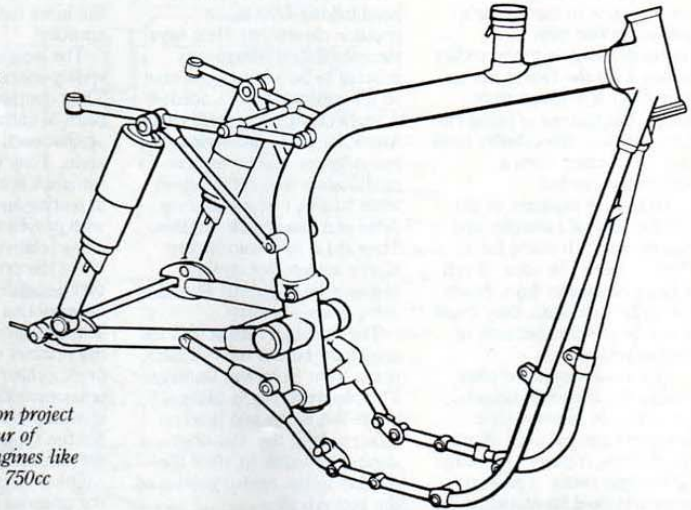
Known at Plumstead as the Pluto frame, the new chassis pre-dated BSA and Triumph by ten years in having a large-diameter tubular spine doubling up as the oil reservoir. At least one must have been built, as an example fitted with a single-cylinder G80CS AMC engine has survived in Australia.

However, in the early 1960s, AMC was plunging into a deep financial crisis which put several planned projects in jeopardy. Norton production was moved to Plumstead in early 1963, with the Dominator-based engine stretched to 750cc and used in the AJS and Matchless range too. Any thoughts of linking Bracebridge Street's 650cc unit engine to a new Plumstead frame evaporated. In mid-1961, AMC's management had decided to defer the Unified Twin project to 1964, but it was never revived.

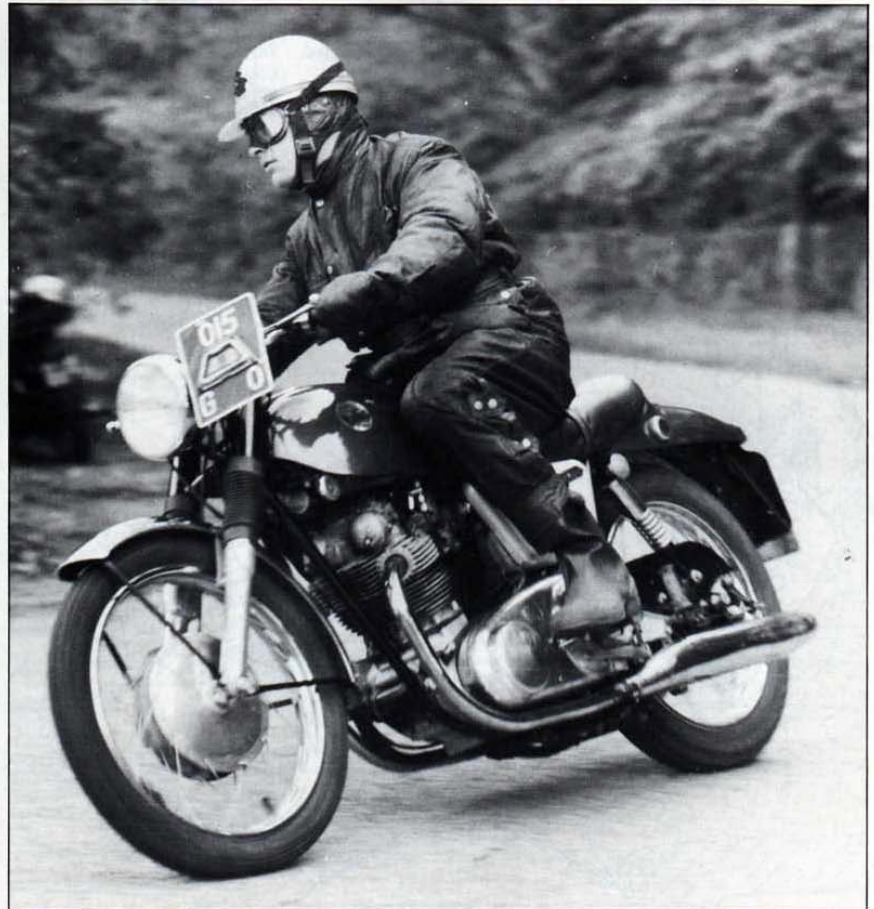
Jones believes that the Unified engine could have benefitted from more development and testing. 'The project just ran out of time when Bracebridge Street closed,' he says.

