

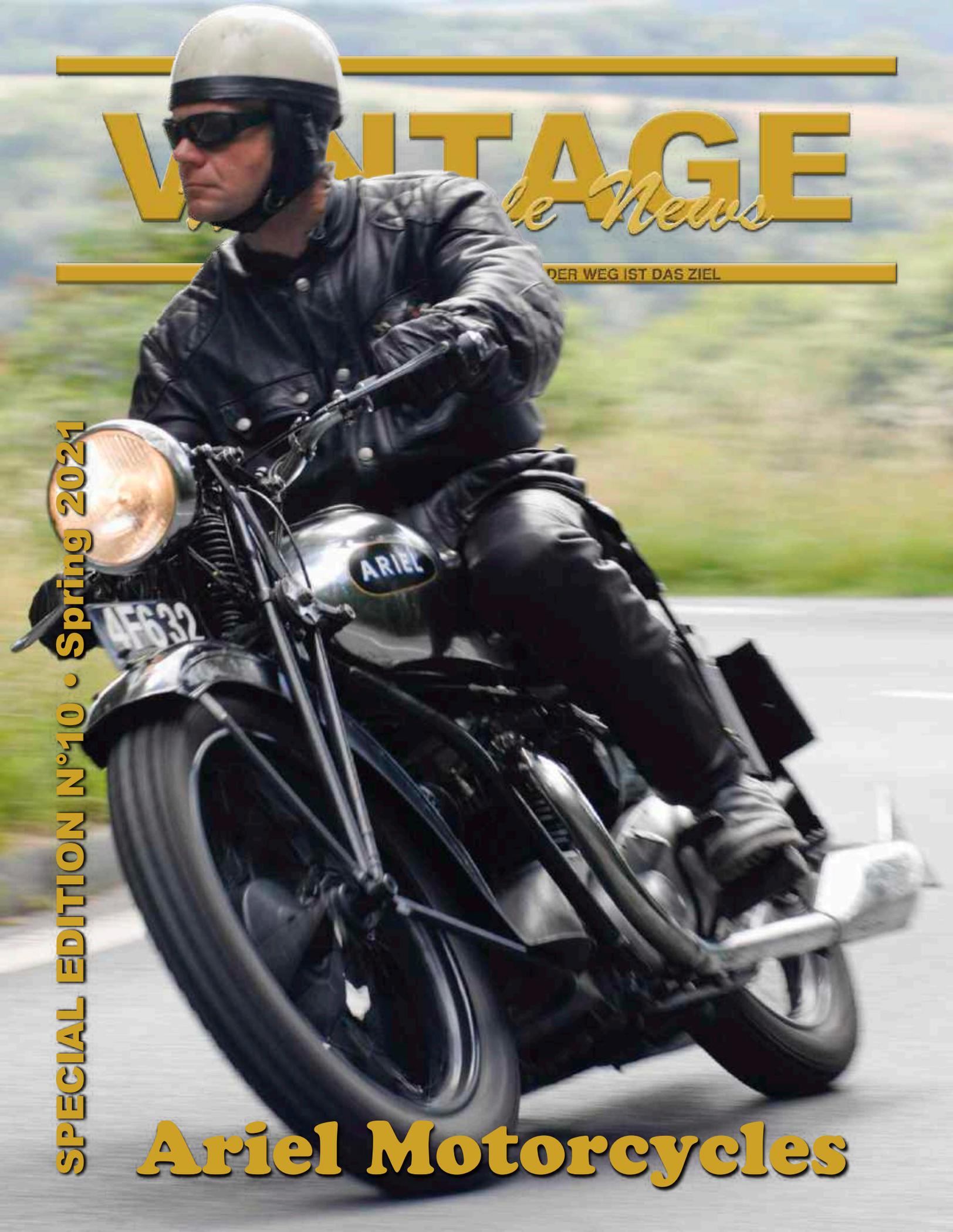
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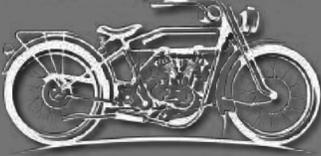
DER WEG IST DAS ZIEL

SPECIAL EDITION N°10 • Spring 2021

Ariel Motorcycles



VINTAGE *Motorcycle News*



**A motorcycle publication
for the motorcyclist enthusiast.**



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COVER PAGE

Markus Nikot's
1932 Ariel 4F6

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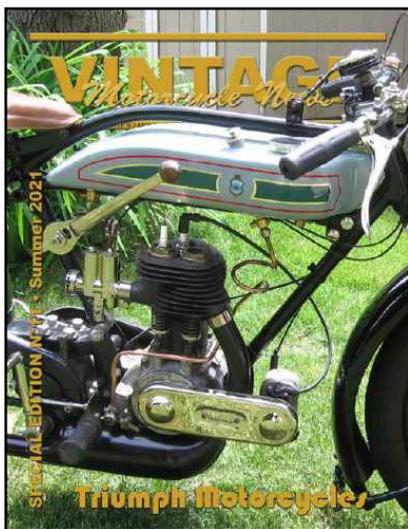
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NEXT EDITION

Triumph is one of the British icons either loved or cursed at.

This summer edition is rich in racing pictures, passion and rebuild stories.

It is still times to send us your story and your pictures...



The world is not what it used to be. Covid has changed the rules. It does not matter if it was a man made virus let loose by human mistake, the fact is we have changed. Our habits have evolved, and the snow flake generation is too busy with their selfies to even remotely understand what they have lost.

Don Doody said it right, we are probably the last generation to care for things of the past. We have collected priceless artifacts, we are reaching the end of our lives and have nobody to transfer that to. This snow flake generation only live for the present, do not care for the past and does not realise that their future will not exist without past history. They are called the Generation Z. Did they mean ZERO?!!

There is not one day without hearing about their rubbish ideas or stupidity. They cannot read an analog clock, they get overwhelmed by work. You cannot criticized them without offending them. they have no conversation or knowledge of anything and yet they pretend to reform the world.

Like the mob of the past, they will destroy progressive ideas, people or company that do not adapt to their lifestyle. We fought for our freedom and this generation has removed in just a few years our freedom of speech. They impose their bias view of the world and won't accept positive criticism.

Their ignorance combine to their arrogance make them very dangerous for our society. Our civilisation is supposed to evolved and welcome the future with open arms. Actually, this generation is regressing. They are backward, shortsighted and lacking everything the society needs to improve our quality of life.

They are the most narcissic of all. Look at all the social medias, it's all about them. They have for role model, crass people telling them, it is not necessary to work to be happy, just show off your ass and tits and become rich. The so called influencers are driving our economy by telling this herd of idiots what do do, what to buy and how to pretend they are right.



Well, it is out of my chest now and I can resume my work and keep making these newsletters. I feel a lot better, thank you for coping with my unwelcomed criticism of this generation of no good for nothing.

Back to our main subject, we have here one of the nicest edition on the Ariel motorbike. With plenty of archive files, advertisings and road tests from the past.

Till next time... Ed.

The short story of Ariel Motorcycles *source: www.classic-british-motorcycles.com*

OVERVIEW

Ariel Motorcycles have acquired an image & a level of respect that is perhaps greater than the volume of motorcycles it sold would dictate.

The legendary Ariel Square Four, designed by Edward Turner (who would go on to create the seminal 1937 Triumph Speed Twin), has gone a long way to establish the marque in the eyes of collectors & enthusiasts of Classic British Motorcycles.

But Square Four was only part of the Ariel story. Great single cylinder bikes like the Ariel Red Hunter sold well enough & fared well in off-road competition.

Ariel also built its own 500cc vertical twin, designed by Val Page, the Model KH. The later 650cc FH Huntmaster twin was actually powered by a disguised BSA A10 engine. The Ariel Leader & Ariel Arrow were 250cc two-stroke twins, so Ariel's product line was quite diverse.

Always robust & considered reliable for the day, were well respected machines in their day, as they are even more so today.

THE EARLY DAYS

Ariel Motorcycles started out as the Ariel Cycle Co. making bicycles in Birmingham, England in 1897, and was owned by Dunlop Tire Co.

They built their first powered vehicle, a tricycle in 1898.

Interestingly, sadly perhaps, the last vehicle ever built with the proud Ariel name on it was also a trike, the horrid 1970 BSA-spawned project that failed miserably. But that's another story.

WARTIME PRODUCTION

Prior to World War II, Ariel Motorcycles built a line of side valve & OHV (Overhead Valve) singles & of course the seminal Ariel Square Four.

The onset of war diverted them to war production & it was during this period, in 1944, that Ariel Motorcycles was acquired by the BSA Group, at the time a mega-corporation with vast holdings & resources.

When the smoke cleared from the war & Ariel's workers realized they had a new boss, they promptly went on strike, fearing that BSA would close the Selly Oak factory where Ariels had always been built. (Another interesting *deja vu* moment: In 1974, the Triumph workers closed down the Meriden plant when they heard owner BSA was going to close them down. You'd think BSA would have learned.) The strike was settled quickly & production resumed at Selly Oak.

POST WAR

Post-war, the Ariel Motorcycle product line was quite impressive & business was good.

The Ariel Red Hunter singles were entered into off-road competitions & did quite well, establishing a new market for Ariel.

Of course the Ariel Square Four continued to sell well & became the icon of the company.

Things could have gone along pretty much as they were, but Ariel Motorcycles had a different vision for their future.

BAD MARKET RESEARCH

In mid-1950s England, vast numbers of BSA Bantams & other light two-strokes from James & Francis-Barnett (both owned by AMC) were being sold to the working-class masses as basic transportation to commute to & from work.

Ariel launched an early version of what we call today "market research" & determined that the right motorcycle to build to meet this new emerging market was a sleek 250cc two-stroke twin.

ONE REALLY BAD MOVE

They had so much faith in the concept that they intended to drop all the other 4-stroke motorcycles in their line-up, hot-selling Ariel Red Hunters & Ariel Square Fours included, so as to concentrate on this one-and-only 2-stroke Ariel Motorcycle.

Of course, it was a phenomenal flop & the final swan song for yet another great Classic British Motorcycle company. The project bombed.

The last Ariel Motorcycles were built in 1959. That is, with the exception of a few later attempts on the part of parent-company BSA to cash in on the respected Ariel name by plastering it on an otherwise lackluster product. Shame that.

FOND MEMORIES

But at least we have our memories... of these wonderful Classic British Motorcycles that have survived, once again to be cherished. And we have some gorgeous photos to slaver over.

Markus Nikof's

1932 4F6 (Cammy)

600cc, 25hp, 4 Cylinder, OHC





ARIEL

4F632

ARIEL Owners Motor Cycle Club

www.arielownersmcc.co.uk

The AOMCC was formed at a meeting called for 3pm on Saturday 24 November 1951, at the famous Ace Café on the North Circular Road in London, by a small group of enthusiasts from the London area. A well-respected motor cycle journalist of the fifties (who used the pen name Nitor) wrote of it, "*The Ariel Club is a vigorous club which truly spans the Globe.*"

This is still a good description of the AOMCC There are many events held each year and, although vastly increased in size since its formation, the AOMCC remains an informal and friendly club. Subscriptions are kept as low as possible and all club officers are unpaid volunteers.

The club can also advise members on matters concerning the running and maintenance of their machines.

Spares organisers cater for the various models and the club also manufactures some difficult to obtain parts as well as dealing with technical queries.

Our archives include the original factory delivery records, works drawings as well as indexed technical articles from over 40 years back numbers of Cheval de Fer.

We are able to supply dating certificates, from these factory records, and this Service is also available to non-members.

Included in the membership of the AOMCC are:

- A monthly magazine, sometimes in color
- Access to spare part schemes, often producing exclusive bits.
- Badges, transfers and regalia
- Technical information via a forum
- Electronic back copies of the club magazine, back to 2003
- Searchable index of articles in the club magazine
- Parts books and owners guides (not entirely complete but nearly so - and it does get added to)
- Hundreds of other articles, technical papers plus lots of other documents and manuals on or related to, ariels (i.e. around 50 lucas parts and user documents and all the chapters of the waller book)
- All the Ariel bulletins (the factory issued notes ..)
- List of all the technical drawings we have
- Machine dating service and help with registering an Ariel in the UK
- Annual, local and international rallies
- Branches throughout the UK and overseas



Bringing back to life a 1931 Ariel VF 500cc *by Ian Taylor*

In 1977, I was a long-haired 20-year-old who really couldn't tell the difference between a Triumph and a Norton. That spring would change my life forever.

My first vintage motorcycle had just been purchased and I had no idea what a 1953 Ariel VHA 500cc single was. The Ariel was located in Frankford, Ont. The seller's brother rode the Ariel up 1961 just before he died; they pushed it into a barn where it sat until that day in 77.

I now have the disease and my next Ariel came in 85 and that was a 1932 600cc OHC. During the summer of 1986, I received a call from Wes Fraser who informed me he had a lead on an Ariel in Napanee and thought I would be interested. I sure was!

I made a phone call to my good friend Dave Lacombe and soon we were off in search of this rumoured Ariel.

What I laid my eyes upon was a rusty wreck that looked like it had caught fire at some time in its life.

I looked closer, the bars are original, the T bar for steering adjustment was there as the hand shift & linkage, saddle, oil tank but missing gas tank, gearbox, etc.

Ok, this was a challenge indeed, I then asked how much? \$250 he replied, deep breath, I then offered \$150. Long pause..Ok. I'll take it he replied.

Once home the laughter began. Yes, laughter and I bet some of you have had the same reaction to your acquisitions at some point over the years.

All I knew at this stage I bought an Ariel but what model & year? Pre-internet days meant writing letters to the Ariel club, what I had was a 1931 VF 500 single

The Ariel was slowly stripped down & parts inspected. The forks were straight, the rims & spokes were tossed to the garbage bin. Surprisingly the front & rear hubs were in good shape as were the wheel bearings.

The engine cases were split, the big end bearing was worn out, no piston, the valves & guides were serviced but at some point, they would need to be replaced.

The cases were cleaned using soap & hot water. A local bearing company supplied the bearings. They were inserted and the cases put away.

The search for parts began; Bernie from Nicholson Bros supplied the Big end bearing. Mike Duncan (Mikes Motorbikes) assembled & trued the crank. Draganfly Motorcycles supplied the NOS +30 piston. I had lucked out as they told me this was their last



The Ariel as found



Ian Taylor's
1931 Ariel VF 500cc



ARIEL

ONT 1931
4-510

NOS piston. Drags also supplied spokes and Italian rims which quickly rusted. Leitner & Bush made the new liner.

Ken Rosevear supplied a 1928/29 Burman Q gearbox and I bet Ken wished he still had it.

Vic Horley in Sweden supplied a dented but useable gas tank. Ron Brooks welded the missing front piece to the front fender, cut off by one of the previous owners.

Footpegs came from the UK.

A later magneto was bought at the Annual CVMG National Rally in Paris, the clutch is the taper type and I just happened to have one up in the rafters. What luck!

Then around 1992, the bike sat as I was unable to continue due parts being unavailable.

Fast forward to about 2008, the gas tank was sent to Draganfly for restoration. 5 years later Draganfly notifies me it's finished. This was the motivation I needed to have another look at the Ariel.

2015

Gregg Kricorissian from Ottawa overhauled the Magneto & Generator.

The DVR-2 electronic regulator came from the UK; it's small and hides out of sight.

Rick Wood machined the layshaft to accept the new speedo drive gear.

In the fall I finally had the Ariel Insured & Licensed, the ol girl was ready for the road.

Some teething issues were noted and with winter coming this would be a good time to sort them.

2016

During the winter I decided to have the valves & guides done. I contacted Peter Kemp of the Ariel

single spares (Ariel Owners Club UK). Peter suggested I use the "G" Valves & Guides Ariel used on the sportier 1930 "G" Model as they were less prone to breaking.

I took the cylinder head to TDC Engines in Kingston for them to work their magic, it was then we decided to install new valve seats as well. My next purchase was a Sportier cam (664 cam as used on the "G") to give a little more performance over the original soft "F" Cam.

On a Hot Wednesday evening, I rode the 31 over to the Madoc Cruise night and to meet fellow CVMG member Al Cooney at Hwy 62.

Sandra followed me down Quin-Mo-Lac road in the truck. 3 miles on the clock the Ariel tightened up, pull in clutch, coast, let out clutch and boom she fires, this got me a fair distance until she refused to go no more.

As Al waited, I let the 31 cool down for 10 minutes, try again and away we went to Madoc without another issue.

Once home I pulled the top end off to inspect why it tightened up. It turns out my request for piston clearance of .005 was not used but .0035 instead.

These old aluminium alloy pistons need a lot of clearance due to their expansion rate.

Gary McCaw came to the rescue and cleaned up my cylinder along with the required .005 clearance.

New rings from Cox & Turner in the UK were a perfect fit for this 2 compression ring piston. Ariel didn't use an oil control ring until 49 when they switched to a larger capacity oil pump

Wet sumping was another issue I tried to solve.

For no reason, it would just stop returning oil to the tank. A quick clean of the pump always solved the problem but why? I ordered new springs & balls from Draganfly thinking this would solve the issue.

Even with new balls & springs, it would just stop returning oil anytime, anywhere. An Ariel Club member noted he had the same issue and he ended up replacing the pump, no more issues. A better pump has now been installed.

I switched to LED bulbs on both of my Ariel's, what a difference that made. I can now ride with the lights on with no charging issues.

A fellow Ariel Club member pointed me to the Slovakia Ariel Klub for parts. They supplied the correct 30/31 "Q" gearbox and a new clutch sprocket. The Ariel UK club gearbox spares supplied new clutch cushion rubbers and rollers.

The clutch basket had deep grooves where the clutch plate tangs rode in. I welded the grooves up and filed them all down to size. Clutch Plates for the early Burman clutch came from Darganfly.

One problem "Q" boxes have is worn drive sprocket grooves on the final drive.

There is no locking tab washer used as on later Burman boxes and this allows the nut to eventually become loose allowing the sprocket move. A gentleman in Australia machined a batch of final drive gears, sprockets, and nuts.

To help keep the engine oil clean, I added a "Unique oil filter" The filter uses a Royal Enfield oil filter which is inexpensive and readily available.

2017

During the winter I ordered a new set of "British made" chrome rims & stainless spokes for both wheels.

With the rear hub sitting on the bench a close inspection showed some of the teeth were breaking off.

I ordered a later style rear sprocket from Draganfly. This isn't a bolt fit on the 31 as the sprocket is cast into the rear hub.

I drove to Stirling to see Kevin at Coulter Machine to see what he thought. Easy he said, a week later it was finished.

This year as a challenge, I decided I would enter the Ganaraska 250; a Motogiro event on the 31.

I teamed up with Ian Cooper aboard his 29 Panther and I proudly say both bikes completed the event with no issues although the Ariel had higher than normal oil consumption.

It was then I decided to modify the piston to accept an oil control ring.

This had to be one of the best modifications I've done to the bike.

Jumping forward to 2019

I now have close to 1000 trouble free miles on the 31. Two questions

I get asked are, How hard is the 500 to start and how does it ride.

The starting procedure is typical British Single. Turn fuel on, depress float tickler until fuel squirts out or in my case I count to 4, kick over until compression is felt, pull in the exhaust lifter, ease past TDC. I then set the advance/retard lever to half, open throttle and a good healthy kick usually brings it to life.

After a brief warm-up, the advance lever is set to full advance, pull in the clutch and push the gear change lever downwards to first.

1st & 2nd gear are about right but the jump to 3rd is big. You must wind it out in 2nd to about 35mph then shift, the revs drop to a Thump...Thump and engine speed slowly builds. Once it reaches 40 mph it starts to come into its own as they say. 45-47 mph is where it likes to be but will cruise at 50 mph no problem.

Despite what many think a vintage machine is like, the Ariel is surprisingly very smooth.

It handles potholes reasonably well, better than one would think.

Brakes are 1930's so one must be prepared for the unexpected and to

keep one's distance behind cars. The engine braking does most of the slowing down when approaching stop signs.

You must remember when these bikes were made, roads in Ontario were dirt roads and to clip along at 40 mph was a good speed, to hit 50 mph was WOW!

I'm blessed with some great back roads here, both hard packed and paved. I can ride the Ariel to Belleville all on back roads and then take a different route home.

I obtained a dating certificate from the Ariel Owners Club; it appears only 12 of these 1931 Ariel VF's were imported to Ontario. Ariel shipped my VF on June 5th, 1931 to Overseas Motors Ltd in Toronto. Both frame & engine numbers are as they left the factory.

1931 was the last year for this model. For 1931, Ariel moved the generator from the front of the motor to the rear of the cylinder re-Magdyno set up and added a chrome tank, for the most part, it is still a "Black Ariel" (1926-30)

With only 12 imported I suspect mine could be the only survivor here in Ontario.



Ariel Huntmaster

Artwork by

NIGEL LOMAS

Artwork, Prints, T Shirts, Mugs, Caps and more
can be found at:

<https://www.redbubble.com/people/Niglom?asc=u>







1958 Ariel Cyclone Twin 650. Owner: Dan Dutra, Redwood City, California. Photos by the author.

Retrospective: 1958-1960 Ariel 650 Cyclone

By Clement Salvadori - Source: *RiderMagazine.com*

In the 1950s, the Brits realized that giving their products exciting names could enhance sales. And stormy allusions were popular, perhaps starting with the AJS 650 Hurricane in 1957, quickly followed by the Ariel 650 Cyclone in 1958, and then the Matchless 500 Typhoon in 1959.

Here we are interested in that Ariel Cyclone, an upgraded version of the Huntmaster Twin, intended for the power mad American

buyer. Our economy was doing well, motorcycles were considered expensive toys and bigger was always better.

BSA had bought Ariel back in 1944, and initially the decision was to keep the marques very separate.

As the '50s progressed, BSA was looking to expand Ariel influence in the U.S., but was also beginning to integrate the two brands.

The Ariel company had a good reputation, especially among the scrambler types who liked the big singles, but the demand for the Turner Twin—as the parallel twin designed by Edward Turner

1958 Ariel Cyclone Twin 650 dash.





1958 Ariel Cyclone Twin 650.

was often referred to—was very strong.

In 1948, Ariel had put its own 500cc Fieldmaster twin on the market, but did not get around to enlarging it. Then in 1953, bright lights at BSA decided to make mild changes to its Golden Flash 650 and rebadge it as a 1954 Ariel Huntmaster.

The duplex frame was new, with twin downtubes at the front, using Ariel's own telescopic fork. At the back was a swingarm sporting a pair of Armstrong shocks, with hydraulically damped spring units but no preload adjustment.

Exceptionally neat was a new centerstand with oval feet that was easy to use.

The Huntmaster was a pleasantly staid twin, with traditional Burgundy paint popular with the marque, but the riders Ariel was looking for were the hot-rodders, the go-fasters, the tear-'em-up types.

OK, the Cyclone got new, hotter camshafts, a new crankshaft with bigger bearings (common to both BSA and Ariel) and the compression ratio was upped a point to 8.5:1. Resulting in, as a major two-page Cyclone ad read, *"Ariel Cyclone 40 Cubic Inch Twin with 40 Full Horsepower."*

The standard long-stroke engine had an 84mm stroke and 70mm bore, for a total of 646cc. Dry sump lubrication, with two pumps making sure the circulation was happy, and 4.8 pints of oil in the reservoir.

One worrisome point on any much-abused engine was the main bearing on the timing side, which could wear excessively.

The 4.5 gallons of gasoline in the tank went through an Amal 376 Monobloc carb, with this particular model having the Amal reservoir extension added on.

The cylinder head was made of cast iron, with two valves per piston.

Ignition was via Lucas magneto, standard for the time, while a dynamo sitting at the front of the engine provided the electricity for lights, horn and battery.

A single-row primary chain ran back to a dry clutch, and then power went through a 4-speed Burman box.

Wheels at both ends were 19-inchers, using a 3.25 tire at the front, 3.50 at the back. Single-leading-shoe 7-inch drum brakes were at both ends, with the rear drum actuated by a cable rather than the conventional rod. Wheelbase ran 56 inches, and curb weight was about 430 pounds.

The look was mildly different, with the Cyclone wearing Cherokee Red paint instead of the Burgundy. And lots of chrome, from the narrow sporty fenders to the trim on the tank, along with lots of polished alloy.

The BSA timing case got a new design with the words *"Six TWIN"*

Fifty” written on the side...just in case anyone missed the dual exhausts.

Like its Huntmaster forebearer, the primary cover had a removable chromed cover over just the clutch, so adjustments could be made easily.

However, the cowled headlight, while attractive to some, did not indicate riotous performance.

One interesting option was the fully enclosed chain drive, popular in Europe where motorcycles were considered mostly as transportation, but lacking the sporty look so desired by us Yanks. No record appears of how many Cyclones got the option; the factory built upwards of 300 Cyclones, all of which came to the States.

Sporty Americans did complain about the Cyclone’s suspension being too soft for hard work, as the previous Huntmaster was sold as a touring unit. However, the innovative U.S. aftermarket could do wonders in stiffening up the



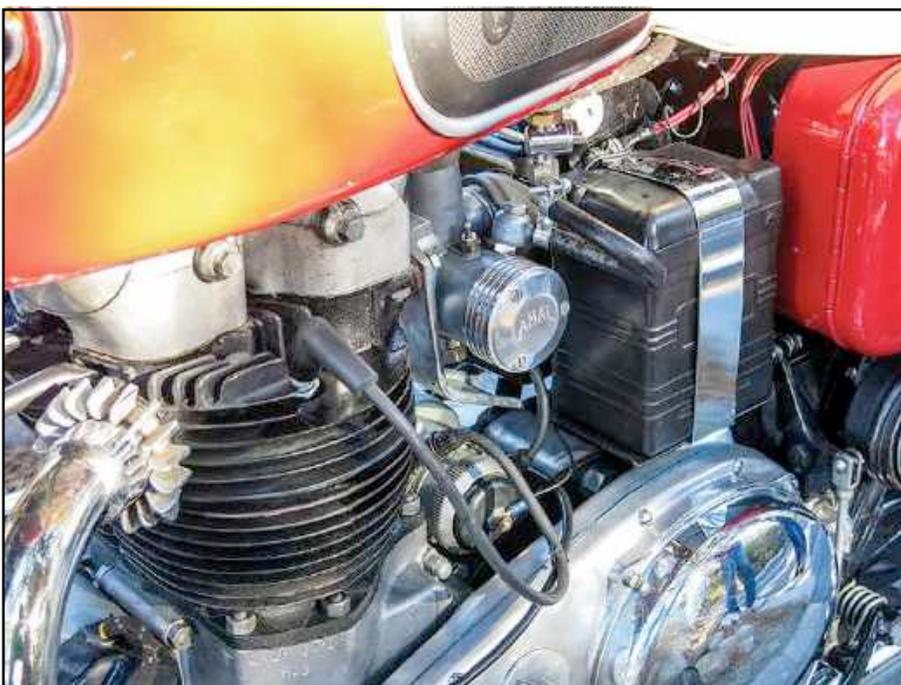
fork and shocks, whether for sporty road riding or competition.

This was an American-specific model, not sold in Britain, with BSA hoping to bring in American dollars, much as the Bonneville would a year later. In 1958 Cal Brown, a well-known racer sponsored by Ariel’s West Coast distributor, rode his Cyclone to win the Greenhorn Enduro—he had won the Greenhorn in ’56 on an Ariel 500 single. The ads

featuring Brown on the winning bike, without lights and all unnecessary road weight removed, did not look much like the stock street bike with white saddle and cattle-horn bars, but win on Sunday, sell on Monday.

In 1959, the Ariel factory began concentrating on an all-new two-stroke 250 twin, in effect foreseeing the Japanese invasion. Construction of all of the four-strokes ended, except for the Cyclone; according to noted motorcycle historian Roy Bacon the last of those were built in early 1960.

And the stormy names? BSA apparently liked the Cyclone name so much that after dropping the Ariel model it added the name to its 500cc twin in 1962, with a Lightning and a Thunderbolt appearing in the 650 range in 1964. Bridgestone briefly claimed the Hurricane name in 1967 for a 175cc scrambler, the name resurrected again in 1973 with Craig Vetter’s take on the BSA/Triumph triple. The only Typhoon these days is a Piaggio 125 scooter.



1958 Ariel Cyclone advertising

ARIEL

Cyclone

NEW—FAST
HIGH PERFORMANCE
SPORTS TWIN



THE HISTORY OF ARIEL

ARCHIVES
Cycle World
1970 article

TEXT AND PHOTOS BY GEOFFREY WOOD

ONE OF the most classical stories in all of motorcycling is the legend of Ariel. Even though it has not been produced since 1965, the marque is still well known throughout the world for its magnificent Square Four—a model that connoisseurs of fine motorcycles consider to be a classic of incomparable stature. The company also has an enviable record in the competition sphere; the illustrious Ariel Singles scored many trials wins in the pre- and post-World War II days.

The story of this colorful British marque began in 1898 when a 2.25-hp tricycle was produced. The head of the infant company was a Scot named Charles Sangster, who had been producing bicycles for quite some time.



The 1950-53 VCH model weighed 290 lb. and was a popular trials machine. The engine, which developed 25 hp at 6000 rpm, was available with either wide or close ratio gears.



Ariel designed the MK III model to be the most luxurious roadster ever produced, but the Four was dropped from production before it saw the light of day. Front fork is an Earles leading-link type.

This single-cylinder trike soon gave way to a 2.5-hp motorcycle in 1903, which had such primitive features as an automatic intake valve (it was sucked open by the downstroke of the piston), a chassis with no suspension and a single-speed belt drive.

During these early years Sangster worked hard to make his motorbike reliable. By 1905 he felt confident enough to enter his first race, the elimination race in the Isle of Man, which determined the British machines for the Gordon Bennett Race in France. The winner of this elimination event happened to be a 6-hp twin-cylinder Ariel, which averaged 42 mph. The Twin weighed only 110 lb., but it was trounced quite badly in the big Continental event.

In 1906 the company produced a new Single that had mechanically operated side valves, a battery ignition and a sprung front fork. The following year a magneto was used for ignition. These models continued until 1910.

In 1910 a new Single was produced that had side valves and a belt drive with a variable gear ratio. In 1912 the 3.5-hp thumper featured a chain drive and two-speed gearbox in the rear hub. In 1913 this was changed to a three-speed countershaft gearbox with a belt drive. This model proved to be an exceptionally sound design, and Ariel proceeded to win the team prize in both the English and Scottish Six Day Trials. The Single was followed in 1915 by a two-stroke, but at this time the factory was converted to wartime production.

After the war the range consisted of a 3.5-hp Single and a 6-hp Twin, with belt drive still being retained. The company also experimented with a spring frame, which had a triangulated fork

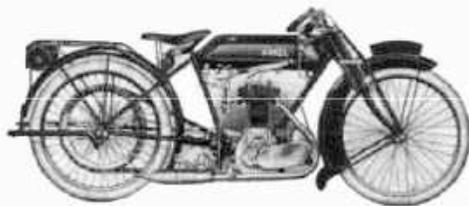
that worked on coil springs mounted just below the seat. Nothing much became of the springer, and it was soon dropped as an expensive and impractical proposition.

By 1922 Ariel was firmly established as one of England's leading names, and a comprehensive brochure listed no less than eight models. The first was a 500-cc Sports Single with measurements of 86.4 by 85mm. A three-speed gearbox with ratios of 14.3:1, 7.75:1 and 4.6:1 was used in conjunction with a belt drive, but a surprising innovation was a hand clutch lever. Cog swapping was done by hand, and the oil pump was also hand operated. This 3.5-hp thumper had a magneto ignition and girder front fork, with the tire size being 2.40-26. The fuel tank held 2 1/8 gal. and the oil tank held 2.5 pt. The wheelbase was a long 56 in., and the weight was only 235 lb.

The next model had the same engine but with a foot clutch, and the gear ratios were 16.5:1, 8.75:1 and 5.3:1. This Touring model weighed 275 lb. and had 4.25 in. of ground clearance.

The third and fourth models listed were 6- to 7-hp 796-cc V-Twins, one with a sidecar and one solo. The Twin weighed 300 lb., and had gear ratios of 14.3:1, 7.75:1 and 4.6:1. One other Twin was listed in the brochure which had a 994-cc MAG (Motosacoche of Geneva) engine with a bore and stroke of 82 by 94mm. This engine was of the inlet-over-exhaust valve design. The model weighed 334 lb.

Ariel also produced a huge 665-cc Single then that had a bore and stroke



The 1922 500-cc Ariel Single featured side valves, a belt drive, handshifted three-speed gearbox and caliper brakes.

of 92 by 100mm. This 4.5-hp beast was produced in both solo and sidecar trim, and it featured a chain drive. Two other sidecar models were produced at that time. It is interesting to note that several of these 1922 Ariels had internal expanding brakes in place of the common caliper brakes on the wheel rims.

During the middle 1920s the British industry was gradually changing from side-valve engines to the overhead valve

design. Ariel introduced their first overhead valve Singles in 1926, and these models proved to be so sound that they soon became one of the largest manufacturers in the world. The 500-cc ohv models had a mechanical oil pump (double plunger). In 1927 the bike became more modern looking when the "saddle" fuel tank was adopted that went over, instead of between, the top frame tubes.

By 1928 Ariel was recognized as a leader of the industry. Their range of models included both side-valve and ohv



The 1927 500-cc Twin had a compact engine with an alloy head and the swinging arm frame. The Twin was stylish, but it never sold well.

machines. The side-valvers were 557-cc Singles with a bore and stroke of 86.4 by 95mm and had an alloy piston and Lucas magneto ignition. Output was 5.5 hp, and a three-speed Sturmey-Archer gearbox had ratios of 14.0:1, 7.6:1 and 4.75:1. The frame was a strong single-loop cradle type, and braking was accomplished by a 7-in. internal expanding unit. Gear shifting was still done by hand, while the weight had risen to 280 lb. The tire size was 3.00-26 on this model, and a 2-gal. fuel tank was fitted. A deluxe version was also offered that had wider fenders and a Burman three-speed gearbox.

The 500-cc ohv Single had measurements of 81.8 by 95mm and weighed 290 lb. The pushrod model had most cycle parts in common with the side-valve model, but it produced 5.0 hp and had gear ratios of 13.0:1, 7.6:1 and 4.75:1. A super sports version was also available with a two port head and polished ports. An optional close-ratio gearbox was produced, making the sports model a popular mount with the more sporting minded riders. Wheelbase on all of these Ariels was 55 in. The appearance was beginning to take on a more modern look.

The actual power output of these early Ariels is not known since the company rated one horsepower for each 100cc in their brochure. The SV models would do 75 to 80 mph and ohv models

about 80 to 85 mph—respectable speeds for those days. These Ariel Singles were also used in the big trials events of the day, their reliability and performance enabling them to win a goodly share of the awards. It might be mentioned that the trials of that era were more of an endurance type than the observed type, with stamina being more important than performance.

During the late 1920s England assumed undisputed worldwide leadership in motorcycle design and sales, and a great rivalry existed between the companies to produce a superior machine. Motorcycling had become very popular, with the increasing sophistication of the machines that were available, and a great demand was created for a refined machine of superior performance.

Ariel was one who had its eyes on this new market. Plans were laid to produce the most luxurious motorcycle ever offered to the public. Because it took several years to design and test the brainchild, it was not until 1931 that the model was listed in the brochure. This new Ariel was called the Square Four, and it created a sensation that has endured to this day.

The new Four had a unique design, which used two crankshafts at a right angle to the frame. These two shafts were geared together on the left side so that they counter-rotated toward each other. The advantage of this design was its superb engine balance and compactness; the smooth flow of power was a revelation to a world that knew only the throb of a Single.

The con-rods all used roller bearing big-ends, but the timing side mains were all plain bearings. Large roller bearings were used on the drive side shafts, and the alloy crankcase was naturally quite large. The cylinder and head were both of cast iron, with one exhaust port being used on each side of the head. The valves were mounted in a parallel position in the head, since a hemispherical combustion chamber would have required a complicated valve train and a large head. The valves were actuated by a single overhead camshaft, which was chain driven from the right side of the engine. A single carburetor was used, and ignition was by a magneto.

The massive engine was mounted in a wide duplex cradle frame, and a four-speed handshifted gearbox was mounted in plates behind the engine. It might be mentioned here that Burman made an optional footshift conversion kit, since those were the days when England was changing over to the footshift gearbox. The frame was still rigid, of course, and a girder front fork was used.

This first Square Four was a superbly finished mount for the aristocratic rider, with the 500-cc engine providing a smooth but rapid performance. In 1932,

(Continued on page 78)

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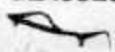
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ARIEL HISTORY

Continued from page 77

Ariel decided to increase the bore and stroke to 56 by 61mm, thus providing 600cc. In 1933 the oil tank was dropped in favor of a wet sump system. This made the Ariel run much cleaner, since the oil lines were done away with, and the Ariel Four became known as the "Rolls Royce of motorcycles."

The Square Four continued in production through 1936 in this trim, and soon it had a reputation all over Europe as the prestige machine *par excellence*. Top speed was listed as 90 mph, and acceleration was second to none. The Four never did sell in really large numbers, due to its high cost in the post-depression days of the middle 1930s. So the man who rode one was considered a man of substantial means.

Meanwhile, the company was aggressively improving its line of Singles in an attempt to compete with the many fine Singles produced at that time. In 1931 the company produced their famous 30 degree "sloper" in both side-valve and overhead valve designs. The side-valve model was 555cc, while the ohv model was available in both 250- and 500-cc sizes. Ariel even produced a special four-valve model that was tuned for high-speed performance and won many grass track and scrambles races.

The next big change came in 1934 when the slopers were phased out and a new line of vertical Singles introduced. In this era of great classical motorcycles in England, Ariel was right at the forefront with a superb range of machines. The following year Ariel expanded their range even further, listing ten magnificent models in the 1935 brochure.

One of these bikes was the old 550-cc side-valve Single that was still popular as an inexpensive and reliable sidecar model. The compression ratio was a mild 5.0:1, and either a 3- or 4-speed handshift gearbox was available. Then came the 250-cc overhead valve model with measurements of 61 by 85mm. This utility Single ran on a 6.0:1 compression ratio. The 72 by 85mm 350-cc Single and 81.8 by 95mm 500-cc thumper came next, and these sloggers all had hand gearshifts and 19 in. wheels.

The models that appealed to the sports minded riders were the 250-, 350-, and 500-cc Red Hunters, special bench tested Singles that had many exciting specifications. The idea was to produce a fast sports Single that would streak down a country lane. A wide range of options allowed an owner to purchase a Red Hunter in trials or scrambles trim.

The 250-cc model ran on a 7.0:1 compression ratio and had 3.00-20 tires, a 2.5 gal. fuel tank and sports cams. The



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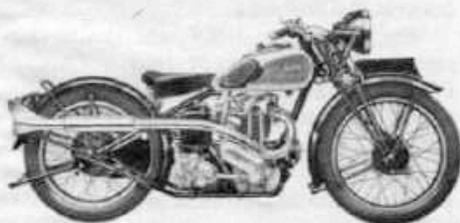


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performance was listed as 70 mph, which was remarkable for those days. The 250, like all the Red Hunters, had a black frame and a red fuel tank with gold striping plus a footshift gearbox.



Red Hunter models of 1935 were good looking sports mounts with a tuned engine. The upswept exhaust was optional. The 500-cc model would run 100 mph.

The 350-cc Red Hunter was tuned to run 80 mph on a 1.0-in. carburetor. This model also had a 2.5-gal. fuel tank and a 0.5-gal. oil tank. The big 500-cc model had a 6.5:1 compression ratio, but 7.5:1 was available for use with 50/50 petrol/benzol fuel. The carb size was 1 1/8 in., and the fuel tank size was 3.25 gal. The oil tank held 0.75 gal. The 500 was available with either a one- or two-port exhaust system, and top speed was listed as 100mph. The rear tire was a 3.25-19 block tread, front was a 3.00-20 rib tire.

All of the Red Hunters had racing cams, ground and polished ports, a polished con-rod, and a bench tested engine. The brakes were up to the performance, too, since the 7-in. binders had wide, 1.25-in. shoes, and ribs were cast on the brake drums to help dissipate heat. A sports type of quickly detachable headlight was fitted, and a buyer could order his Single in competition trim with an upswept exhaust, crankcase shield, small fuel tank, magneto, knobby tires, sports fenders, and special bars.

These Red Hunters performed magnificently in trials events, as was attested by the 1935 brochure which proudly listed wins in the Scott, Colmore, Kickham, Victory, Bemrose, Cotswold, Mitchell, Wye Valley, and Gloucester Grand National events. Ariels also won the 250- and 500-cc classes of the famous Scottish Six Days Trial, and Gold medals were won on both the "A" and "B" teams in the ISDT.

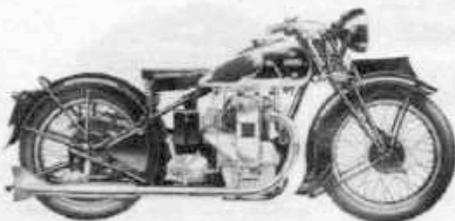
The most prestigious model in the range was, naturally enough, the luxurious Square Four. The Four had 3.25-19 tires and 3.25-gal. fuel tank. It had a classically elegant appearance with gold striping on a black finish.

The next improvements came in 1936 when the side-valve Single was increased to 600cc (86 by 104mm), and

all the models had a foot gearshift. The marque also offered the 500-cc Red Hunter in genuine competition trim. These models were soon tuned by men such as S.W.E. Hartley to clock 109 mph on alcohol fuel. Perhaps the most remarkable record was set in Australia, when Art Senior clocked a fantastic 127 mph on his Single. The Australian record was set in 1938, and it stood for many years until after the War, when a 1000-cc Vincent finally exceeded this speed. The works trials and scrambles team included such greats as Jack White, Len Heath and Jimmy Edward all of whom continued the Selly Oak tradition by winning many events.

The next change came in 1937 when the overhead cam Four was dropped in favor of a new pushrod engine. The new Four had a lower end similar to its predecessor, except that plain rod bearings were used in an effort to lower production costs and make the engine quieter. A centrally located camshaft operated the pushrods and made the external appearance much cleaner.

Perhaps the most notable item about the new Four was that a massive 1000-cc version joined the earlier 600-cc size in the stable. The brutish 1000 had measurements of 65 by 75mm, and it produced 38 hp at 5500 rpm. This



The 1935 Square Four had a 600-cc ohc engine and a handshifted gearbox. A Burman conversion was available to convert to a footshift. Top speed was 90 mph.

much pressure made the Four a genuine 100-mph model, and its acceleration was by far the fastest of any production roadster available then. The new Four also had a Burman four-speed footshift gearbox, a single-loop cradle frame and a dry sump lubrication system.

In 1939 the marque made another great step forward when they produced an optional spring frame on all but the 250-cc models. The design was rather unique in that it had swivel links connected to the plunger boxes containing coil springs. The idea was to provide axle movement in an arc, which helped maintain constant chain tension. The suspension gave about three inches of travel, making the Ariel an exceptionally comfortable bike for those days. A

(Continued on page 80)



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ARIEL HISTORY

Continued from page 79

modification was also made to the girder fork when a pair of small auxiliary dampening springs were added to control the rebound.

The range for 1939 was much the same as before, except that a Deluxe Four was produced for the connoisseur which had deeply valanced fenders, a pair of fishtail mufflers, lots of chrome and an impeccable finish. There were also many small technical improvements to the Singles.

The final few years of pre-war sport had Ariels winning a goodly share of the awards. In 1938 G.F. Povey won the Scottish classic on his 350-cc model, and Ariels won four gold medals in the 1938 ISDT. Other pre-war Ariel achievements include a 96-mph clocking by L.W.E. Hartley with a 557-cc SV model and Ben Bickell's 111.42-mph lap at Brooklands with his 500-cc Four that had a Powerplus supercharger fitted.

During the war Ariel met military needs, but in Sept. of 1945 the company was able to resume production of roadsters again. In 1947 Mr. Sangster sold out to Birmingham Small Arms, but Ariels continued as before with 350- and 500-cc Singles, the 1000-cc Four, and 600-cc SV models being produced. For 1948 Ariel improved their range by adopting the telescopic front fork with hydraulic dampening.

The marque participated in most of the early post-war sporting events. In trials and scrambles events Ariels were always well placed; the Singles even got involved in road racing when the Isle of Man held their now defunct Clubman races for standard machines. In the 1947 Senior Clubman TT G.F. Parsons captured 3rd, and other riders placed well until 1950 when the other companies' pseudo-racers made their debut. Perhaps the most surprising Ariel showing was in the 1947 Dutch Grand Prix, where a fellow by the name of J. Schot piloted his Red Hunter into 6th place—the first and only time that the marque had gained a world championship point!

The following year Ariel created a sensation with their 1949 brochure, which listed a wide range of models that included the Singles, a new 500-cc Twin, and a redesigned Four. The 63 by 80mm Twin was available with either a rigid or spring frame, and it was produced in two versions: a 25-hp (at 5500 rpm) model that ran on a 6.8:1 compression ratio and a 27-hp (at 6000 rpm) model that used a 7.5:1 ratio. These Twins had a very cleanly designed engine, but they never experienced the popularity of the Red Hunters or the Four.