One unit – apparently the main lump that Tony has today – did enjoy a brief active life in the mid-sixties. After the Bracebridge Street clearout, the project's remains were acquired by

Right: AMC's Pluto frame of 1960. It could have housed Norton's unit twin



The unit-construction project was shelved in favour of Dominator-based engines like the one in this 1968 750cc Commando



Birmingham dealer and sidecar racer Fred Hanks. His son Roy used the short-stroke Norton engine in a motocross outfit during the 1965 season.

'When it was going well it was quick and it revved quite nicely,' the younger Hanks remembers. 'The only trouble was with the Energy Transfer ignition system that was fitted: halfway through a race it would develop a misfire.'

This, and the lack of spare parts available, led to the twin being put aside once again. The batch of engine parts is thought to have changed hands

several times in the years since.

The team that designed the Unified Twin didn't stay with the foundering AMC group. Hopwood moved to the BSA/Triumph organisation in May 1961, to be followed by hele-who became development chief at Meriden – and Jones. They were able to help their new employer sort out two important new BSA and Triumph models: both 650cc unit-construction twins, of course.

A Wanderers Report

The Cotswold Section Felix Burke Weekend 2011

I'm not the furthest travelled or most adventurous member, there are many who do much more and go a lot further, but I do like to get into some other areas and I offered to write reports that I hope may be of interest to fellow members that haven't yet tried some of these events. This first report covers the Cotswold Section Felix Burke Weekend, held on the 2nd and 3rd of April.



The 2011 Souvenir Badge

I like this event a lot: the format is unusual, it's a great start to the riding season and in April 1979 it was my first VMCC run, on the BSA Golden Flash that I'd bought the previous December. I've done the event most years since then, just missing a few when the children were small (one born in April and the other in March – not good planning!), and I still have the same bike.

There is a Social Run with route card on the Saturday, nothing unusual there, but the competitive event on the Sunday is a Navigational Scatter Rally. About a week before the event entrants are sent details and map references of sixteen check points across the Cotswolds. A chart is provided showing the distances between every check point and every other one, a bit like those you find in map books so you can work out how far it is from Aberdeen to Portsmouth. You are allowed to visit up to 12 of the 16 check points, and travel no more than a theoretical 60 miles as measured by the chart. Marks are gained for each check visited and each mile up to 60, with penalties for exceeding either 12 checks or 60 miles. You can sign on and start at any check point you like, but everyone has to finish and sign off at the same one, based at the Chosen Hills Former Pupils Rugby Club, between Cheltenham and Gloucester. These days the event attracts nearly a hundred entries (it used to be 120+), but with them starting all over the place you only see the scale of it at the finish. You do however pass people going in various directions all day, and there will usually be other riders coming and going from check points while you are there.

If that were all there was to it there would be a tie as most riders are able to work out a route to visit 12 checks in exactly 60 miles, so there is a special test at each check point where up to 3 marks can be gained. Some checks are at a green lane and you have a choice between riding the lane (or ford) for full marks, or trying to answer the questions, produce an item of kit that a well prepared rider would carry (tyre levers, pump, puncture kit, spare plug etc). There are separate, less motorcycle specialist, questions for passengers, who compete for their own Award. Finally, machines may qualify for bonus marks on the grounds of having road tyres fitted, small capacity, belt drive and so on. Most winners have a grey beard, as VMCC quiz winners tend to do, and a machine that qualifies for lots of bonus marks. But that's not the point; it's a great day out.

Cup hunters generally plan a route to visit all the green lanes (seven this year) and the Ford at Kineton, so that's potentially 8 lots of 3 marks. There is no test at the finish, so you can get away with only risking 3 sets of questions, as I did this year, for all the good it did me. More on that later.

The 16 check points are all open from 10 am until 2pm, with the finish open for another hour until 3pm. So the organisers have to provide 16 sets of marshals, each in their right place, at the right time, with signing on forms, paperwork, questions and so on. A tremendous effort.