The new Square Four, called the MK I, was a vastly improved motorcycle



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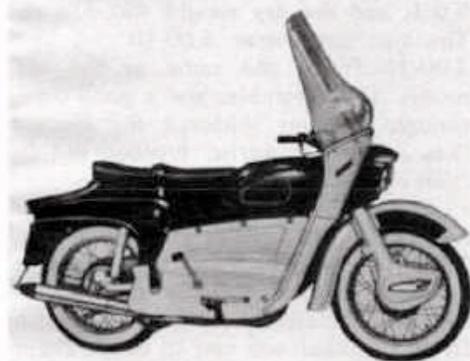
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with its all-alloy engine that reduced the weight from 420 lb. to 385 lb. (the springer weighed 25 lb. more). The alloy engine ran much cooler, and the appearance was sheer artistry in metal. Operating on a 6.0:1 or 6.8:1 compression ratio, the Four developed 34.5 hp at 5400 rpm and ran 95 to 100 mph. The acceleration was fantastic, with standing quarter-mile times of around 13.5 sec. being reported. The MK I model was the most luxurious roadster produced anywhere in the world; even today these beautiful Fours are highly prized by collectors.



Ariel Leader, introduced in 1965, was an enclosed two-stroke Twin with a trailing link front fork. In spite of the gawkish appearance, these models sold so well that the factory quit producing big four-strokes.

In 1950 the company turned its thoughts to producing a genuine competition model named the VCH or Comp Red Hunter. The idea was to produce a 500-cc Single that was suitable for both trials and scrambles, and the emphasis was on light weight and fine handling. The 81.8 by 95mm alloy engine ran on a 6.8:1 compression ratio and churned out 25 hp at 6000 rpm, with great torque being produced at low engine speeds. Two gearboxes were available, a close ratio box for motocross racing and a wide ratio box for trials events. The ratios on the two boxes were 15.3:1, 9.7:1, 7.2:1 and 5.75:1 for the close ratio box, and 19.1:1, 12.6:1, 9.16:1 and 6.05:1 for the wide ratio box.

The VCH model was quite light at 290 lb. Its stamina soon made it popular with trials riders, many of whom won several of the top events then. Bob Ray of the works team was one of the most successful riders. Ariels were always a force to be reckoned with in trials events. Harold Lines proved to be the marque's best motocrosser, but he seemed to lack a wee bit in the horsepower department compared to the BSA Gold Stars, Matchless Singles, and FN thumpers.

The next big year for Ariel was 1954 when they introduced a new swinging arm frame on all but the Four, which retained the old plunger suspension. The new frame kept the Ariels totally modern, as everyone was making the change at that time, and the riding comfort reached a new high. The company also produced a new 650-cc Twin called the Huntmaster that produced 40 hp at 6200 rpm, and a 200-cc Colt was added to the range as an inexpensive utility model.

The 500-cc Singles were also improved by using alloy for the cylinders and heads, while the Red Hunters had the pushrod tunnel cast into the cylinder in an effort to provide a cleaner running engine.

The model that really made the news then was the fabulous MK II Square Four, a bike that was truly the Rolls Royce of motorcycles. The MK II had a completely new engine with a massive alloy cylinder and head plus an improved lower end. The head featured a set of bolt-on exhaust manifolds that had two ports each, so the MK II soon became known as the Four Port model. This engine produced 42 stampeding horses at 5800 rpm, and the top speed was increased from 105 to 110 mph. The acceleration was shattering, and several road tests obtained standing quarters of 12.9 to 13.2 sec.

The appearance of the MK II was impressive. A huge 6-gal. fuel tank was used that had a concave chrome panel near the top on each side. A buyer could have his choice of either a solo or dual type seat. The weight of the MK II was 450 lb., the wheelbase was 56 in., and the tire sizes were 4.00-18 rear and 3.25-19 front. A new Burman gearbox was also used with ratios of 11.07:1, 7.1:1, 5.46:1 and 4.18:1, which gave the MK II a high cruising speed combined with shattering acceleration.

Meanwhile, Ariel had not forgotten about the competition scene and designed a pair of new models for trials and motocross racing. These two sports had developed to the point where one design was not suitable for both events, so a more specialized mount was designed for each.

The trials model was named the HT. This bike was destined to achieve fame and glory a few years later when Sammy Miller became a works rider. The HT featured an alloy engine of low (but unknown) power output that ran on a 5.6:1 compression ratio. The bore and stroke was the classic 81.8 by 95mm, and slow cams and heavy flywheels were used to obtain low speed pulling power.

The frame, a light swinging arm type, was very special, since 1954 was the year when most factories dropped the old rigid frame in favor of a springer. The wheelbase was only 53 in., and the

(Continued on page 82)

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ARIEL HISTORY

Continued from page 81

fork angle was very steep for precise steering at slow speeds. The dry weight was only 290 lb., due to the use of alloy for the fenders and the 2.0 gal. fuel tank. The wide ratio gearbox had ratios of 19.3:1, 14.7:1, 9.46:1 and 6.02:1. Ground clearance was 7 in.

The HS model had a bench tested engine that developed 34 hp at 6000 rpm, and this was slotted into a rugged frame with a close ratio gearbox that had ratios of 16.1:1, 10.2:1, 7.9:1 and 6.02:1. The compression ratio was 9.0:1, and the dry weight was 318 lb. The tire sizes were 4.00-19 rear and 3.00-21 front; the same as the HT model. This scrambler was a good bike, though it never achieved the success that its less powerful brother did in trials events.

During the next few years the Ariels underwent only minor changes, but in 1957 the Square Four was given a face-lifting with a larger oil tank, a headlight nacelle, and a large full-width front hub that was cast in alloy. These changes made the luxurious Four even more appealing, and it continued to be the most prestigious (and expensive) motorcycle in the world.

However, change was in the air. Sales were falling off in Europe due to the rise in the standard of living that allowed the populace to afford automobiles. Ariel responded by producing the 250-cc Leader, a two-stroke Twin with sheet metal paneling that provided excellent weather protection. The Leader was followed by the Arrow and Arrow Sports, which were unstreamlined standard models. A tiny 50-cc ohv Pixie came next, an attempt to build a "schoolboy" model at a very low price.

These new Ariels proved to be so popular with the everyday rider that a decision was made early in 1959 to halt production of all the big four-strokes in order to meet the demand for the new two-strokes. This was a tragedy. The company had already designed and tested the MK III Square Four, the most luxurious motorcycle the world had ever seen. The MK III had an Earles leading-link front fork similar to those on the BMW, and it was claimed to provide the most comfortable and stable ride ever produced on a motorcycle.

As it transpired, the MK III never saw the light of day. This model would have been the most regal of a long line of magnificent Fours. Even today there are few machines which could approach its luxurious specifications.

Meanwhile, during the middle 1960s, the Japanese manufacturers were making serious inroads into the world market with their lower priced lightweights.

Ariel sales began to fall, and soon the company was failing to show a profit. If Ariel had had a line of big bikes to fall back on, they might have survived. But the desire of the Burman company to sever their contract (due to the smaller numbers that were involved) was the final blow that felled the marque. In the autumn of 1965 the last Ariels left the factory.

There was one final chapter to the Ariel story, and this one proved to be the greatest. For this story we must go back to 1956 when Sammy Miller of Ireland was hired onto the works trials team. Sam spent the first few years in learning how to set up his big Single and master the toughest courses. By 1958 he showed enough class to finish 2nd to Gordon Jackson (AJS 350) in the famed Scottish Six Days Trial.

During the next few years Miller dedicated himself to modifying his Ariel. First came a smaller front brake and an upswept exhaust. Then came some mods to the steering geometry. An alloy oil tank and slimmer fuel tank came next, followed by a new Reynolds 531 tubing frame, designed to contain the oil tank. Miller also used a Norton front fork and fiberglass for the fenders, primary cover, magneto shield, seat pan, chain guard and number plates. The dry weight finally ended up at an unbelievable 242 lb. Wheelbase measured 52.5 in., and the ground clearance was 9.0 in.

This thumper proved to be a magnificent trials machine, enabling Sammy to win the coveted British Championship in 1959 by defeating his arch-rival, Gordon Jackson. Sammy then proceeded to dominate the British Championship, taking the title the next five years in succession (1960-'64). The "maestro" also won the coveted premiere award in the Scottish classic in both 1962 and 1964. Then financial problems caused the factory to terminate its contract with Miller. This proved to be a significant turning point in trials history; Miller went to Bultaco and thus started the trend to 250-cc class trials machines. It can truly be said that when Ariel passed from the trials scene, the lusty big Single passed too.

The Ariel, however, refuses to pass from the scene. The Ariel Motorcycle Owners Club and thousands of aficionados are keeping the name alive through their dedicated restoration of all the great classics. To some, the majestic Square Four is the most regal. Others appreciate the pre-war Red Hunter classics, which are the prototypes of the era of great Singles. Then there are those who love the HT trials model, the last big Single to win the Scottish. All of these magnificent models well represent that proud era when Britannia reigned supreme; perhaps the greatest era that motorcycling has ever known. ☐

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1950 Ariel Red Hunter

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ARIEL RED HUNTER







ARIEL RED HUNTER *Source: real-classic.co.uk*

The Ariel singles which came to be known as Red Hunters can be traced back to Val Page's creations of 1926.

Originally they were kitted out in black, and those Black Ariels have

cultivated a cult following all of their own.

The equine connection wasn't established until Edward Turner flexed his influence in the 1930s.

From 1931, the top of the range ohv 350 and 500 singles ceased being 'Black Ariels' and gained chrome petrol tanks, red paint and an identity to match the marque's horsey theme.

Gradual development refined the breed and soon the noisy, oily valve clatter was cured with top end enclosure.

The VH 500 looked superb with its supersize headlamp, large comfy saddle and high-level exhaust.

Cyril Ayton reckoned that *'the best all-round Ariel of the 1930s was the 1939 497cc Red Hunter single,'* and rated it more highly than the marque's flagship Square Four.

The Red Hunter engine, simultaneously refined for the showroom and toughened for





sporting use since its inception in 1932, was never better than in 1939.

Long of stroke, but not grotesquely so at 95mm, and with plenty of “flywheel”, it produced usable power at low revs and would soar toward over 5000rpm while pulling a high top gear.

As for the rear suspension, it was new for 1939 and was that odd combination of coil springing in vertical barrels with link action that was to feature on Ariels until 1954...

It was no particular handicap in the context of 90mph performance, and the comfort and road adhesion conferred by the modest springing were considered a favourable exchange for an occasional shimmy through bumpy bends.

In fact the prewar 500 Red Hunter was so practical that one rider reckoned it was quicker over his 25 miles daily commute on rural roads than his alternative ride – an

overhead cam Norton International!

You can see the Anstey-link rear suspension set-up above, on the tele-forked 1951 thoroughbred, owned by RC regular MadMike.

The rigid NH 350 shared its bigger sibling's style.

The 350 wasn't significantly lighter than the 500, with 25% less power available to motivate that mass. This made it a little less flexible but still a peppy performer for its time.

In 1937 when this bike was built, there was also an NF Standard model listed... but if any NFs were actually sold then we suspect they've all been ‘made over’ into ‘Red Hunters’ by now.

Ariel also built an NG De Luxe 350, which cost £54.10s back in 1937, £4 less than the NH Red Hunter. These days you'll pay much the same for either machine.

Anstey link rear suspension arrived in 1939 as an option and

became standard after the war, when telescopic forks replaced the earlier girders.

If you prefer the vintage feel of the 1930s machines then these Ariels are among some of the most practical pre-war bikes.

The specification didn't change too radically over time and, thanks to the efforts of Draganfly Motorcycles and the Ariel Owners' MCC, there's a good supply of spares and expert advice available.

Words by Rowena Hoseason, photos from the RC RChive and MadMike himself.





ARIEL RED HUNTER - Source: Motorcycle Trader

Ariel may no longer be a household name in the world of motorcycles, but there was a time when the Birmingham-based company's Red Hunter was considered one of the finest British singles.

Veteran motorcycle writer Bob Currie went even further, calling the Red Hunter simply "*the finest single of all time.*" Big words maybe, but not unjustifiably so.

What began as a prewar design eventually became a 1950s trials king with Sammy Miller winning almost 600 awards on a HT 500 Red Hunter.

And Red Hunters continued to dominate sidecar trials events until the two-stroke invasion of the 1970s.

These were bikes that punched well above their weight and long after

they should have been dead and buried.

NAME DROPPER

The Red Hunter owed its origins to two of the biggest names in British motorcycling: Edward Turner and Val Page.

In 1925 Page had provided Ariel with a new overhead-valve singlecylinder engine, and for 1932 Turner proposed a higher specification single with a chrome-plated tank and red panels.

Turner knew that lots of sparkle and glossy paint was the styling most sporting Englishmen hoped to own and the Red Hunter was born.

Initially the Red Hunter had a four-valve engine but, facing bankruptcy, the Ariel range was

rationalised for 1933, the flagship Red Hunter now receiving a two-valve cylinder head. Most were 500 (86.4 x 85mm) or 350cc (72 x 85mm), the 350 (as shown here) ostensibly a smaller bore version of the 500.

In other respects, Val Page's single was standard British fare, the crankshaft supported by two roller bearings. The crankpin was a parallel fit to the high-tensile steel flywheels, with a double-row roller bearing between it and the con-rod.

On early versions the valves were exposed, enclosed rockers not appearing until 1938, and the cylinder head included twin exhaust header-pipes.

The primary drive used a single-row chain, with a spring-type shock absorber built into the crankshaft sprocket to reduce abruptness and consequent chain stretch.

A dry clutch passed power to a four-speed Burman gearbox.

Electricity was supplied by a Lucas Magdyno – standard kit for British bikes with lights in the 1930s. A Magdyno was a magneto topped up by a generator and was one of Lucas' more reliable products.

Ironically, although Lucas earned the unenviable nickname "Prince of Darkness" in the 1960s, its products were standard fitment in the 1930s.

Completing the Ariel's specification was a single-downtube rigid frame and girder fork.

RED RACER

Ariel wanted performance to accompany the sporting looks so the 500 was provided with two pistons, a 7.0:1 compression ratio for road use (producing 28 horsepower), and a higher compression racing piston said to propel the Red Hunter to a top speed of around 150 km/h.

This was unsubstantiated because the Red Hunter didn't really achieve any notable pre-war racing success.

The closest the Red Hunter came to a TT victory was in the 1935 film *No Limit*, where star George Formby rode a Red Hunter, thinly disguised as a 'Rainbow', to a win in the Senior TT.

During the 1930s the Red Hunter was Ariel's most popular model and this continued when it was resurrected after the war. By then the engine had a redesigned cylinder head and a telescopic fork replaced the girder type.

Before long the Red Hunter received a sprung frame, with plunger suspension, and a quickly detachable rear wheel.

The engine was redesigned for 1951 with a single camshaft replacing the previous twin gears and camshaft with two integral cams, and a new duplex frame with swingarm rear suspension appeared in 1954.

Prior to this, in 1952, Ariel released a high-performance VHA 500 with an alloy barrel and head with deeper finning.

Maintaining a good sporting reputation was important to Ariel and all Red Hunters were bench tested and tuned. The ports were polished, as were the forged steel flywheels, and the crankshaft balanced. Although still basically a pre-war design, even in the 1950s the Red Hunter was considered by many to be a viable alternative to a BSA Gold Star (also designed by Val Page) and Norton International.

Although exceptionally strong, well finished, and built to last, ultimately the Red Hunter was doomed.

Through until the end it retained the pre-war magdyno with manual advance and retard, and even compared with other sporting British singles appeared ancient.

The weight was a considerable 175kg, with handling and braking from the 7.0-inch drums only adequate.

When Ariel asked its dealers what sort of motorcycles they would like in the future they said they wanted a two-stroke twin.

Ariel dramatically changed direction, concentrating production on the two-stroke Leader and Arrow twin. So, the Hunter died, mortally wounded by an Arrow.

Many thanks to John Gee of Antique Motorcycles, Cheltenham,

Victoria, for the use of the 1934 RH 350 Red Hunter featured.

FAST FACTS

Ariel Red Hunter

- The Ariel name goes back to before the first motorcycle, with the trademark established in 1847.
- Although Ariel bicycles were made as early as 1871, the direct ancestor of the Ariel motorcycle appeared in the 1890s as a subsidiary of the Dunlop Tyre Company. Dunlop sold the Ariel bicycle factory to Charles Sangster who produced the first Ariel motorcycle in 1901.
- Val Page joined Ariel in 1925 and immediately produced two new single-cylinder models. New salesman Vic Mole ensured Ariel stayed in the public eye through various publicity stunts. One of these involved sailing across the English Channel on pontoons.
- The first Red Hunter appeared in 1932, in 350 and 500cc versions. In the same year Charles Sangster died and in the middle of the worldwide Depression the company almost went to the wall.
- Sangster sold Ariel to BSA in 1944 and after World War II the Red Hunter was resurrected. It lasted as a 350 until 1958 and a 500 until 1959.

Want to know more?

Great site for information on various Ariel models:

www.ArielMotorcycles.com

This is the site for the owners' club:
www.ArielOwnersmcc.co.uk

There is a good history of Ariel here:

www.ArielNorthAmerica.org/mot_history.htm

Dan Danmeier's
1957 Ariel Fieldmaster 500cc





The Ariel logo - Source: motorcyclelogos.com

Information about the company Ariel Motor

- **Founded:** 1902
- **Defunct:** 1970
- **Founder:** James Starley, William Hillman
- **Headquarters:** Bournbrook, Birmingham
- **Key people:** Jack Sangster, Edward Turner & Val Page

The company started its business from releasing of bicycles and its details.

The firm name is associated with the British James Starley and William Hillman (who subsequently escaped the team). They produced the very first low-cost all-metal bicycle in the UK, which is called «Ariel». So that's how the company got its name.





ARIEL RED HUNTER
DANIEL PEIRCE

ARIEL RED HUNTER PRINT

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Ariel Square Four

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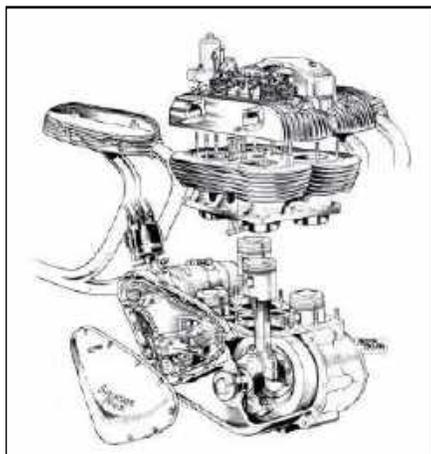
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A BRIEF HISTORY OF THE ARIEL SQUARE FOUR

INTRODUCTION

The Ariel Square Four is one of the most famous names among Britain's original "big" bikes, standing side-by-side with the likes of Brough Superior and Vincent HRD.

The Square Four is a motorcycle that was born of a surprisingly simple idea, a motorcycle not made for racing or raw performance, although it was capable of that, but a motorcycle made for comfortable long range cruising with or without a sidecar.



EDWARD TURNER AND THE BIRTH OF THE ARIEL SQUARE FOUR

Engineer Edward Turner was a man who had a great influence on Britain's motorcycle and car making industry.

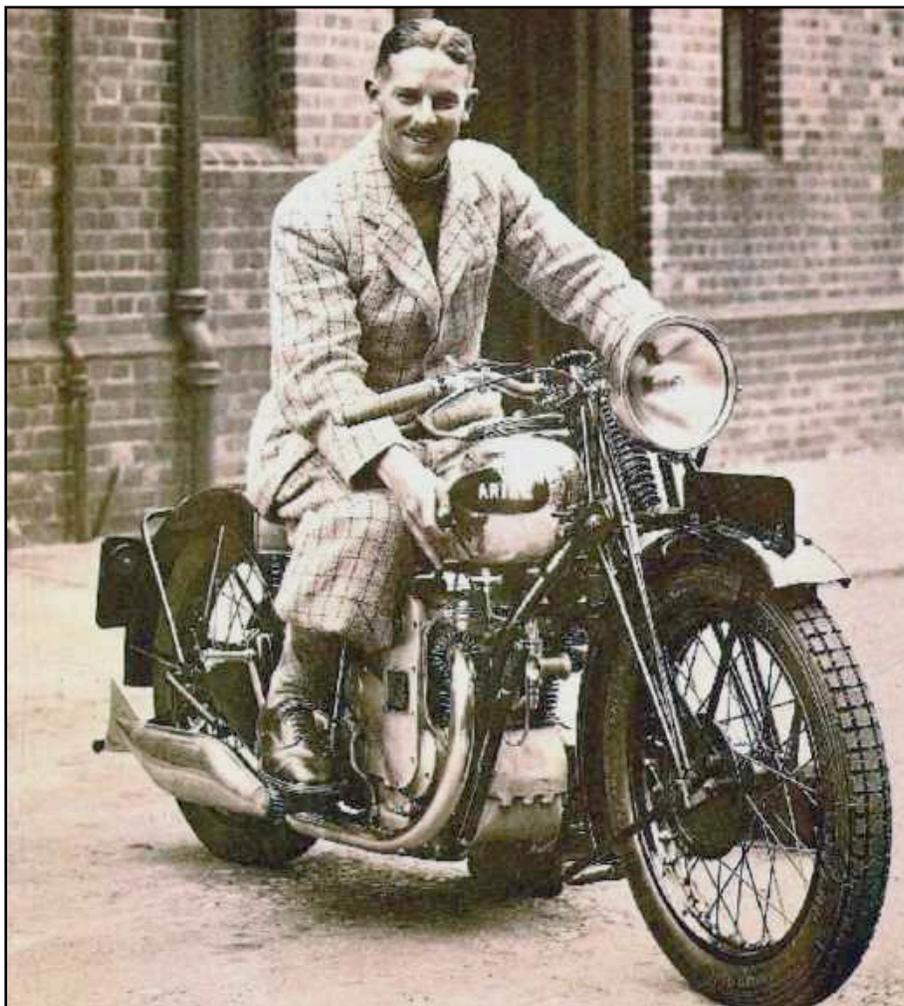
He first rode a motorcycle at the age of fourteen and when we look at the career path he would later follow he must have been bitten hard by the motorcycle bug because it became his life's work.

In 1925, ten years after that fateful ride on a New Imperial Light Tourist motorbike, Edward Turner had a design for an overhead camshaft single cylinder motorcycle engine published by "The Motor Cycle".

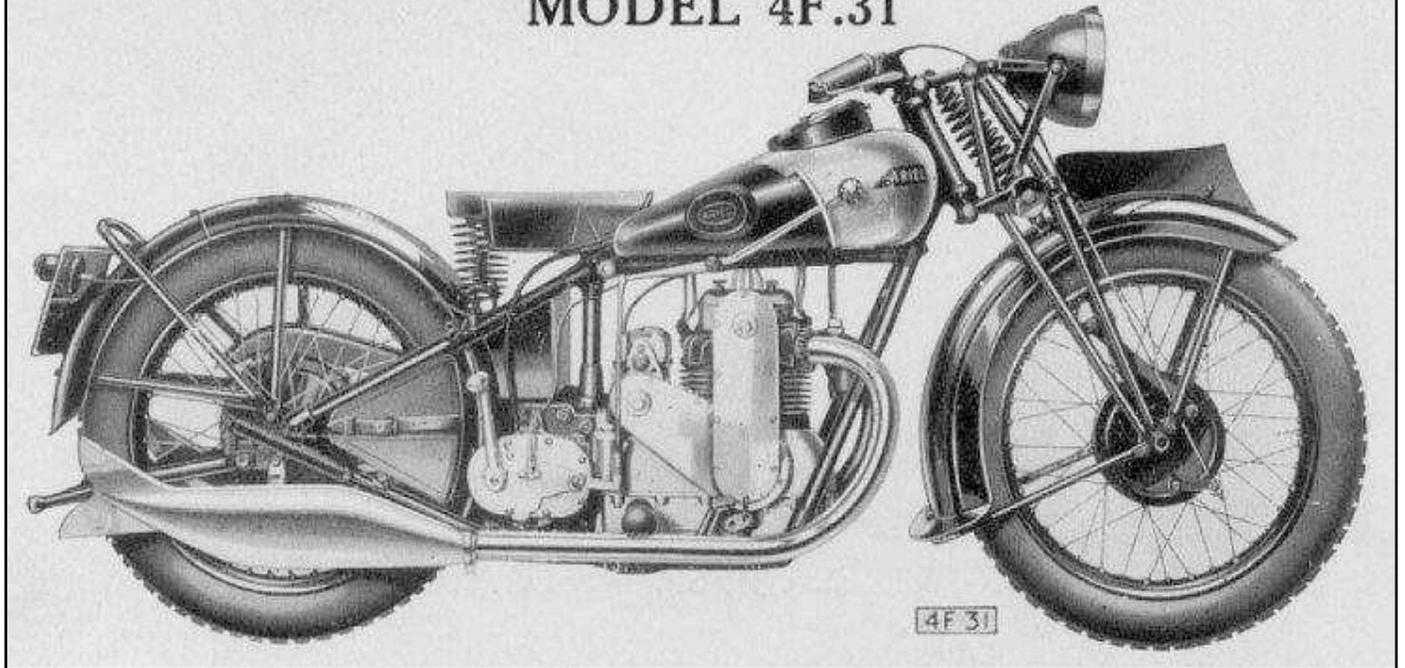
Two years later in 1927 he had built his first motorcycle, the "Turner Special", powered by a newly designed OHC 350cc single cylinder engine and fitted with a Sturmey-Archer three speed gearbox.

The best was yet to come however and by this time, legend would have it, that Edward Turner had taken up smoking and one day he had something of a "Eureka" moment.

He was a fan of the parallel twin motorcycle engine and later in his career his parallel twins would power such iconic motorcycles as the Triumph Thunderbird, ridden by Marlon Brando in the movie "The Wild One", and the Triumph Bonneville.



500 c.c. FOUR CYLINDER THE SQUARE FOUR MODEL 4F.31



But over a smoke or two back before those motorcycles were thought of, Edward Turner thought of putting two parallel twins together to make a square four cylinder engine.

He used his cigarette pack to make his concept drawing whilst sitting in a cafe, presumably over a nice hot cup of tea and the last smoke out of the pack.

One might wonder why an engineer would consider the complexity of making an engine twice as complicated by joining two engines together but there was indeed a method to the madness.

By joining two parallel twin engines together there would be two crankshafts, turning in opposite directions to cancel out each other's gyroscopic effect.

Additionally the engine could be set up so that diagonally opposite pistons would be in top dead

center, and bottom dead center thus counter balancing each other's movement. The result was intended to be an engine that was perfectly balanced and thus smooth.

Edward Turner got busy over a drawing board with a T-square and set about proper drawings and a detailed design for this new engine which he completed in 1928.

He was a fan of overhead camshafts and so he gave his new square four an overhead camshaft driven by a chain from the gear on a shaft driven by the two crankshafts.

At the time he designed the Square Four engine Edward Turner was managing Chepstow Motors in Peckham Road, London, which was an agency for Velocette Motorcycles.

Turner decided to try his luck approaching the major motorcycle makers to see if any would be interested in his engine design.

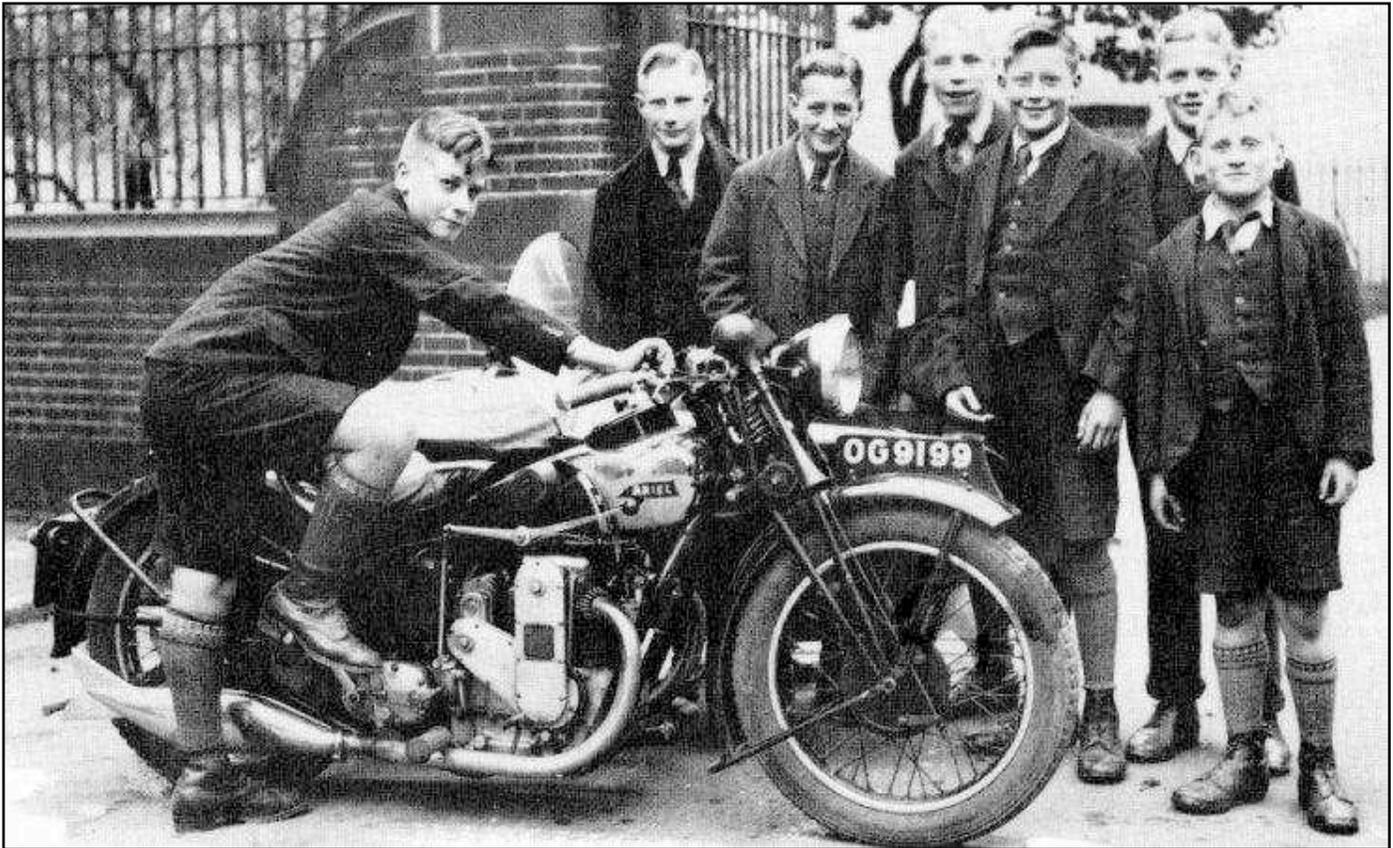
At BSA he was refused, but Ariel were interested with the result that in 1929 he was invited to join the Ariel staff as an engineer working alongside Bert Hopwood and under the direction of Val Page.

THE ARIEL SQUARE FOUR 4F, 4G AND 4H

Turner's square four design was very compact, so much so that it was able to be fitted into an existing Ariel 250cc Colt frame designed for a single cylinder engine.

In his original design the Square Four engine was made in unit with a three speed gearbox which was driven from the rearmost crankshaft, keeping the whole assembly very compact.

This ensured that it was a relatively easy process to go from new engine to complete prototype motorcycle. This prototype was not to make it into production however. The unitary construction was deemed



too expensive and economies were also made in the engine's cooling fins.

The reduction in engine cooling fins in particular would turn out to be a bad move indeed. The cylinders were cast en-bloc and the cylinder head was also a one piece unit.

The new 498cc Ariel Square Four 4F motorcycle was shown to the public at the Olympia Motorcycle Show in 1930.

The show bike had a separate Burman four speed gearbox with hand change gear lever (this would later be changed to foot control during production), and the engine was fitted into a modified Ariel SF31 499cc Sloper rigid frame.

The bike used the same fuel tank and other components of the 499cc Sloper model, the main difference being the engine.

No doubt the thinking was that they were both 500cc bikes so it

was most economical to use shared components as much as possible. The Great Depression was underway and so economy was all important.

In 1931 the Ariel Square Four was entered in the Maudes Trophy and won the event.

This is particularly impressive when you look at the list of challenges the Ariel 4F Square Four successfully completed and the margins within which it did so :

- *Seven-hour endurance run at Brooklands: 368 miles covered.*
- *Consumption test: approx. 700 miles on seven shillings worth of petrol and oil.*
- *Head decarbonised in 4 min 19 sec using only spanners from the motorcycle's tool kit (target time: under 7 min).*
- *One-hour speed run at Brooklands: more than 80 miles covered. (target distance: 70 miles).*

- *Run for 70 minutes in each of four gears on ordinary roads.*
- *Seven non-stop ascents and descents of each of seven famous test hills: Porlock, Lynton, Beggar's Roost, Countisbury, Bulch y Groes, Dinas Hill, and Alt y Bady.*
- *700 miles in less than 670 minutes (target time: 700 minutes).*

Another quite fun marketing stunt was the "Ariel Sevens" test. This involved getting seven schoolboys to kick start the Ariel Square Four seven times each. This resulted in the engine starting on the first kick 48 out of 49 attempts.

Perhaps the "piece de resistance" for the Ariel 4F Square four was accomplished in 1933 when Ben Bickell took his supercharged modified Ariel Square Four to Brooklands, put down a lap speed of 110 mph, and only just missed out on becoming the first British 500cc motorcycle to achieve one hundred miles in one hour.



The OHC engine was nicknamed the “Cammy” engine and it acquired for itself a bit of a reputation for overheating at the rear of the cylinder head which could result in deformation.

Nonetheless the engine and bike performed pretty well and even achieved a win in the London to Land’s End Trial.

Power was thought to be a bit lacking for sidecar use however so in 1932 the engine was revised with an increase of 5 mm in bore size to bring the capacity up to 601cc. Both 498cc and 601cc versions were sold up until 1933 when the “500cc” was phased out.

The Ariel Square Four 4F was a motorcycle that produced the quiet and smooth power it was intended to back in Edward Turner’s first vision of the engine back in the cafe over a cup of tea and his last smoke.

There was however room for improvement and those developments were in the pipeline.

In 1936 Edward Turner became General Manager and Chief Designer of Ariel and one of the decisions he made was to fully address the overheating problem that was evident in the original 4F model.

He entrusted this work primarily to Val Page who had established a great reputation having been the designer of the J.A. Prestwich V-twin engine of the Brough Superior SS100.

Val Page made the significant changes to the Square Four engine needed to improve it, enlarge it, and solve the rear cylinder head overheating issue.

Val Page changed the Square Four engine by providing a cooling air channel between the front cylinders

and adding fins to the cylinder head to better dissipate heat and improve air flow.

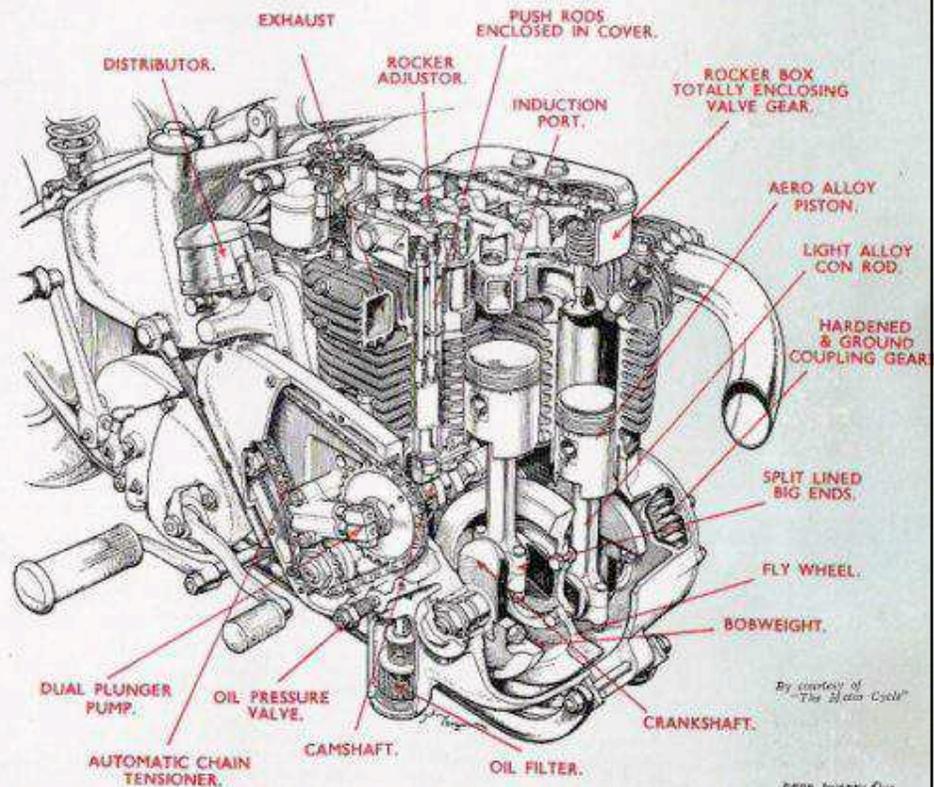
He also moved away from Edward Turner’s chain driven overhead camshaft to an overhead valve system, with the valves being operated by a single camshaft located between the crankshafts with pushrods and overhead rockers.

The Square Four was a touring motorcycle engine that needed to be smooth, reliable, and easy to maintain: it did not need to be a high revving racing bike engine.

Val Page’s changes were all about making the engine “boringly reliable” and he achieved this well.

No doubt it was an engine that George Brough would admire, it was certainly an engine that Phil Vincent appreciated.

The
FAMOUS
POWER UNIT
of the
ARIEL
SQUARE
FOUR



page twenty-five

For 1937 both the 600cc (i.e. 601cc) 4F and the new 1000cc (i.e. 998cc) 4G models were made to the revised Val Page OHV design.

Both models were made with girder forks and a rigid frame. In 1938 Ariel dropped the 600cc 4F and listed two versions of the 1000cc bike, a "De Luxe" model 4G, and a "Standard" model 4H.

This changed again in 1939, as the Second World War loomed over Britain, with the return of the 600cc 4F in addition to the 4G and 4H.

The De Luxe 4G and the Standard 4F seem to have had minimal differences in Ariel promotional literature of the time.

The De Luxe 4G featured valenced fenders and a side-stand (aka "prop stand") while the Standard 4H was listed as having standard fenders and no prop stand.

Also for 1939 Ariel offered their patented Anstey-link plunger rear suspension as an additional cost option.

Despite the hope offered by the Munich Agreement of September 30th, 1938 and British Prime Minister Neville Chamberlain's "Peace in our time" speech, Ariel Motors Ltd. was about to be engulfed in the Second World War which would begin with the Nazi invasion of Poland just under a year later on September 1st, 1939.

So, instead of battling for motorcycle sales, Ariel Motors would be playing its part in the battle for Britain's survival.

Ariel's contribution to the war effort was the manufacture of simple, tough and reliable single cylinder military motorcycles, and manufacture of the Square Four was suspended until the war's end in 1945.

With the war over in 1945 Ariel Motors quickly resumed civilian motorcycle production including putting the pre-war 1939 4G De Luxe 1000cc version of the Square Four back into production.

This model was improved the following year in 1946 with rear suspension becoming standard and the changeover to telescopic front forks. This model would remain in production until 1949.

THE ARIEL SQUARE FOUR MARK I

The Ariel Square Four Mark I made its debut in 1949 and, at long last, saw the cast iron cylinder barrels and head changed over to aluminum alloy.

The change to aluminum alloy shed 30lb from the weight of the bike but, even more importantly, brought much improved cooling because of the aluminum's far better heat dissipating charac-

teristics. The electrical system was changed from the old Lucas Magdyno to a car type coil ignition with distributor and a 70 watt dynamo/generator.

In 1950 the speedometer was relocated from the fuel tank top to the front forks top and then in 1951 the tank top instrument panel was omitted and the speedometer housed in the alloy casting that formed the fork crown.

The Mark I weighed 435lb dry, its engine produced 35 bhp @5,500 rpm, and it was capable of over 90 mph.

THE ARIEL SQUARE FOUR MARK II

Even with the change to aluminum for the barrels and head there were still concerns regarding the Square Four's heat dissipating characteristics.

This is an issue for air cooled engines and Harley-Davidson had to face a similar set of problems with their V-twin engines.

A square four engine however requires a more strategic approach to cooling for the rear cylinders because they are receiving a different air flow than the front cylinders.



The cylinders at the front are directly in the air flow, while the cylinders at the rear tend to get an air flow already heated by passage by the front cylinders.

Ariel made significant changes to this engine to once and for all resolve the uneven cooling issues.

For the 1953 Mark II model the cylinder barrels were all separated and the cylinder head was completely re-designed.

The exhaust for each cylinder was separated and fitted to the cylinder head by left and right exhaust manifolds each accommodating



Ariel Square Four

Mark II - 1000cc





two exhaust pipes. Similarly the inlet manifold and rocker cover were combined and the carburetor used was a classic British SU, which sat up a bit taller than the previous arrangement and so required a frame modification.

In 1953 both the Mark I and new Mark II models were sold side by side in dealerships and by 1954 only the Mark II was on sale.

The single solo seat was replaced with a double seat. 1954 saw the addition of a fork lock, and then in 1956 the headlight was given a hooded cover integrated with the fork cover and instrument panel.

The fork top instrument panel included speedometer, ammeter, and light switch etc. The front hub was also updated to a lightweight alloy unit.

This new version of the Square Four engine proved to be the cream of the crop and produced 40 hp.

The bike weight was a bit less at 435 lb dry and it was capable of “the ton” (100 mph).

The Mark II remained in production until 1959. However, even after it had been withdrawn from manufacture there were people who lamented its passing and wanted to see it come back.

THE HEALEY 1000/4

Two brothers, George and Tim Healey, were Ariel Square Four aficionados who decided to try to put a new version of the bike into limited production.

Not having the ability to manufacture the parts for the bikes themselves George and Tim set about buying all the Ariel Square Four parts they could so they could build a few special bikes.

The Healey brothers had already built up a great deal of experience modifying Ariel Square Four bikes having been setting up custom

competition bikes for racing and sprint (i.e. drag strip) use. They had also built supercharged sprint bikes which had doubled the standard engine’s power.

George and Tim wanted to create the ultimate Square Four motorcycle so they approached a man named Roger Slater who had purchased the rights to manufacture the Fritz Egli tubular spine frame with a view to building their new bike on a custom Egli frame.

The Egli frame was the lightest and stiffest design available at that time (1971). Looking for the best components the front forks were sourced from Metal Profiles while the drum brake assemblies were imported from Italy.

The new bike weighed 80 lbs less than the last model Ariel Square Four Mark II, so the weight was around 345 lb dry, with the engine



tuned to produce 20% more power giving it 50 hp @ 6,000 rpm.

The original Square Four engine used a dry sump and the new Healey kept to this and used the central tube of the Egli frame as the oil reservoir.

An oil cooler, better oil pump and larger oil filter completed the main list of improvements.

The end result was a true British superbike, but with a smooth and beautifully balanced engine.

Interestingly the light and lively Healey 1000/4 proved to be a modern take on Edward Turner's original concept of the bike back in 1930, a light, powerful and excellent handling motorcycle: a

1930 concept but with 1970's technology.

The Healey 1000/4 was a limited production bike with just twenty eight being made before the brothers decided they'd run out of parts and they went on to other projects. Tim Healey went on to work with Laverda. Production ceased in 1977.

The Healey 1000/4 gives us a glimpse of what the Ariel Square Four could have become had production kept going past 1959.

CONCLUSION

The Ariel Square Four has been affectionately nicknamed the "*Squarier!*" and it was a classic among classics.

It produced a smooth and beautiful exhaust note, not at all like the thump of a V-twin or a parallel twin.

It was a motorcycle for all day cruising and it was perfectly adapted for sidecar use.

Its designer, Edward Turner would go on to create some of the most iconic motorcycles ever to be made in England's green and pleasant land, and he also created the 2.5 liter and 4.5 liter Daimler/Jaguar V8 engines.

But it is his first and most unique design, the Square Four, that he is perhaps most remembered for.

Source: The Silodrome, article written by Jon Branch.





Ariel Square Four panel tank

Smiths speedometer, 8-day clock, Eureka oil pressure gauge, inspection light and a screw-on fuel filler cap. Ariel was a quality manufacturer famous for excellent finishes. For decades, this bike was the flagship. Other manufacturers looked on with envy.



Archive Photo
1929 Channel Crossing

Don Danmeier from Novato, California



I met my 1957 Square Four in 1964. It belonged to a classmate of mine at UC Berkeley; I bought it from him in 1973 and finished its restoration in 1990.

The interlude is a long story. It's my ride of choice for the BSA Club's All-British Ride on November 2 this year.



The 1957 KH (500cc "Fieldmaster" twin) came from the Las Vegas auction a few years ago. It's had an engine rebuild, new upholstery, and a re-paint of the tank and front fender, just to tidy it up. Last year for the 500 twin and the only one which featured the same livery as the other swing-arm models. Very rare.