Saturday

This year the Social Run started at 10.30am from the Haw Bridge Inn at Tirley on the River Severn about 8 miles south of Tewkesbury. On Saturday night I was to stay with relatives in Evesham so I put the Rodark panniers on the Flash (one for personal luggage, the other stuffed with all the spares and kit I don't usually carry, just in case I was asked on Sunday). It was a lovely morning as I rode down to Tirley in time for a coffee and chat with other riders. Not everyone does both days and there were about 30 of us.



The Social Run Start at Tirley

On signing on we were asked whether we wanted to have the lunch that had been arranged at the pub we were to stop at. The landlord had offered to provide bread, cheese, cooked meats and pickles at £3.50 a head. Sounded good to me.

Most years the Saturday social run goes into the Cotswolds, but this year was one of the less frequent ones when we ventured off towards Herefordshire. I'm a bit less familiar with this area, and I always enjoy going in that direction. I find it difficult knowing exactly where I've been on a social run through an area I don't know well, but I should say we ended up in the triangle between Hereford, Ledbury and Ross-on-Wye. There was a coffee stop at a farm shop after 15 miles where we all crowded in to a rather congested little café with a wood burner blasting away, somewhat over cooking those who sat too close to it.

The lunch stop was at the Butchers Arms at Woolhope in Herefordshire. On entering the bar it was clear that this was something of a foodies pub, and from glancing at the menu I didn't think we'd be getting much for £3.50. Internet research after I got home revealed that the pub has a Bib Gourmand in the 2010 Michelin Guide awarded for 'good food at moderate prices' and in the Michelin Pub Guide 2011, the Butchers is an 'Inspector's Favourite'. Oh dear. The barman was a bit overwhelmed by our arrival, together with several more usual customers, but eventually a pint was secured and we went to sit outside at the back in the sun at some picnic tables to see what would happen next. And what happened next was a fabulous lunch. There was beautiful fresh bread, several types of cheese, some unusual, some goats; three different kinds of fancy cooked meats, beautiful pickles, little gherkins (or green caterpillars as they were uncouthly christened). A right bargain secured by the genius organiser. It turned out that the proprietor was very interested in our bikes, which may explain his generosity. After lunch the run continued with no more stops back to Tirley where I signed off and rode to Evesham, 130 miles in the day.

Sunday

In 2008 we had 2 inches of snow on the Sunday morning but this year day two presents another sunny morning, what's happened to April this year? Don't get me wrong though, I'm not moaning, it's a fabulous morning as I ride down to Winchcombe to sign on at my first check point. This one has questions, so fingers crossed.

The fingers crossed thing didn't work. The marshal asked me these three questions for a mark each: What's the name of the man who invented the crankcase scavenge two stroke engine; did he do so in 1891, 1895 or 1898? And in which West Country city did he do it? So, how would you have got on with those? Me neither, so that's 3 points dropped. My son reckons VMCC quiz winners always have a grey beard, must see if I can grow one for next year.

There were some nice people signing on at Winchcombe, including a couple in their 20's on an olive green machine that I guessed to be a Ural. Close, it was a Dneiper (east European BMW copy a bit like a Ural), but perhaps uniquely it had been fitted with a genuine BMW engine at some stage of its life.



Dave Pritchard riding his wife Christine's Velocette GTP through the ford at Kinton. He later suffered 'Breakdown of the Day' when he bounced the fork spring out of it when being over enthusiastic on a green lane.

Onwards from Winchcombe up onto the Cotswolds and a green lane at Temple Guiting, ford at Kinton (shallow this year) and two more green lanes at Condicote and Salperton before arriving at my sixth check point situated at the Denfurlong Farm Shop at Chedworth. I managed to answer the questions there, so of course have forgotten what they were. Not a bad first half though and I was ahead of schedule so it seemed only reasonable to go into the farm shop for a coffee and toasted teacake, the latter having been highly recommended by the marshal.



The Flash having a rest at Denfurlong Farm Shop

Once refreshed I was ready for some more, and onwards to green lanes at Bagendon and Sapperton, this being the southerly point of the day, between Cirencester and Stroud. You might have heard of the Sapperton tunnel that's part of the canal that linked the Severn and Thames. Enthusiasts are trying to reopen the Stroudwater canal up the valley from Stroud to the tunnel but it's a big job that has been going on for years and I doubt there's an end in sight as the route along the valley through Chalford has had all sorts of building and disruption.