The 1957 VH (500cc "Red Hunter" single) was restored after it was totaled in a wreck with a Pontiac in DeLand, Florida, in 1995. Luckily, I had a spare frame with the correct year/model serial number on it, because the bent frame couldn't be straightened by any of the three frame shops that tried.



The 1958 FH (650cc "Huntmaster" twin) didn't look this nice when I bought it, but I had to have it! Over the years I've managed to find and hang the correct bits on it - virtually all of the bodywork was wrong (Triumph, etc.) or had goofy ("Dragon Lady") paint on it. So for temporary uniformity, I just shot each piece in primer as I replaced them. It now sports a NOS beige seat cover that I bagged at an Ariel Club event.





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THE TWINS, 1931

When many of the modern generation of Motor Cyclists were making their first acquaintance with the sea, Ariel introduced the famous Square Four Multi-Cylinder Motor Cycle.



The "TWINS"
... 1950

ARIEL



Big-Hearted Beezer: BSA/Ariel “Flash Four”

Nestling an Ariel Square Four engine into a BSA A10 Golden Flash frame creates the “Flash Four.”
Story and photos by Robert Smith from Motorcycle Classics

1957/1949 BSA/Ariel "Flash Four"

Engine:	997cc OHV air-cooled Square Four Mk1, 65mm x 78mm bore and stroke, 6:1 compression ratio, 35hp @ 5,500rpm
Top speed:	90mph
Carburetion:	Single Solex 26 AHD
Transmission:	Chain primary, BSA multiplate clutch, BSA 4-speed gearbox
Electrics:	12v, battery/coil with distributor
Frame:	BSA A10 Golden Flash dual downtube full cradle, modified
Suspension:	BSA Telescopic fork front, two coil spring/damper units rear
Brakes:	BSA/Triumph 8in (203mm) TLS drum front, 7in (178mm) SLS drum rear
Tires:	100/90x18in front, 110/90x18in rear
Weight (wet):	400lb (182kg)
Seat height:	32in (813mm)
Fuel capacity/MPG:	4.2gal/55mpg (est.)

It’s a situation familiar to many motorcycle wrenchers: In one corner of the garage is a frame left over from a previous project, and hiding under the proverbial workbench is a similarly orphaned engine.

In Lyle Whitter’s case, the engine was a 1949 alloy two-pipe Ariel Square Four Mk1, and the frame was a 1957 BSA A10 Golden Flash.

And the question uppermost in Whitter’s mind: would the two go together?

The eventual answer was ... yes — but not without some considerable workshop skill and patience.

The engine

The engine that Whitter used for his BSA-framed custom bore little resemblance to Edward Turner's original design — except for the "Square Four" cylinder layout.

In the 1920s, Turner owned a motorcycle dealership, but his goal was to become a designer for one of the big British motorcycle makers. His calling card was an elegant and innovative design for a 500cc 4-cylinder motorcycle engine. Only Ariel showed any serious interest, offering Turner a job in the engineering and design office working under Valentine Page.

Turner conceived a unit-construction powerplant with two crankshafts of 61mm stroke coupled by central bevel gears, the rear crankshaft also driving the integral 3-speed transmission. Each crankshaft ran on two main bearings inboard of the flywheels with "overhung" roller bearing big ends and steel connecting rods outboard.

A chain spun the single overhead camshaft via a half-time bevel gear driven from the crankshafts. The crankcase was split horizontally, with engine oil stored in the "wet sump." The iron cylinder block was machined for four 51mm bores and capped with an iron cylinder head. The result was a light, compact and relatively powerful engine. Turner's prototype engine was fitted into the chassis of a production Ariel 250cc giving an overall weight of less than 300 pounds, but with 90mph capability. It was scheduled for production in 1931.

In many ways, the prototype Square Four was a typical Turner design: ingenious and audacious but also underdeveloped. Performance would ultimately be



limited by the flexibility of the crankshafts, with the big ends being supported only on one side.

The financial collapse of 1929 brought serious rationalization at Ariel. Turner was required to redesign his engine to use a conventional chain-drive Burman gearbox. Fitted in the chassis of Ariel's 500cc "sloper" single, the resulting 4F/31 model displayed at the Earls Court motorcycle show in London in 1930 was considerably

heavier (and slower) than the prototype. Within a year, capacity had been increased to 601cc by adding 5mm to the bore. Ariel won the 1931 Maudes Trophy, a reliability and endurance award, which included the 4F6 Square Four covering 700 miles in 700 minutes.

Turner completely redesigned his engine for 1936 as the model 4G. Gone were the overhung crankshafts, now supported by

The Flash Four uses a GPS-based speedometer and a wireless tachometer.



conventional outboard main bearings. The connecting rods became light alloy with plain bearing big ends. Straight-cut coupling gears for the two crankshafts were moved outboard of the main bearings. The camshaft was moved into the crankcase, which was now vertically split in line with industry practice, and the valves operated by pushrods. Capacity was boosted to 997cc by increasing bore and stroke to 65mm x 75mm. Turner's light, sporting "cammy" 500 had turned into a portly 1,000cc cruiser and sidecar tug.

The 4G ran until 1949, during which time, the chassis' girder fork and rigid rear were replaced by hydraulic suspension units at both ends. The plunger-type rear used an articulated linkage, designed by Ariel's Frank Anstey, and was intended to maintain constant

chain tension through its range of movement. Unfortunately, the Anstey link introduced numerous wear points that required frequent lubrication — otherwise rapid wear would occur, allowing the rear wheel to twist. Regardless, Ariel persevered with the Anstey link frame until Square Four production ceased in 1959.

1949 brought a significant upgrade with the confusingly named "Mk1" engine. Light alloy replaced the cast iron cylinder block and head, though the exhaust was still siamesed. The "2-piper" featured generous art-deco-style cooling fins around the cylinder head, and many consider this the most elegant of the Square Four engines.

The last of the Square Fours was the 1953-59 MkII "4-piper" with a redesigned top end featuring four separate exhaust headers.

The frame

Though overshadowed by Norton's "Featherbed," BSA was also at the forefront of motorcycle frame development in the 1950s. Traditional British motorcycle frames evolved from bicycle items and were made in a similar way. Mild steel tubes were assembled into iron lugs, then brazed into place in a furnace using a filler metal with a lower melting point, such as bronze or brass.

Making frames this way suited mass production and unskilled labor. But the cast lugs were expensive and heavy, and the advent of new materials and techniques allowed frame tubes to be welded together without lugs. Welding with low-temperature bronze also allowed thin-wall chrome-moly tubes to be welded without compromising their strength.

BSA's welded frame also used a dual-loop cradle design like the Featherbed, but with a single, large diameter top tube and a bracing tube below, triangulating the steering head. The new frame was introduced on the Gold Star in 1953 and the "A" model BSA twins in 1954, giving the Goldie and top-of-the-range bikes like the Super Rocket their reputation for sweet handling.

Though always in the shadow of the Featherbed, the new BSA frame also became popular with specials builders, for example with a Triumph engine ("TriBSA"), or even for offroad use, like the VeloStar scrambler.

The build

Shoehorning a Square Four engine into a Featherbed has been done before — even without modifying the frame. But a BSA frame?

Lyle Whitter is a fan of both BSAs and Ariels. His daily ride is a 1960 BSA A10 Golden Flash, and his Sunday bike is a 1953 Square Four MkII, which he rebuilt from a basket case. Along the way, while collecting parts for the Square Four restoration, Whitter bought a Mk1 Square Four engine — the all-alloy 2-piper.

The frame for the Flash Four came from a complete A10 that Whitter had earmarked for restoration. But an inspection of the engine revealed it had been blown up and crudely repaired. That's when the idea for the Flash Four popped up.

"I was lying in bed one night and I remembered. Why don't I try? I've got enough pieces to put this 2-pipe engine together. So I assembled (the engine and frame) loosely to get dimensions. I could see I had to cut the frame and put a belly in the tubing to accommodate the



The Solex carburetor is made up of leftover parts from another project.

crankcase. I had tubing bent and then welded it in. And then started making mounts and aligning."

Sadly, the '49 2-pipe engine wasn't in the best of shape. *"Most of the bolts were missing, but it was basically complete. It was pretty gross inside, you could see lots of water. It looked like it had been sunk,"* Whitter says.

Fortunately, the crankshafts had survived undamaged, and were appropriated for the 1953 MkII

rebuild. The crankshafts now in the Flash Four were supplied by Draganfly Motorcycles in Bungay, England. The original crankshafts from the '53 went back into Whitter's inventory.

Rebuilding the '49 engine, though, required plenty of acquired experience with Square Fours and a generous supply of new and used parts — as well as Whitter's expertise as a former marine engine fitter, which also came in handy.



The completely hand-done primary.

"I poured my own main bearings just to try it out, to see if I could do it, and machined them myself."

Four connecting rods left over from the '53 were pressed into service after checking that they were in good shape.

Whitter then installed a new set of cylinder liners, using a barbecue to heat the block. He then had the cylinder block "decked" (machined flat and square).

"A friend of mine had a brand-new set of pistons that he'd got from New Zealand. But he wanted to use some older ones in his bike. So, he decided

to sell them to me. They're all standard bore."

The valves and guides required another mix and match. Whitter had a set of valves in his '53 that kept seizing. He replaced them, and the old valves were installed in the '49 engine.

"So, I used the new valves on my '53, and the old valves, I put them in this one because their guides were a little bit more (loose), but it made it perfect."

Similarly, the carb on the '53 had been assembled from the best parts

of two Solexes. Whitter used the leftover pieces to build a new carb.

"A few pieces went missing. I had to machine them up, put them together. And it actually runs very well with it."

Mating the Square Four engine to the BSA transmission took some ingenuity. Whitter used a complete BSA A10 clutch and gearbox.

"I had an Ariel inner primary that I had to cut to adapt. The outer primary is completely hand done. Homemade. And lots of machining. That was a lot of work."

Whitter also had to make some significant repairs to the BSA frame, including fabricating the engine and transmission mounts.

The kickstand lug was missing, so that had to be re-welded.

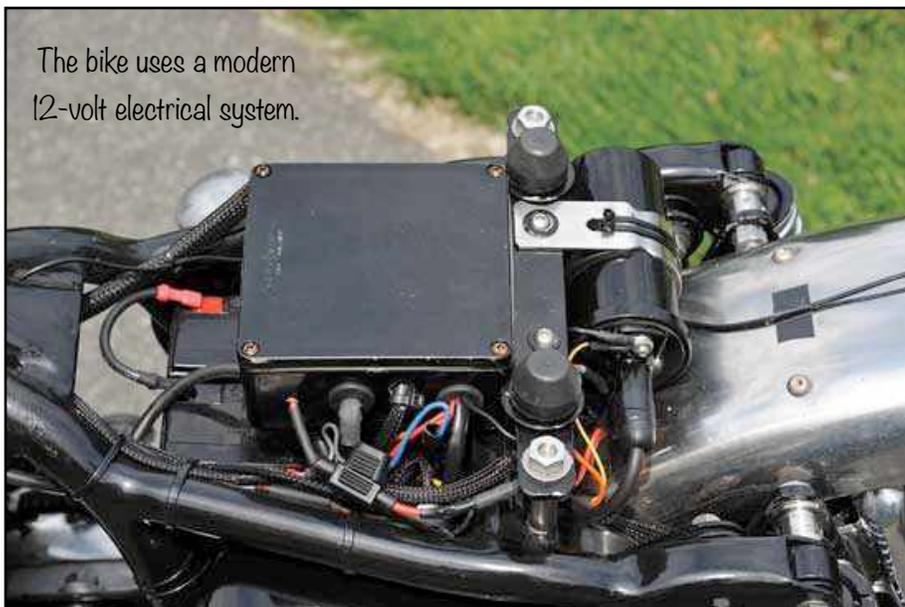
Whitter also converted the steering head for taper-roller bearings. The oil tank had to be modified to suit the Ariel's particular number and size of oil lines, and to accommodate a filter.

The exhaust headers and pipes came from a '52 2-piper, and the front brake is a twin leading shoe unit from a 1968-1970 BSA twin.

Whitter also notes the help he got from local master alloy fabricator and welder Peter Dent, who made the front fender and chainguard.

"I guess it becomes a process of, as you move forward, you find obstacles and you have to overcome them. You have to make sure everything fits. That's the problem."

Whitter wanted to include a modern 12-volt electrical system, and Draganfly recommended a unit from Iron Horse Spares in the U.K.. They supplied a 300-watt alternator and regulator/rectifier system that fits inside the original



The bike uses a modern 12-volt electrical system.



Owner and builder Lyle Whitter aboard his Flash Four creation.

DC generator casing, complete with distributor drive.

Whitter is delighted with the Iron Horse product: *“Superb machining. Just superb.”*

Whitter also fitted a GPS-based speedometer and wireless tachometer, but is chasing down some gremlins in the instruments. Otherwise the project is pretty much complete.

Whitter admits he hadn’t been a big fan of the 2-pipe engine, preferring the appearance of the 4-pipe. So how does he feel about the finished project?

“As much as I didn’t like a 2-pipe engine at that time, I admire them now,” he says, noting that the 2- and 4-pipe engines *“feel the same as far as torque goes.”*

“To me, it’s an absolute delight of a bike to ride. Smooth, torquey and

handles like a dream. It’s much smoother than my Golden Flash, and a nicer handling frame than the Square Four.”

And how does it compare to Whitter’s 1953 Ariel?

“It’s just a nicer-feeling bike. Just the way you can flick it into corners. But there again, I’ve got alloy wheels and nice tires on it.”

Any other comments? *“Just a lot of thanks to friends that have helped with the project.”*



The BSA A10 gearbox.

An overview of the British motorcycle industry and its collapse

by Ian Chadwick



Ian Chadwick, former newspaper, magazine and newsletter editor, now retired and no longer riding because of a bad left knee, is now selling his collection of books on the older bikes (mostly British), many of them out of print. Especially Triumph.

If interested in making a purchase and covering the shipping fees, contact Ian directly (ichadwick@rogers.com) and he will be pleased to send you a list of the books for sale. Somewhere among them is the book about the collapse of the British motorcycle industry that was the main source for this article.

By the early years of the 20th century, almost everything in motorcycling has been invented, tested and used: from single to multiple cylinder machines in every possible layout; chain, shaft and belt drive; liquid cooling; front-and rear-wheel drive; telescopic and girder forks; kickstarts, electric starters, twist throttle, multiple gears, and more.

Despite some landmarks in its development, motorcycles don't have a rigid pedigree that can be traced back to a single idea or machine. Instead, the idea seems to have occurred to numerous engineers and inventors around Europe more-or-less simultaneously. In the decade from the late 1880s, dozens of designs and machines emerged, particularly in France, Germany and England, and soon spread to America.

It really began with the booming bicycle craze that swept Europe in the 1870s-1880s. Bicycles were inexpensive transportation that proved easier to maintain, and cheaper than, horses. Early designs were stylish but awkward and clumsy - such as the Penny

Farthing, with its pedals on the tall front wheel. Later, smaller wheels and rear-wheel drive would make them even more practical, and mass production made them more inexpensive.

It wasn't much of a jump to put a motor on a bicycle. Engine technology was evolving and within a few years stable, dependable engines were being mass-produced, many small enough to be easily fitted onto a bicycle frame. The entrepreneurial spirit of the industrialized nations like Britain quickly grabbed hold of the idea and companies sprang up all over Europe. In England, many were concentrated around the industrial centres like Coventry.

By the turn of the century, in 1901, motorcycles were being manufactured for sale in several European countries. Most early models were either tricycles or based on bicycles - often made by bicycle firms. With only a few automobile manufacturers making cars, and the extra expense of a four-wheeler, motorcycles rapidly gained popularity, even among women who were enjoying the new

political and social freedoms of the era. By 1913, there were 100,000 bikes registered in Britain.

Experimentation and innovation drove development right into the First World War. The new sport of motorcycle racing was a powerful incentive to produce tough, fast, reliable machines. These enhancements soon found their way to the public's machines. By 1914, motorcycles were no longer bicycles with engines: they had their own technologies, although many still maintained bicycle elements like seats and suspension.

The war dampened development considerably, however. The armed forces of both sides demanded reliability and durability more than speed and innovation. Armed forces purchased thousands of bikes - a powerful economic incentive for manufacturers to be conservative. The output for public markets dwindled or ceased altogether. Many small companies didn't make it through the war years, closing their doors for good.

World War One did a great deal to develop the British and European motorcycle industries. It forced

manufacturers to work hard to both meet production demands and to develop better, stronger machines. A strong entrepreneurial spirit drove the industries there. In the USA, which did not enter the war until 1917, car manufacturers got a head start on the market. The USA saw inexpensive, mass-produced cars much earlier, often competing in price against motorcycle-sidecar outfits.

By 1920, the 200 American manufacturers that began the war were reduced to less than 40. By 1930, only three remained. When Excelsior closed in 1931, only Harley Davidson and Indian were left.

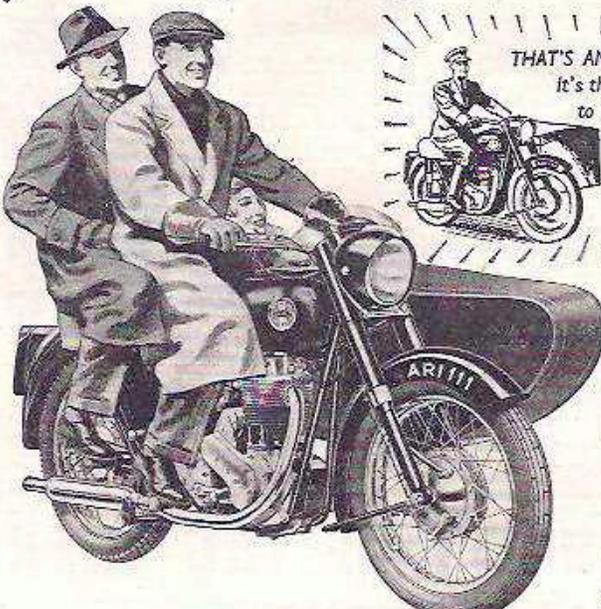
In the post-war euphoria, British production started again at an even faster pace. At the first Olympia motorcycle show, in 1919, there were 112 motorcycle manufacturers displaying their products. Many were still only assemblers: they bought parts and engines and built them into their own machines. The numbers grew steadily until about 300 companies had their own marques between the wars (about 700 British marques were registered in the first century of motorcycling). The peak year for motorcycle production in Britain was 1929, when 147,000 machines were made.

But the machine's popularity plummeted with the Depression and many companies closed as sales fell. There weren't enough customers for all the companies, and not enough money to support all of the models. Export sales plummeted, and Britain taxed larger engines, so manufacturers cut prices and produced inexpensive models.

England exited the Depression with fewer motorcycle companies facing

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"It was a wet, gusty night, one which more or less enforced a moderate speed, but the 6.4:1 top gear provided the facility for real "top-only" running up-hill-and-down-dale with little need to open the throttle more than quarter-distance.

"Apart from observing halt signs, such as that at the A5 crossing, no stop was made; in fact the model would proceed in the traffic stream at Ashby and Tamworth right down to speeds of approximately 10 m.p.h. and the result was an m.p.g. figure of nearly 126."

new and growing competition from cheaper domestic automobiles. But the remaining firms were more competitive and aggressive. With a smaller market, racing and competition drove development. The motorcycle was still a utilitarian vehicle, inexpensive transportation aimed at the working man, but there was greater focus on design and style - and power.

Another factor accelerating the development of motorcycling was the change in roadways across Britain. In the decades before and

after the war, governments launched road improvement programs, building or upgrading connecting links between towns and cities to improve internal trade and transportation. These led to the development of road cafes - initially intended as convenience stops for truck transport, they soon became favorite spots for motorcyclists. The sport of cafe racing grew from bikers who would race between stops, or between cafes and local landmarks. Cafe racing was in turn another enticement for improved performance and encouraged

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backyard mechanics to tinker with their machines. The Triton (a Triumph engine in a Norton frame) and Tribsa (Triumph engine in a BSA frame) are examples of their entrepreneurial efforts.

A similar road-building program in the post-war USA saw the development of more than 41,000 miles of highways across the country. Instead of encouraging a generation of bikers to race, it led to the development of suburban sprawl and the decline of inner city life in America. The result today can be seen in the SUV: a lumbering, ugly, gas-guzzling, and unsafe behemoth.

Machines in the UK continued to improve and evolve. The mid-to-late 1930s saw some of the most innovative designs in motorcycling, and some of the best machines come from the post-Depression period. But they were also more expensive. The role of the motorcycle as inexpensive public transportation devolved through the 30s: it became more of a hobbyist or competition machine. Use in police and armed forces also grew, providing a stable market for more utilitarian machines - especially as Europe rearmed. But motorcycling was increasingly an enthusiast's hobby.

The Second World War again brought a closure to many factories. A lot of firms went on to make products for the war effort, some simply closed. Only a handful continued to make motorcycles, mostly to supply the British Army. Export sales dwindled as shipping was strangled by U boat raids. German bombing raids in Coventry and London spelled disaster for some companies: they never recovered from the loss of

plants and equipment. Others simply never returned to make motorcycles.

After the war, a battered and financially beleaguered Britain struggled to rebuild. Petrol rationing, the lack of resources for manufacturing and low consumer capital made recovery slow. Innovation was strangled by lack of funds and a deeply conservative mindset at the executive level of many firms. Innovative designs were produced, but many proved unsuccessful in the market, or just too expensive. The British Army put a lot of its motorcycles into civilian hands after the war, creating a brief glut of inexpensive, utilitarian motorcycles in the market at a time when other vehicles were scarce.

But the image of motorcycling was also changing, the result of servicemen returning home. Looking for some sense of identity and freedom, many turned to motorcycling. Café racing, the 'ton-up' crowd of leather-jacketed riders, and the newly emerging motorcycle gangs added a darker side to motorcycles that further turned away more conservative buyers. More and more consumers opted for cars as their family vehicle, and motorcycle sales - initially rising after the war, soon slumped again.

Export sales, especially to the USA, accounted for a large proportion of post-war British production. While good for business, it often made many models unavailable or scarce in the domestic market. The USA was a rich market, with only two motorcycle companies of its own in the 1950s: Indian and Harley Davidson. The lighter, faster Triumph, Norton and BSA machines became so popular that US firms fought unsuccessfully to

have them banned or heavily taxed. After Indian collapsed, in 53, British machines became even more popular, especially in the race and trials circuits where they dominated the events.

Nineteen fifty-nine was a peak year for the British industry: motorcycle sales and exports were at their highest levels. Flushed with their own success, most companies didn't bother to look at emerging trends, or take stock of their aging designs. Most of the executives and designers came from pre-War days: they looked back to the glory days of the 30s, not ahead. And as such, they created some beautiful, exciting machines - many were race-oriented, however, an increasingly smaller portion of the market than manufacturers seemed to realize.

Worse, few if any top level people came from within the motorcycle industry: the trend was to hire from outside the industry. The post-war paradigm in business management encouraged manufacturers to replace outgoing executives with graduates from business schools, generally people with financial backgrounds, instead of promoting from within. Engineers - never common in upper management - were increasingly scarce around the board room tables. Decisions were being made more and more by people far removed from the production side.

In the 1960s, middle-and upper-management levels became swollen with employees far removed from design and manufacturing. Management consultants made efficiency studies and wrote endless reports. Financial experts continually changed processes and set up new systems for reporting, stocking and testing.

Marketing departments expanded as product lines shrank. Money was poured into studies and increasing management expenses.

Unions also helped the demise. Once powerful forces of social change, British trade unions had ossified into opponents of any change that they perceived as a threat to the workforce. Modern mass production techniques were one of those threats. Management found it easier to continue their labour-intensive 19th-century production lines than get embroiled in fights with aggressive unions determined to preserve the status quo.

The motorcycle industry was in the doldrums and financially in trouble by the early 1960s. Most companies continued to make bikes based on pre-war designs - designs that no longer interested a younger generation. Production quality fell as testing time was shortened by management eager to get bikes into the market sooner.

The scooter craze of the late 1950s-early 1960s helped boost sales, but not for long, and not enough, although it generated a production wave that seemed to presage richer days ahead. In fact, the rush to develop and market scooters cost a lot of motorcycle companies precious resources and capital. The craze crested and the demand dwindled, but the companies didn't seem to notice it until too late. The backlash was greater reluctance to re-tool for new motorcycle designs.

Consumers with more money wanted automobiles, not motorcycles for the family vehicle. The inexpensive Mini car was introduced in 1959, effectively killing sales for the sidecar market. Fifty nine was the last real boom

year for British motorcycles - 127,000 bikes were built then. But the manufacturers didn't seem able to read the writing on the wall.

Slowly, companies were dying out or being bought. The amalgamation of companies like BSA-Norton-Villiers-Triumph might have made financial sense, but the consolidation of manufacturing and engineering into a small number of firms only made the industry stagnate. Too few designers and too little competition was the death knell for the industry. What had been friendly competition by independent firms became bitter internal rivalry after amalgamation. Racing was also losing its support as sponsors pulled out in favor of automobile racing. The public lost its previous passion for the marques.

The final blow to the British motorcycle industry came with the increasing import of Japanese motorcycles into the USA and European markets. Less expensive than domestic machines, they were more reliable, and showed more innovation and engineering development than their British counterparts. British companies were too slow to react to the competition: their roots were essentially Victorian in both management and production. Too many manufacturers were making bikes for a small group of enthusiasts or for racing, rather than as public transport. There was no real up-scale market for these motorcycles at the time, but most manufacturers continued to produce expensive machines - until their small market dried up and they closed. Many never appreciated the market for commuter bikes.

The Japanese rebuilt the image of motorcycling as the pastime of everyone, not just a clique of enthusiasts. Motorcycles were fun, friendly and ridden by the nicest people, as Honda's ads reported. They invigorated the market and pushed up sales, especially targeting the teen and young adult consumers. But the British industry was doomed. It couldn't even ride the coattails of the Japanese successes because it couldn't change quickly enough. Their products couldn't compare, they couldn't make enough, and the Japanese were winning the races that had been the pride of the British for so long. The CB 750, introduced by Honda in 1968, took the industry by surprise: it was bigger, faster and better than anything the British could offer. No one had really believed he Japanese could make motorcycles of this size, but they did and it blew the competition away.

British manufacturers had always been hesitant to reinvest in more modern machinery, so production was often based on pre-WW2 equipment; slow, outdated and expensive to maintain - often using hand tooling instead of production line processes. Company owners and directors continued to take dividends out of the firms, at a time when the Japanese were borrowing heavily to invest in the most modern production equipment. The Japanese put their earnings back into the companies. The result was that British motorcycle quality was visibly deteriorating; styling was antiquated. Meanwhile the Japanese motorcycles were reliable, inexpensive and visibly modern.

Production was often limited, and sometimes focused on more lucrative export sales rather than

domestic. BSA made 100,000 lightweight Bantams from 1948-53, but that was a small fraction of the one million small 50cc Quickly mopeds made by NSU from 1953 to 59. Plus, the Bantam had none of the styling of the Italian or German vehicles that attracted consumers. Since 1958, Honda has produced more than 26 million Super Cubs, proving that there is a market for small, lightweight two-wheelers.

BSA was one of the few firms to upgrade equipment and install new machinery after WW2 - including a semi-automated computerized assembly line considered to be the most advanced outside of Japan. But a series of market failures (including the pathetic Ariel Three moped, 90cc Dandy scooter and 75cc Beagle) lost the company considerable money in the 1960s, so BSA was forced to sell off their assets. The company was left with only enough to continue to make the Rocket Three, and soon closed its doors.

The role of the motorcycle shifted in the 1960s, from the tool of a life to a toy of a lifestyle. It became part of an image, of status, a cultural icon for individualism, a prop in Hollywood B-movies. It also became a recreational machine for sport and leisure, a vehicle for carefree youth, not essential transportation for the mature family man or woman. As the motorcycle riders of the Sixties aged, took on families, careers and homes, they purchased cars and put away the motorcycle, or simply sold it. Sales began to fall after the brief euphoria of the 1960s

and the Hippie movement dimmed.

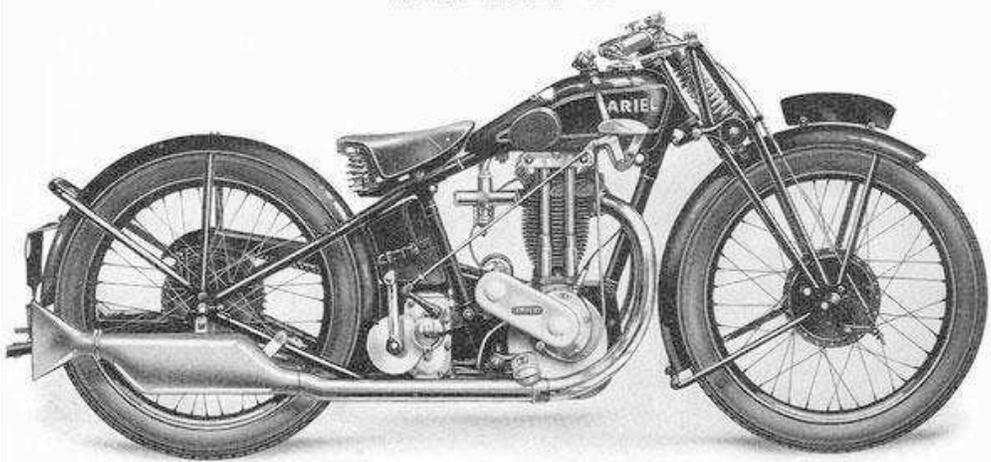
The British industry staggered along into the 1970s with fewer companies and more mergers - only nine firms were left by 1969. Some half-hearted attempts were made to create new machines to compete against the Japanese - the Triumph Trident, for one - but they were too little, too late. The last British motorcycle manufacturer - Triumph (by then part of the conglomerate NVT) - closed in 1983, a century after it had begun.

There were some abortive attempts at revival - Norton, Hesketh, Quasar - in the interim, but it wasn't until John Bloor resurrected Triumph a decade later that the British motorcycle industry made a real comeback. Bloor's success came because he continues to upgrade and improve his production line equipment, has stringent quality control and keeps his company focused on the competition to find new trends, technologies and styles. Triumph has also identified owner

loyalty as a large part of the marketing, and catered to it through its own line of branded products, magazines, web site and riders' clubs - taking a page from the very successful Harley Davidson.

Motorcycling is enjoying a boom in the new millennium. Sales have risen (in Canada alone, sales for 2000 were up 28 per cent over 1999 and up 28 per cent again in 2002), as a generation of baby boomers with disposable incomes want to recapture their youth turn to motorcycles as the time machine to bring it back for them. Triumph, recognizing this market, has in its mix several models that provide the nostalgic styling and evocative lines that recall those younger days, including a newly launched Bonneville. Ironically, trading in the now-vintage and classic bike market is stronger than ever, propelled by enthusiasts trying to keep alive the spirit of British motorcycling in its heyday. It was a special time, and it should never be forgotten.

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*The new Ariel
Ace Iron Horse*





A 173hp V4 hand-polished machine for the love of chrome

by Sagar Patil

Sharing the fancy DNA of the Atoms' and Nomads', Ace has been Ariel's bare-bone take on the two-wheeled world that saw the first daylights back in 2014. A completely customizable machine that could become just about anything; Low riding cruiser, street, naked, touring, or out and out sport. They sold for \$25k a piece, and a few of them came onto our shores as well.

Five years later, Ariel is setting up the stage to unveil a (literally) shiny new model called the "Ace Iron Horse" at the upcoming Motorcycle Live show in Birmingham, England. Based on the existing Ace Muscle Cruiser, the Iron Horse is said to be a homage to the 'Black Ariel' produced between 1926 and 1930 and will come with a price tag of around \$40,000.

Limited-edition machine built by one technician

Justifying that hefty price tag is the hand-crafted, hand-polished aluminum frame that over 70 hours to produce. CNC machined from 6 individual billet aluminum sections, the frame is hand-welded



to provide mounting points for the various subframe, fuel tank, saddle, body, and suspension options. Because being an Ariel, every machine is individually specced out from the other.

The Iron Horse takes this a step further with hand-polishing that frame to a mirror-finish. And so is the case with the unique aluminum Ariel girder front end, the exhaust canister, and the 17 inch BST alloy wheel, all polished away even to burn the sun. Pretty Chromy.

Then there is carbon-fiber. This is Ariel's way of showing tribute to their history – the "Black Ariels." Cradled within that blingy frame is a carbon fiber fuel tank that slopes down to a hand-stitched saddle that matches the weaves to the tank. The sparsely available bodywork is also carbon-fiber.

There are polished aluminum handlebars, adjustable footrests,

adjustable brake, and gear levers, and titanium heel guards and mounting brackets. Other highlights include full LED lighting, LCD instruments, with six piston linked brakes, Ohlins grinder suspensions, switchable traction control, ABS, and more.

Every Ace has been tailor-made and individually built by one technician from start to finish, and you can see the plaque with his signature on the frame.

The heart of this Iron Horse, however, remains the same 1237cc V4 motor supplied by Honda from its VFR1200. This mill is tuned to produce a hefty 173bhp and 95.1ftlb of torque and capable of a claimed top speed of 170mph. Throttle by wire technology combined with Ariel's fuel mapping and intake system gives progressive and responsive power delivery throughout the rev range. The power is transmitted to the rear via a shaft drive.

The Ace Iron Horse is Ariel's most exclusive machine that gets the most visually striking hand-crafted makeover. Be sure this will be a limited edition affair.

Source: Pistonheads









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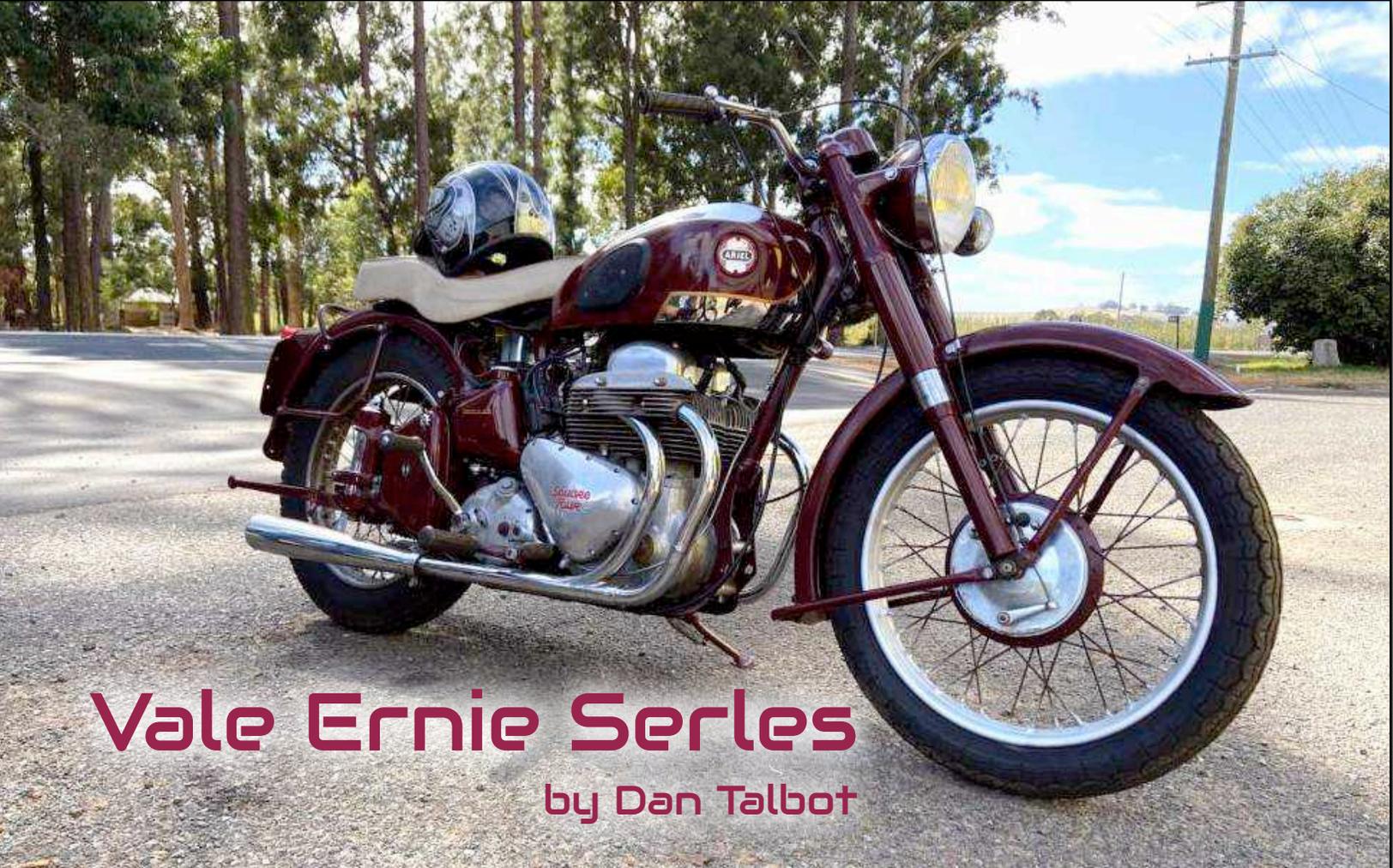
1957 Ariel Square Four

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Vale Ernie Serles

by Dan Talbot

This week I was lucky enough to experience my first ride on an Ariel Square 4. These unique machines are quirky, relatively powerful and highly collectable. It was a joy to ride. The motorcycle that I rode was part of a deceased estate which consisted of some 12 operational motorcycles and tonnes of parts, certainly enough to build another 12 machines. As soon as I walked into the shed and saw the bikes and spares laid out, I said, “this must be Ernie Serles’ collection.” As I said those words, it stuck me, with this being a deceased estate, Ernie had passed away. Until that moment I was unaware of Ernie’s passing.

Ernie had been a great help to me when I first built my Ariel and sidecar, most notably when I had major gearbox failure. The following excerpt from Rebuilding the Ariel describes the ecstasy and agony of vintage motorcycle

ownership. The excerpt takes up soon after my 1951 Ariel Red Hunter and Dusting sidecar hit the roads for the first time.

The outfit was finished off and licensed just in time for the annual

Biker’s Limited, Perth Toy Run. This would be our maiden voyage. The toy run consisted of a ride of about 20 kilometres from the Southern Perth suburb of Applecross down the Kwinana

This is how we rolled in the mid to late nineties. Evidently, by the time this picture was taken, Emily had graduated to a proper helmet, whereas Molly was still young enough to get away with her bicycle stack hat



Freeway into the city. Back then the toy run attracted upwards of 10,000 people.

I had often participated in the Toy Run on my road bikes, way back to the early days of the toy run, when I had my first Harley. On this day I put the kids in the sidecar and off we went. They looked so cute rocking around in the aptly named 'boat.' Emily and Molly were both under six years of age and therefore were excluded from wearing full crash helmets. They were allowed to get by with their lightweight bicycle stack hats.

As expected, thousands of bikes turned out for the Toy Run however, many more thousands of spectators lined the route to watch the procession. Sidecars were few, add the two kids in a vintage machine and all of a sudden the whole world seemed to be hooting, waving and hollering at my kids. The ride to the start of the Toy Run was mechanically uneventful, which was a relief as this predated mobile telephones and if, for some reason, the bike stopped, contingencies were few.

Soon after the start of the ride, we had not travelled too far before a police car hailed us to a stop. I was both curious and apprehensive, what did these guys want? Even though I was a detective I still had a fair knowledge of the Road Traffic Code and I felt sure my kids did not need full crash helmets as the heavy appendage could do more harm than good on frail young necks? Aside from that slightly grey area, I didn't believe I was transgressing any laws.

The Traffic Cop came running up to me clutching a piece of my bike, 'she's falling apart on you mate,' he said as he handed back goodness



M is for Motart. Soon after my Ariel Red Hunter restoration was finished it was featured in the highly exclusive Motart Journal operated by Mr Frank Charriaut. <https://themotart.blogspot.com/>

knows what. I took the wayward piece of hardware with relief. I probably out-ranked the traffic cop but a brush with the law is still a brush with the law! That sounds a little odd but, back in those days, detectives and traffic cops had quite a begrudging respect for each other's role. Anyway, the piece of motorcycle was dumped into the boat with the kids and we went on with the business of delivering toys to the needy.

We continued on into the city and slowed to the inevitable crawl for the last couple of kilometres. By now, the oil in my engine had thinned to the consistency of water and was seeping through every gasket in the engine. The hot oil running over the barrel gave the impression to anyone nearby that the bike was on fire as smoke rose all about me. Sure there were oil leaks but what couldn't be fixed or plugged could be passed off as another British motorcycle idiosyncrasy. I wasn't too concerned, or at least I attempted

to portray a nonchalance that made it appear I wasn't concerned. We rumbled into the city and my

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The Ariel gearbox is ordinarily a sturdy piece of equipment but I managed to seize it.

children deposited their toys for the kids who were too poor to be visited by Santa – a tough subject that one.

After the Toy Run I dropped the little ones at my mother's house in nearby Victoria Park and continued on home with an empty chair. All in all, I felt pretty chuffed with myself. It had been a good run and the bike performed well but, most of all, my plan to share the joys of motorcycling with my children had come to fruition. The kids had a ball and I was pleased everything went so well. Now that my girls have grown up, it is times like these that one reflects upon as highlights along the road to raising children. Simple pleasures.

Well, maybe not so simple. It had taken lots of time and money, commodities that were both in short supply around the Talbot household back then, to get to this stage. Lots of trial and error, lots of skinned knuckles, lost temper and cursing as I bumbled my way through tasks hitherto unknown to me. But, in the end, I had turned

out a quite remarkable piece of motoring history, I was very pleased with myself. Then, all of a sudden, the bike ground to a stop and the big cheesy grin fell from my face. I was only two kilometres from home, a situation for which I should have been extremely grateful because, as it turned out, I would be walking the rest of the way.

I couldn't tell what was wrong with the bike but knew for sure it wasn't good. I couldn't move the gear lever and the only way I could get the bike to move was with the clutch drawn in. What followed was a two-kilometre push home. It was hard work and, as I was trying to avoid using the road, I stumbled forward keeping as far left as I could. This led to disaster number two.

About halfway home I banged the sidecar mudguard fair into a lamp-post, kinking the metalwork that had been lovingly hand-painted by me using lots of rubbing back and building up with several layers of spray-pack paint. It sounds odd, but with lots of work I

actually turned the guard into a splendid addition to the outfit. Now it was scratched, bent and buckled and I was cranky. I was really starting to think 'are vintage bikes really worth the trouble?'

Despite arriving home mid-afternoon, dehydrated, sunburnt and exhausted, I immediately set about removing the seized gearbox. As tired as I was, ripping the gearbox out sitting on the garage floor, from memory, went quite well. It was the first time I had done such a thing so I was kind of pleased to finally lift the gearbox out of the frame just as it was getting dark. What a day it had been.

Following the seizure, with the gearbox out, I took it off to a fellow from the Vintage Motorcycle Club who lives and breathes Ariels. At that time, Earn had a large shed at the back of his Bentley house. It was chock full of Ariels and Ariel parts. Being December, it was also unbelievably hot inside Ernie's shed. As soon as I handed the gearbox over he was off down to the workbench, whereupon he secured it in the vice and got to work. I stood silently alongside Ernie as he beavered away on my gearbox, for as long as I could bear the heat, then blurted out, 'umm, Ern, I'm actually on my lunch break and really need to get back off to the office.'

Ernie waved me off without lifting his head, I made my way back outside and found it was almost a relief to be outside in the hot December sun. Ernie rang me a few hours later to advise he had located the problem. It was an offending brass bush that had a distinctive home-made quality about it (in fact, as it turned out, a lot of things on the Ariel had a shoddy,



Ernie's '54 Ariel Red Hunter sits alongside his '56 Square 4. Two highly desirable and collectible motorcycles.

home-made quality). Evidently, the bush did not have sufficient journal for oil to flow and, with the added load of a sidecar, the bush got hot, expanded and locked the shaft. A

\$5.00 replacement was all that was needed. When I went to pick the gearbox up, Ernie had left instruction with his wife that he wanted \$5.00 for his work, and

\$5.00 for the bush. Naturally I left much more than that, amidst protestations that it was far too much. 25 years later and the gearbox still works as good as new.