At one time I lived at Frampton Mansell close by the canal, so for old times sake I rode that way and up through Oakridge Lynch and Bisley to my next check point at the Barrow Wake viewpoint near Birdlip. That was yet another green lane, followed by another one at Sparrowthorn. Just one more check point now, at Seven Springs where I managed to answer the questions, and a ride in to sign off at the Rugby Club. Apart from the 3 dropped points at Winchcombe I had scored full marks everywhere else and covered the maximum 12 checks and 60 miles. Not a winning score, but it had been a terrific ride.

On parking at the Rugby Club I was greeted by North Birmingham member Ian Harris, whose BSA C11 had suffered another bout of lost sparks, leading to him having to abandon his ride after only a few checks. Soon after I arrived, another of our members, Paul Harris, arrived on his BSA B32. Paul had ridden down from Cod-sall that morning, and had completed the trial without dropping a single mark. Mind you, he didn't go to Winchcombe and he does have a grey beard...

Over lunch Ian was moaning about how much time he had spent planning a perfect 12 stop 60 mile route, only to break down. Paul hadn't had time to plan a route so Ian had let him copy his, so all the effort wasn't wasted though I'm not sure Ian saw the funny side.

I mentioned the lunch, which is another feature of this event. It's included in the £14 entry fee, is organised and put on by Cotswold section wives, and comprises a cup of soup, serve yourself ploughmans lunch table, puddings and coffee.

Once the thank you speeches had been delivered, we went outside and I noticed a BSA B34, the 500cc version of Paul's bike, in red, but with the iron cylinder barrel. Apparently the alloy head and barrel was an option, which I didn't know. I don't know when we'll next see a B32 and B34 out together on a run but it seemed unusual enough for photographs to be taken. If I'd been on my rigid B33 we'd have been getting close to a full set.



Competition BSAs, 350cc ZB32 AND 500CC zb34

Paul and I decided to ride most of the way back in convoy, crossing over the river at Tirley and the traveling up the west side of the river through Corse Lawn, Upton on Severn, Worcester, and Bewdley, where we recrossed the river and rode as far as Dudmaston, where Paul turned off for home. By the time I got back I had done 140 miles in the day, Paul considerably more.

In all it was a great weekend again and, as ever, I am grateful to the Cotswold section and it's army of organisers, marshals and lunch providers. If I'm spared I'll be back next year, why not join us?

The answers to the Winchcombe questions were Joseph Day, 1891 and Bath.

Dave Spencer

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WANTED. A 1960s-style Belstaff/Barbour suit (both jacket and trousers). Condition not important, but I need it for the end of June so that I can ride in the Trial at the British Bike Bonanza Weekend in Gloucestershire (1960s gear is a prerequisite of entry). If you have one, but are reluctant to part with it, perhaps we could arrange a loan - just for the weekend of 25th and 26th June? (I'll clean it before returning it!) Please contact me, Andy Briggs, if you can help, on 07504 000059.

PROVISIONAL FORTHCOMING
ATTRACTIONS FOR 2011

CLUB NIGHTS	
JUNE	No Meeting. Ride a Bike Night
JULY	Fish and Chip Supper Night
AUGUST	Arrive on Your Bike Night
SEPTEMBER	Birmingham's Pearl button Industry. Geo .Hook
OCTOBER	TBA
NOVEMBER	TBA
DECEMBER	No Meeting

DATE	RUN	ORGANISER	Tel No
JUNE 8th	Mid Week Run 1	Bill Danks	01562-67103
JUNE 12th	Josie's Jaunt	Josie Stanley	01543-452695
JUNE 26th	Severn Valley Run	Bill Danks	01562-67103
JULY 3rd	Trent Valley Run	Brian Empsall	01543-264968
JULY 17th	Long Mynd Run	Colin Lloyd	01384-371835
JULY 31st	Breakfast Run	Rob Pell	0121-624-7674
AUG 14th	Picnic & Concours Run	TBA	
SEPT 4th	Flight of Fantasy	Trevor Bull	01905-778917
SEPT 18th	Roger's Run	Roger Greening	01562-730464
OCTOBER 3rd	Levis Cup Road Trial	Paul Harris	01902-842732
OCTOBER 9th	Autumn Run	David Spencer	01746-762957
NOVEMBER 6th	Winter Wander	Martyn Round	0121-550-1547