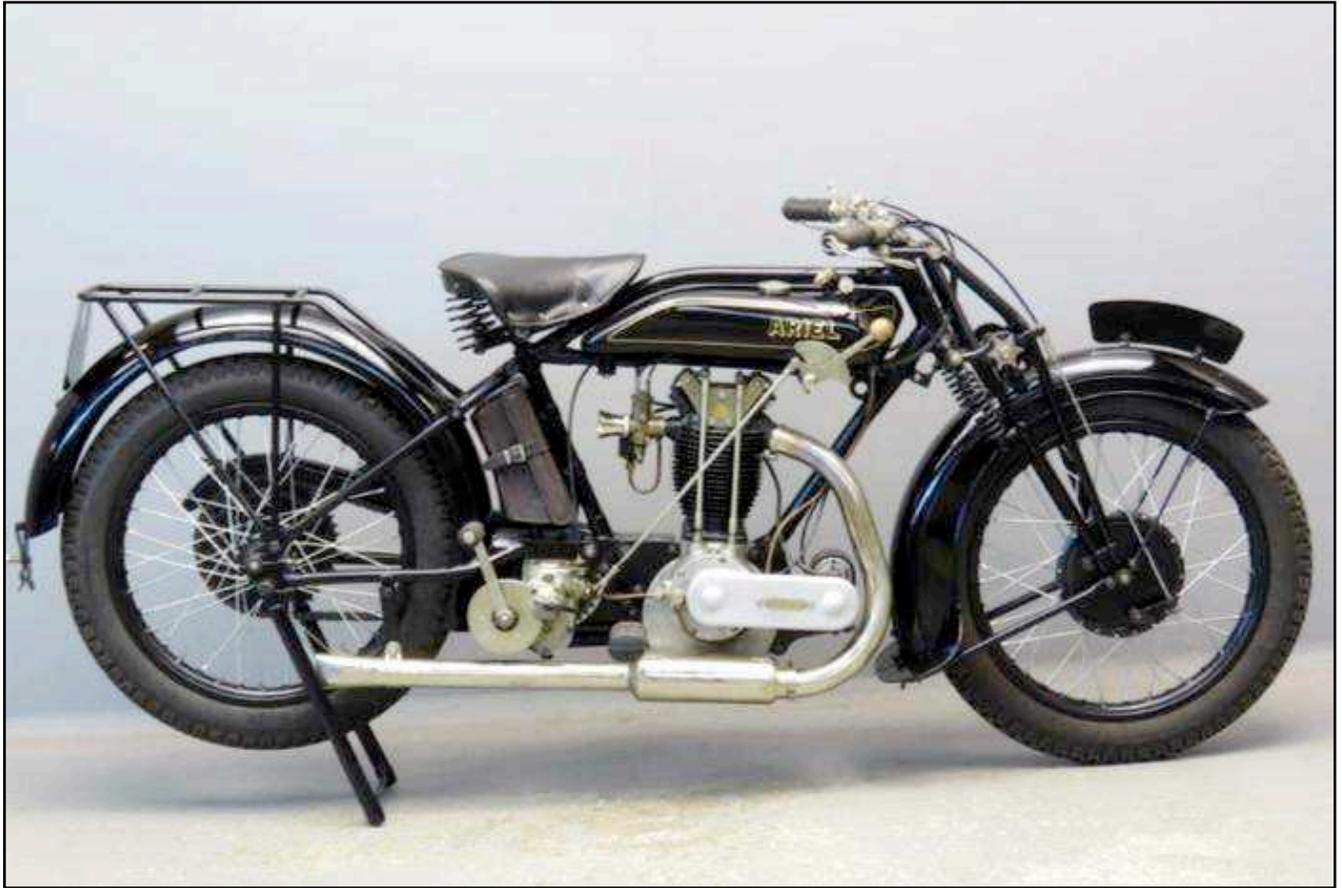
I took this photograph of a Square 4 outfit at the annual Indian Harley Club 2 Day Rally in 2018. Note this is the earlier, Mk 1, machine. The exhaust exits the front of the head, unlike the Mk 2 (above) which has four pipes (two each side) which was said to aid cooling.





The late Ernie Serle's 1956 Ariel Square 4. The old bike is in tip-top condition, starts first or second kick and runs like a swiss watch. A truly remarkable machine.





1926 ARIEL 5HP 497cc Fast Touring Model D

In 1925 Ariel boss Charles Sangster managed to contract two people that were to be very important for the Ariel successes of the years to come.

Val Page became Chief designer and Victor Mole was the new Sales Manager.

The company had some serious problems: the existing range of White & Poppe side valve engined machines had become very outdated and the Ariel make really could use a more sporty image. Page, who had previous been successful with JAP, had only a few months to get a new line of machines ready for the 1925 Olympia Show. He concentrated on the engines, the cycle parts would get an update one year later.

The new engines he designed – a 557 cc side valve and a 497 cc overhead valve, the latter with bore x stroke dimensions of 81.8 x 95 mm – gave the machines much more power and better looks.

Victor Mole started a clever advertising campaign with the slogan for the 1926 range “*Ariel, the modern motor cycle*”. The new machines got favorable comments from the press and the motorcycle buying public started to turn to Ariels in great numbers: within a few years Ariel sales and profits rocketed.

This vintage fast touring model is equipped with large 7 inches diameter internal expanding brakes, a practical feature.

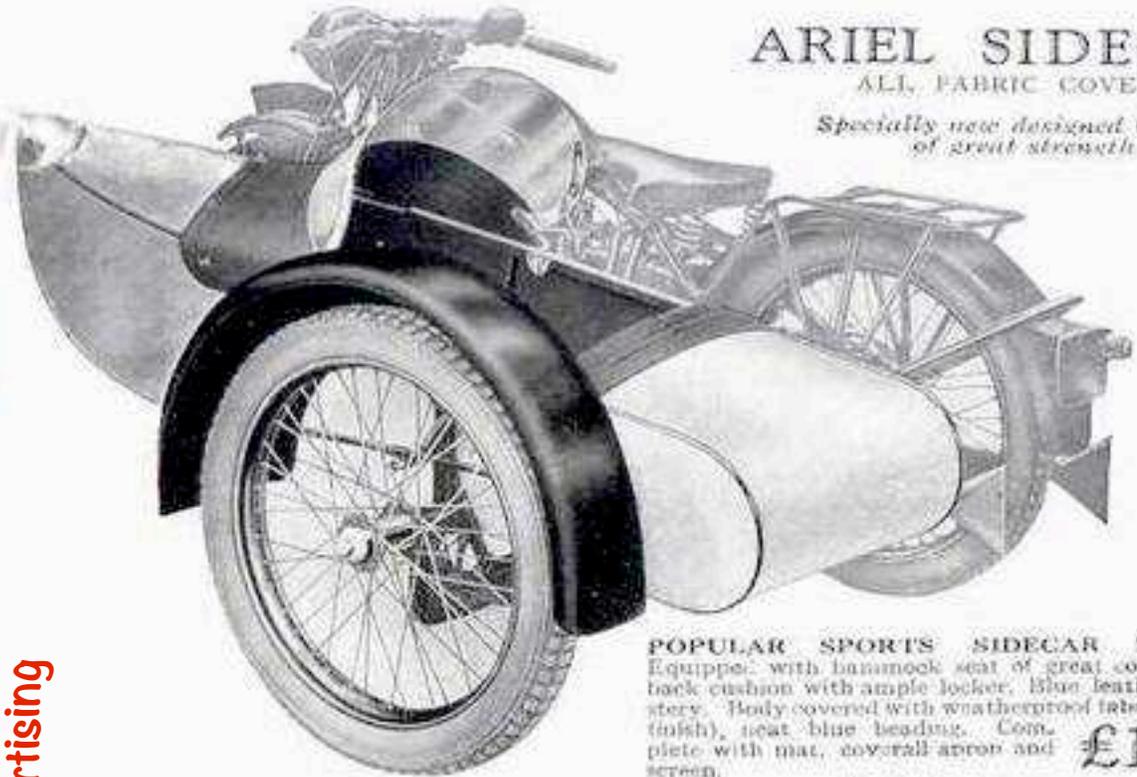


1929 advertising

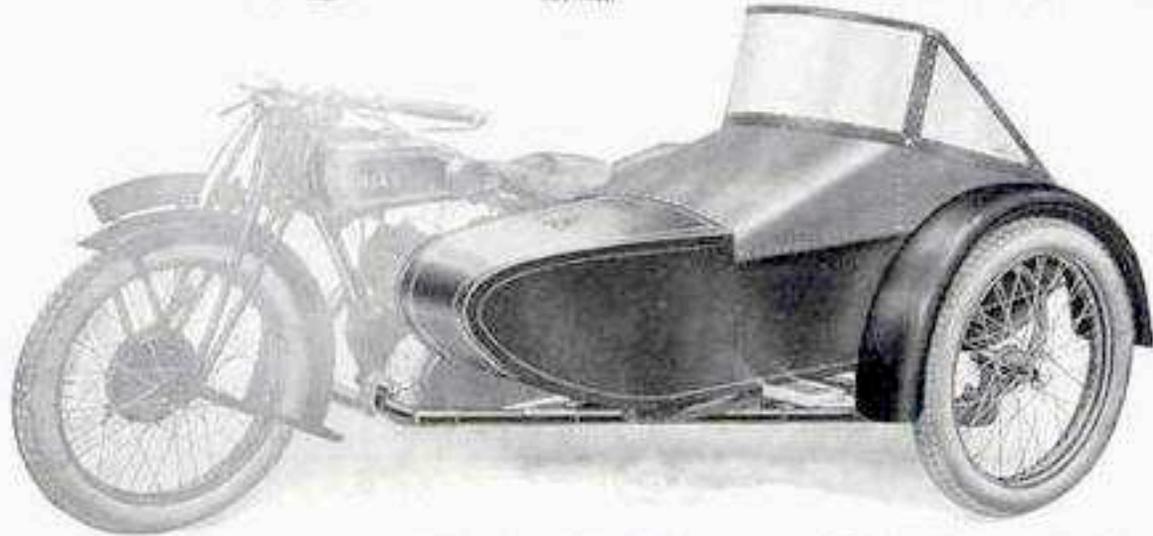
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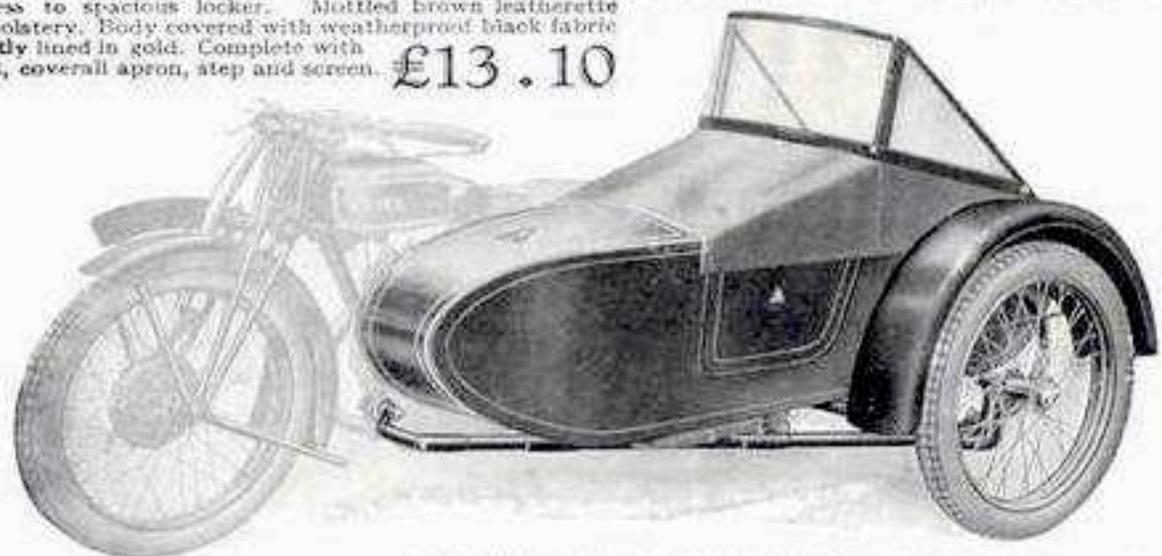
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STANDARD TOURING SIDECAR MODEL S. Equipped with moveable seat over well compartment and swing back cushion giving access to spacious locker. Mottled brown leatherette upholstery. Body covered with weatherproof black fabric neatly lined in gold. Complete with coverall apron, mat and screen. **£15.10**

A Lesson in Perfection: 1959 Ariel Square Four

Story by Greg Williams; Photos by Jeff Barger (Source:Motorcycle Classic)



Restorer Gary Athey found the Ariel Square Four he'd always wanted, and then rebuilt it to his own specification.

Engine: 997cc air-cooled OHV "square" 4-cylinder, 65mm x 75mm bore and stroke, 7.2:1 compression ratio, 42hp @ 5,500rpm (claimed)

Top speed: 105mph (approx.)

Carburation: SU, variable choke

Transmission: 4-speed, chain final drive

Electrics: 6v, coil and breaker points distributor ignition

Frame/wheelbase: Single downtube steel cradle/56in (1,422mm)

Suspension: Telescopic forks front, plunger rear

Brakes: 7in (178mm) drum front, 8in (203mm) drum rear

Tires: 3.25 x 19in front, 4 x 18in rear

Weight (wet): 435lb (197kg)

Seat height: 31in (787mm)

Fuel capacity: 6gal (22.7ltr)

From a very young age, motorcycle enthusiast Gary Athey worked diligently under his father's tutelage at Athey's Garage in Green Bay, Wisconsin.

Started in 1946 by his dad, the garage looked after machining and rebuilding all manner of engines, transmissions and differentials — anything that required specialized equipment to bore cylinders, cut valve seats, machine crank journals or simply change oil and filter and perform a tune up.

"When I was 16, I remember a customer rode into the repair shop on an Ariel Square Four," Gary explains. "I was captivated by the sight and thought maybe one day I'd own one." Fast forward to 1998. Gary was still thinking about an Ariel Square Four, but more than that, he was talking about the machines, too. *"My wife, Virginia, said to me, 'Well, find one,'" Gary recalls.*

Needing no further encouragement, Gary started looking for a Square Four but had little luck locating one that was for sale near his Green Bay home. He finally learned of a Square Four that was available at Baxter Cycle in Marne, Iowa, and Gary made plans to go take a look.

"But just a couple of days before I was going to go, I ran into a guy I knew who worked part time at a Harley-Davidson dealership," Gary continues. "He asked me what I was working on, and what I was looking to do next."

The topic of the Ariel Square Four came up, and Gary's acquaintance said he knew of one just down the road. Together, they went and knocked on the door and were welcomed into the owner's climate-controlled building where there was a large collection of motorcycles including BSAs, Nortons, Triumphs and



Harley-Davidsons. But Gary was most interested in the 1959 Ariel Square Four that, to his delight, had a Watsonian sidecar attached.

While not to everyone's liking, Gary has owned and maintained several motorcycles with sidecars, and says he owned his first combination when he was around 14. He'd load up the sidecar and go hunting for a weekend, or, in his younger years, fill the tub with ice and bring a keg of beer to a party.

"He showed me the Ariel and sidecar, and while I'd been led to believe he didn't usually sell anything, he surprised me at the end of the conversation when he asked if I'd be interested in buying it," Gary says. *"I went straight home, got my trailer and some money and went back to pick it up."*

Apparently, the Ariel and sidecar had been bought four years earlier in 1994 at a vintage motorcycle

auction in Las Vegas. Purportedly mechanically rebuilt, the Ariel and sidecar had not been used while in the seller's collection.

"I never take anybody's word about the mechanical status of a machine," Gary tells us, and continues, *"As soon as I got it home, I had the entire thing completely apart, removing every nut and bolt down to the cranks."*

In the beginning

Originally designed by Edward Turner in 1925, his square four concept was as simple as two parallel twin engines coupled together with an overhead camshaft rotated by chain. Lore has it that Turner, who had been operating a motorcycle shop in Peckham, London, began showing his square four drawings, and another set featuring an overhead cam single, around to the British motorcycle industry. BSA exhibited some

initial interest, but didn't follow up, and that's when, in 1928, Turner met with Ariel sales manager Vic Mole. Mole was sufficiently impressed to bring Turner to the attention of Jack Sangster, Ariel's manager.

By November 1928, Turner was working in the design studio with Valentine Page as his boss. Bert Hopwood joined shortly after as an assistant, and this team transformed Turner's design into a prototype engine in 18 months.

The prototype was a compact powerplant that held four pistons in a square layout, featuring fore and aft crankshafts geared together with helically cut teeth on each central flywheel. The rear flywheel gear in turn delivered power to a unit-construction 3-speed transmission. Bore and stroke was 51mm x 61mm and the 4-cylinder engine was small enough to fit in Ariel's 250cc Colt frame — a



model that had a sloping cylinder that fit between two widely spaced front frame downtubes.

This layout didn't come to fruition, however, as Sangster realized it would prove costly to build in full scale production. Instead, the unit construction idea was dispensed with and a more traditional separate Burman transmission was employed.

To make this work, the rear crankshaft on the left side of the engine was made longer to accept a sprocket to take power pulses via chain to the clutch and gearbox.

The engine still had Turner's chain driven overhead cam and another chain turned a magneto located behind the cylinders.

Now somewhat beefier than anticipated, the 498cc engine and separate transmission still fit into one of Ariel's single-cylinder frames

with splayed front downtubes, this one the 500cc sloper SG31.

First shown late in 1930 at the Olympia Motorcycle show, the Square Four was launched for the 1931 model year. Initially offered as the 498cc model, to give more power to tug along a sidecar, the Square Four was enlarged to 601cc in 1932 and was available in both sizes that year. In 1933, only the 600 was sold.

By 1936, Turner had moved to Triumph and Frank Anstey took over as Ariel's chief designer. Under his supervision, for 1937 Ariel revised the 4-cylinder engine by changing the crankcase from horizontally split to vertically split and replaced the overhead cam with one located in the center of the crankcase. The crankshaft coupling gears moved outboard of the crankcase and were hidden behind a left side cover. Overhung

connecting rod big ends made way for crankshafts that were widened to run in timing side bushes and drive side bearings — the big ends now split to accept bearing shells.

With the cam centrally located, short pushrods were employed to actuate the overhead valves. Cylinders and cylinder head were in cast iron, but the rockers themselves were housed in a separate alloy box. At this point, the engine was no longer truly "square" but more rectangular in its cylinder layout but Rectangular Four doesn't have the same marketing ring to it.

Significantly important, while still producing a 600cc model until World War II, bore and stroke of the engine was taken to 65mm by 75mm to provide 997cc's — and from 1945 on the Square Four was only available in the larger capacity. As the 1,000cc 4G model, Ariel

Owner and restorer Gary Athey with his beautifully finished Square Four sidecar.



equipped the Square Four with telescopic forks in 1946 and next updated the model for 1949 when the cast iron barrel and head was replaced by alloy components to create the Mark I version.

Mark II Square Fours in 1953 gained four distinctive exhaust header pipes and a bench-style dual seat replaced the sprung solo saddle. From that point on only minor changes, such as adding a 7-inch full-width alloy front hub, were made to the motorcycle until the end of the line — which came in 1958 with some being sold into 1959.

On the side

As for the sidecar maker Watsonian, that British company

was founded in 1912 by Thomas Fredrick Watson. First named the Patent Collapsible Sidecar Company, and then the Watsonian Folding Sidecar Company Ltd, the “folding” aspect is due to the fact Watson built a sidecar that could be collapsed towards the motorcycle, allowing the outfit to squeeze down narrow pathways and laneways to reach the backyards of English terrace homes.

The concept caught on, and Watsonian went on to produce many styles of chairs and, some 108 years later, continues to do so. Watsonian Sidecar is in Gloucestershire, England, and now operates under the name Watsonian Squire Ltd. The company builds a number of

different models, many based on some of its own historic designs.

Unfortunately, Gary does not know the exact model name of the chair he has, but it looks very similar to the Grand Prix sidecar that’s currently offered by Watsonian.

Going back together

Gary won’t take anyone’s word about the condition of a motorcycle because, as he says, “*I made my living rebuilding automobile, truck and tractor engines for customers, and my dad’s motto was always, ‘Make it as perfect as you can.’*”

While he says it was apparent someone had gone through the



Ariel Square Four's engine and gearbox, none of the hard work had been done and Gary took it to the next level. To satisfy himself, he reground the crank journals and installed new shell bearings in the four light alloy connecting rods. A new cam went in the bottom end and Gary also altered the breathing system to improve overall performance. The cylinder block was machined to accept brand new pistons and rings, and new valves and springs went into the re-worked cylinder head. He also upgraded the double-gear Ariel oil pump to one produced by Morgo.

The Watsonian sidecar wears the same red hue and gold pinstriping as the Ariel.

The transmission, Gary says, was in good condition, but he closely inspected all the gears and replaced every bush and bearing as a matter of course. The wheels were rebuilt with new U.K.-made chrome rims laced to the restored hubs with stainless steel spokes.

Many of the parts and pieces required, including a new wiring harness, came from Draganfly Motorcycles in the U.K. (draganfly.co.uk). All of this work was done in the days before the prevalent use of the internet, and Gary recalls writing many letters and occasionally making a long-distance phone call to order parts or simply seek advice.

A fresh coat

When Gary bought the Ariel, it was painted what is known as Bright Cherokee Red, a North American export-only color. He had the sidecar tub and steel motorcycle fenders, toolbox and headlight nacelle and fork covers sprayed, as well as the gas tank that was first meticulously re-chromed before the

paint and pinstriping was applied. The motorcycle and sidecar frames were painted black.

Gary's aware that some aspects of his Ariel Square Four aren't to factory specification, including the chromed rear stand, fork lower sliders and the myriad fender brackets. All chrome, with the exception of the large bar that runs around the sidecar, was renewed.

The saddle on the motorcycle and the sidecar upholstery itself was in good shape, so it was left alone, but the basket on the sidecar's rack received a new pair of leather straps.

After two years of work, Gary says his Ariel Square Four and Watsonian sidecar was ready to fire up and hit the road — which isn't something that usually happens with many of his restorations. Don't think that he doesn't usually finish a bike, because he always does.

His philosophy, however, is to build up bikes the way he likes them with all fresh machine work and brand-new components, while not being overly concerned about deviations from stock and without ever firing them up to hear them run.

But the Ariel — this one is a runner. And, according to Gary, it's an easy starter. In fact, Gary says one might think there's something wrong when kicking it over.

"It's so nice to kick and get started," he says. *"You'd say the valves are burnt or something else is wrong to take away compression, but it just fires right up. It's one of my favorite bikes and I've probably put about 1,000 miles on it."*

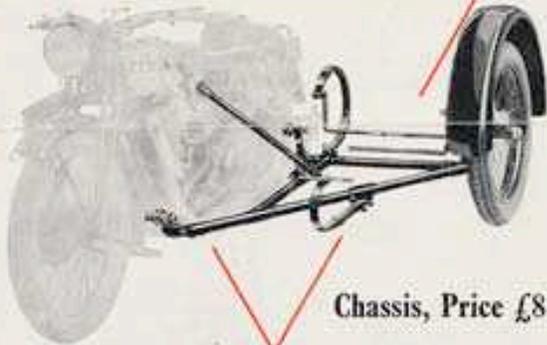
ARIEL

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This strong reliable triangulated chassis attaches to the motor cycle frame by large ball joints at front and rear. The third joint, which attaches to the seat pillar, is spring loaded so that road shocks and vibration are not transmitted to the motor cycle frame. Leaf Springs at front and rear. Dunlop Tyre. As manufactured by Watsonian Sidecars Ltd. this chassis is now suitable for all Ariel Motor Cycles which have the necessary lugs incorporated in the frame.
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Ariel Shedclean Special - the "MotoJunkers"

by Graeme Crawley, New Zealand



My shed had to be cleaned up. A lot of stuff was marginal but there looked like a bike in it somewhere so I decided that Arlo Guthrie's line "Rather than have two little piles it would be better to have one big pile" might be sensible! It wasn't!

I now have a Franken-bike. It is a 1953 Ariel Swing Arm Frame, a 1946 Burman BA gearbox from some farm bike as it was covered in cow shit, and this is coupled to a 1937 500cc Ariel Motor except that the crank is from a 600cc Ariel VB side valve machine so the stroke is 102mm not something like 97mm.

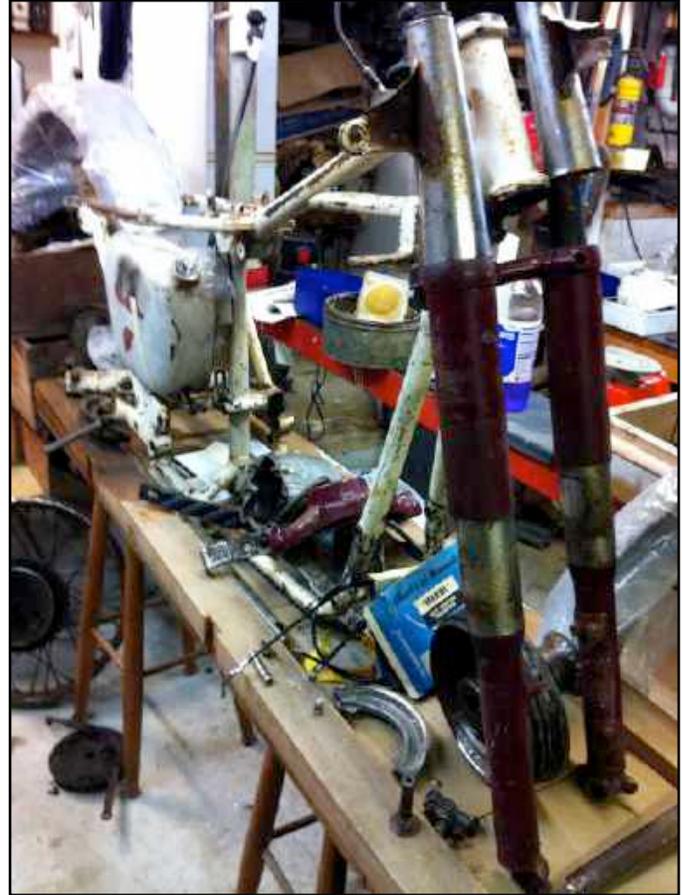
The frame had been raced so had to have lots of bits welded back on including some bits I think should never have been removed especially for racing! The frame was broken at the base of the two down tubes in front of the engine so we sleeved these and brazed it all up before stripping the whole lot and painting it – just with a spray can though – this was being done on the cheap.

The front forks Stanchions were bent so these were straightened with the help of a 40 tonne press and a lathe the only issue being that the press and the lathe were a 100 metres apart so I must've covered several kilometres back and forth before the things ran true enough to use. Turned the bushes around so the least worn part was front to back but it needs new bushes really.

Made some engine plates from scrap alloy ex a scrap merchant. The frame did not easily accommodate the engine and special bolts had to be made to hold the front of the engine without interfering with the frame.

The barrel was bored and a new old-stock piston installed. Valve guides were rusted solid to the head and took some mighty persuading to make them leave their lodgings so that new ones could be fitted. The valves were some found in the junk re-faced etc.

Being a high compression piston it was essential to fit a decompressor but I had none so made the lever/cam thing that lifts the exhaust valve. I am still missing the tin caps that cover the exposed valves. They can be obtained from Draganfly UK but the cost is daunting so may try to make some in copper.



As noted, the gearbox had been in a farm bike and at first it looked ok but in fact everything was worn out so new sealed ball bearings, new bronze bearings and bits of the positive stop were also remade. Even so the gearbox is a problem and has been apart numerous times to try to make the gear change work properly.

Eventually I seem to have replaced enough bits for it to work but suspect the main problem was the springs in the cam box. On these BA Burman boxes these springs are delicately balanced to work the pawl before the gear change actually happens. If the springs are the wrong tension from age, the pawl fails to flick down and one simply passes thru gears to some odd place like false neutral.

Wheels were some rusty old things I had laying around. So, in the spirit of use it or lose it I cleaned them up – surface rust only, tightened the spokes to remove most of the wobble and painted them. New sealed bearings and a new axel and wheel nuts were made to fit.

The big problem came when I went to fit a tyre from my stock whereupon to my horror the front wheel was 20

inch – I had not bothered to measure it. All good apart from the cost of a tyre at 20 inch – you don't want to know.

Footrests were a major issue, too much to go into here. Basically, adapters to ancient footrests that I had in stock were made with a file and the lathe to turn out the tapers – should've bought some to fit!

The primary drive cases are correct for the frame but clearly not for a 1937 engine but lo and behold everything fitted except the clutch dome had to be spaced away from the chain case – that is a nasty spacer but I also have one on my Ariel Huntmaster – Ariel made these things just too close!

Mudguards were some generic things I had laying around. The front looks a bit weird as the guard is really wide and that 20 inch wheel is really narrow but I quite like it now I am used to it. The issue with the guards was the making the scallops for the front forks and the shaping to clear the rear chain and swing arm. Had to make a tool to do the front ones but with some help

from Thor's favourite tool I eventually had a front guard that fitted.

I had a newish headlight and a generator – not sure yet if it works. The mag I made up from bits laying around – seems quite good. Also had to make the number plate/tail-light holder from some sheet metal as this was missing. I copied one from another Ariel I have.

The seat I made from sheet steel and sort of covered it myself – pretty rough but the aim was to get it going and then see if it was worth doing some things a bit better later. The handlebars and furniture were from the junk pile with some tinkering. I used an old in-stock BMW clutch cable and made new cables for the remaining things including the rear brake. The brakes work but maybe not quite good enough so I will likely be revisiting these.

So here it is:

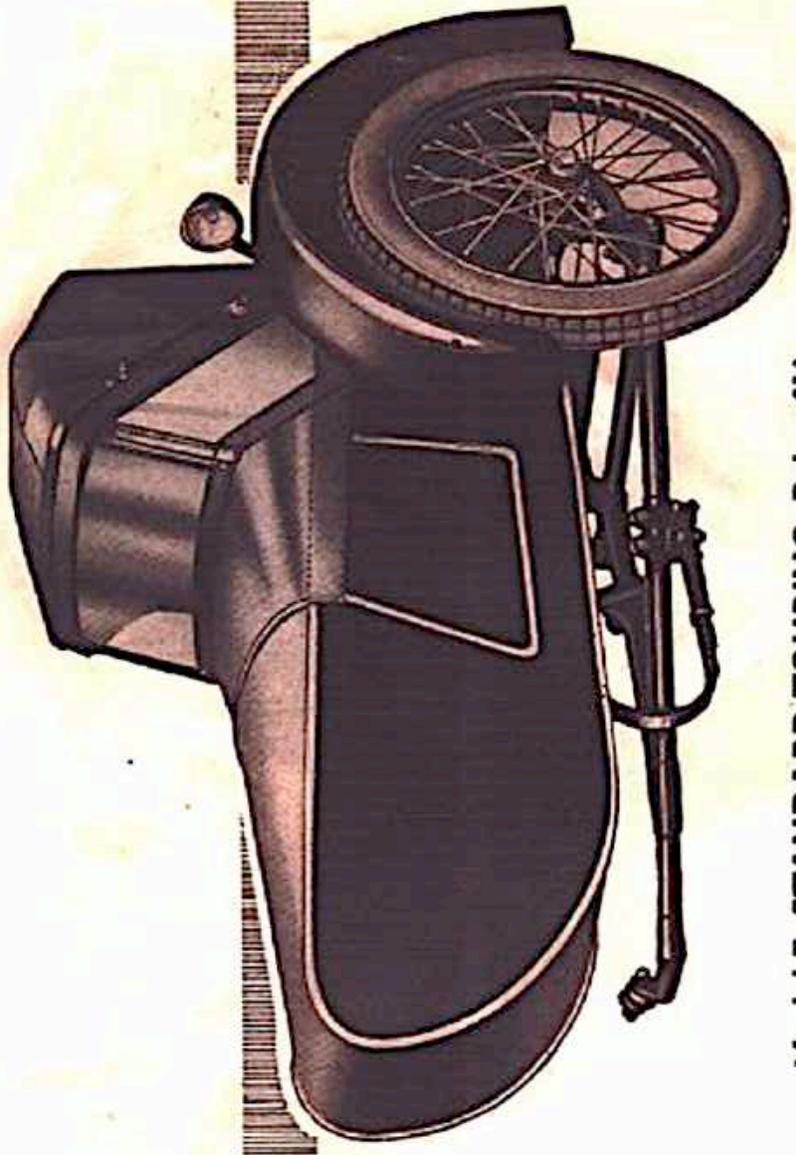
Has done about 50Km now – pulls like a train on steroids – that's the 102mm Stroke I guess.



SIDECARS

Ariel sidecars are specially designed to fit to Ariel motor cycles, as the motor cycles are specially designed to receive the sidecars. We cannot too strongly advise our customers not to fit sidecars of other makes, the chassis of which were not originally intended to be adapted to our machines, and which may therefore not only prove unsatisfactory in themselves, but also impose unnecessary strains on the frame of the motor cycle.

When ordering it is essential to state whether the sidecar is to be fitted to (i.) a vertical engine model, or (ii.) a sloping engine or 4-cylinder model. The chassis for these two groups are not interchangeable.



Model R. STANDARD TOURING. Price £16

Distinctive in design and extremely comfortable, having leather cloth upholstery with a hinged back cushion giving access to locker. The body is finished in black fabric with aluminium mouldings, or polished aluminium to choice, and is complete with all-weather hood and screen.

ARIEL SIDECAR CHASSIS. Price £10

The most scientifically designed chassis on the market. Triangulated and of immense strength, it is attached to the motor cycle frame by large ball joints at front and rear. The third joint, attached to the seat pillar, is spring-loaded so that severe road shocks and vibration are not transmitted to the motor cycle frame. Suspension is by leaf springs front and rear. The sidecar wheel is fitted with taper roller bearings. Each chassis is supplied with a set of tools.

I have one good motorcycle crash left in me *by Jay Leno*

I have been riding motorcycles a lot lately. I figure I have one good crash left in me. Years ago, I fell off a bike one weekend and still limped into work on Monday and did *The Tonight Show*. I don't think I could do that today. I'm not a young man anymore, and lately, I can half-paralyze myself for a couple of days just by turning my head too fast. But I can probably risk one more crash and still be around to annoy everyone with the story.

Collecting motorcycles makes a lot of sense to me because you can park a bunch of bikes in the space of one '59 Cadillac. Why have just one thing that leaks oil when you can have a dozen in the same spot? And if you love the look of machinery like I do, motorcycles are wonderful, because they wear their mechanicals on the outside.

Open the hood of most new cars, and all you see is plastic, some design neophyte's idea of warp drive. But a motorcycle's engine has to be appealing. They are like the back of a Swiss watch, especially the early bikes, because you can see the exposed pushrods going up and down and the rocker arms and valve springs tapping away. It pleases me to look at them, and you don't have to open a hood first to see the goods.

I have a three-cylinder Triumph Rocket cruiser in the shop with a 2300-cc engine, the largest ever in a production motorcycle. Fast? Torquey? Oh, my gosh, it's powerful. But the engine is not the prettiest ever made. It looks like somebody dropped a Ferguson tractor motor in sideways (the bike didn't sell well). Unlike car companies, motorcycle makers have

to make beautiful engines, and I love that.

There's also way more to do as a rider than as a driver, especially on vintage bikes. You have manual chokes, manual spark advances, foot clutches, foot brakes, and so on, and it all has to be pushed and levered before you stop and again when you start going. The earliest Brough Superiors came out before the twist grip was invented, so to accelerate, you move one lever for gas and one for air, the so-called enricher, and listen to it until it sounds right. You also have a little window to watch the oil flow, and you have to work a hand pump to squirt oil into the engine. If you want to speed up, you go from 28 drops a minute to 32 drops a minute, or the thing will seize up. It's like being the engineer on a two-wheel locomotive.

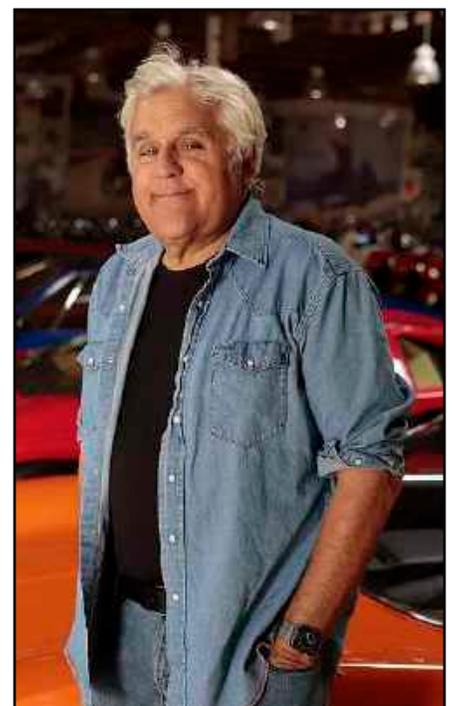
What you were expected to know back then is hilarious. I have a prewar Vincent Rapide Series A, what they call a "plumber's nightmare" because of all the external oil lines. The manual says that after 1000 miles, you are to completely disassemble the engine, check everything, and reassemble. Yep, just take the engine apart, check "everything," and whip it back together. At least with a bike you can get it through the front door and do it on the dining room table.

My 1922 Megola is a German motorcycle with a five-cylinder rotary engine in the front wheel and a top speed of about 52 mph. Once you start it, you can't stop without stalling, so the manual says that when you come to a red light you should "orbit" until the light changes, and then pull away. That

would be entertaining to try in West Hollywood.

Of course, there is increased danger, especially with older bikes. I was riding a 1924 Brough Superior a few weeks ago, and I hit the brake just as I hit a bump. The wheel bounced up, and the whole brake came apart and locked the rear wheel. I skidded down the street, but I managed to keep it upright. Luckily, this was after I had exited the freeway. As I was catching my breath, I realized that mechanical problems are so much scarier on two wheels than four.

Riding keeps you sharp, that's for sure. But best of all, it makes me feel young. When I go back east and visit friends my age, most of them are just sitting around. When I ride up in the canyons, I'm surrounded by young people. All of them are faster than me, and that's okay, because on an old bike, unlike today's bikes, you can scare yourself pretty good at 45 mph. If I have only one crash left in me, that seems fast enough.

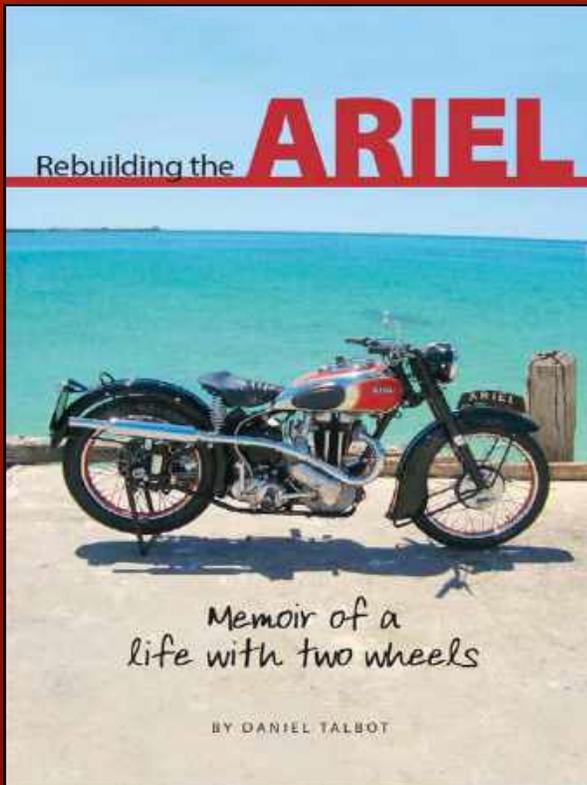
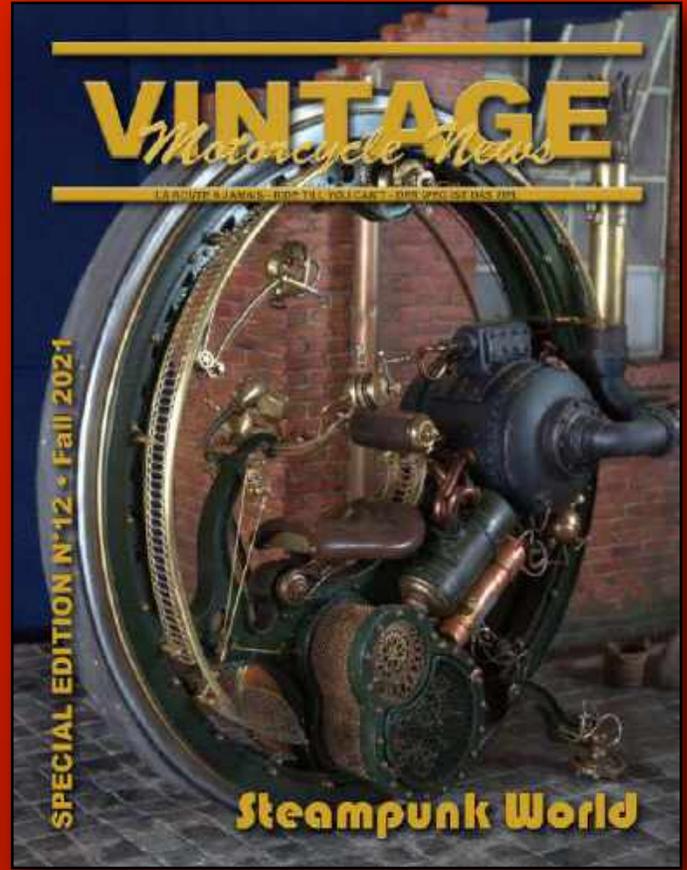




Flooding in the old days or flooding nowadays, still the same shit motorcyclists had to deal with!



COMING SOON TO YOUR MAILBOX



Rebuilding the Ariel

Daniel Talbot, the creator of Motorshed Cafe, has a long-held passion for all things two wheels, including motorcycles, bicycles and even a replica antique Penny Farthing. This book weaves together anecdotes and memories of a passionate life, one rich in a tapestry, which details Daniel's dedication to the people and machines from which he draws inspiration and nourishment. Daniel has written a book from the heart that will entertain and surprise people from all walks of life.

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Take a trip down memory lane with the Motorcycle Classics Prewar Perfection special issue! Packed with stories about all different kinds of bikes (from a 1936 Harley-Davidson EL and 1941 BMW R75 to a 1927 Cleveland 4-45 and a 1933 KTT Velocette), this collection features something new and interesting on every page.

Read about the enduring legacy of the inventor of Carmex lip balm (his grandson rides and fixes up motorcycles), travel to Berlin to discover the roots of the 1939 BMW R51, and learn how the 1930 Henderson KJ Streamline was used as a police transportation vehicle. This is the perfect read for the history lover and motorcycle collector!

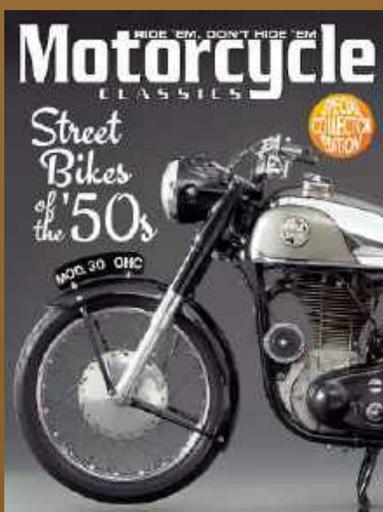
Other articles include:

- Refined Pioneer: 1921 Reading Standard – Some antique motorcycles are time travelers. They do much better in current conditions than they did when they were built. One of these is the

Reading Standard.

- Diamond in the Rough: 1931 AJS S8 Deluxe – Restorer John Whitby was flipping through ads for cars when a motorcycle in the background of a photo caught his eye.
- A Little Fun on the Side: 1941 BMW R75 – Owner Mark Dunn urges us to retain our historical memory while keeping it light at the same time with a military sidecar BMW.
- And more!

MOTORCYCLE CLASSICS STREET BIKES OF THE '50S.....\$9.99



Motorcycle Classics dedicates this Special Collector Edition to the remarkable street bikes of the 1950s. Numerous classic motorcycles were designed and built in the '50s, and Motorcycle Classics has put together a 96-page special edition featuring articles that explore the decade and what it brought to the motorcycle world. The Harley-Davidson KHK, Honda JC58 Benly, Devil Lusso Extra, and many others are all covered in this glossy-page, full-color guide. Whether you're just discovering these bikes or have been riding them since they first came on the market, you're sure to enjoy this special edition.

Articles in this guide include:

- Unapproachable: 1957 Norton Model 30 – Joe Block's rare 1957 Model 30 is one of just 70 built that year, but that doesn't stop him from riding it.
- Big Sid's 1950 Series B Vincent Meteor – A towering man, Sidney

Biberman left a monumental legacy as a Vincent aficionado, tuner, and lover of speed.

- Dad's 1958 BMW R50 – Shortly after the death of Richard Costello, his son Bill found a note attached to his father's R50 in the garage. Since then, Bill has devotedly restored his dad's BMW.
- Speed Twin: Ed Turner's Triumphant Twin – Emulated by everyone, Triumph sold a parallel twin first.



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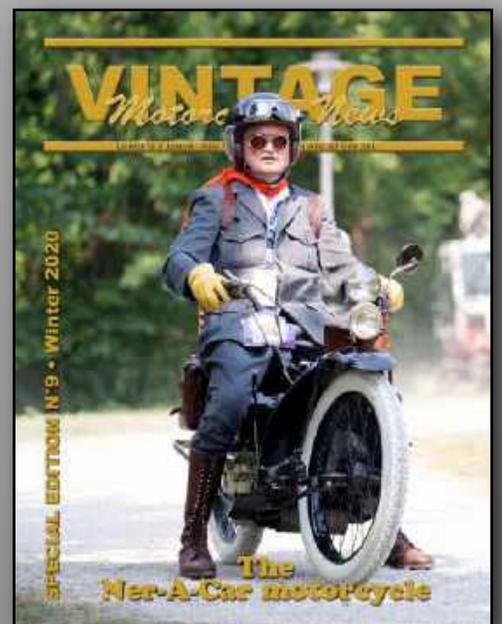
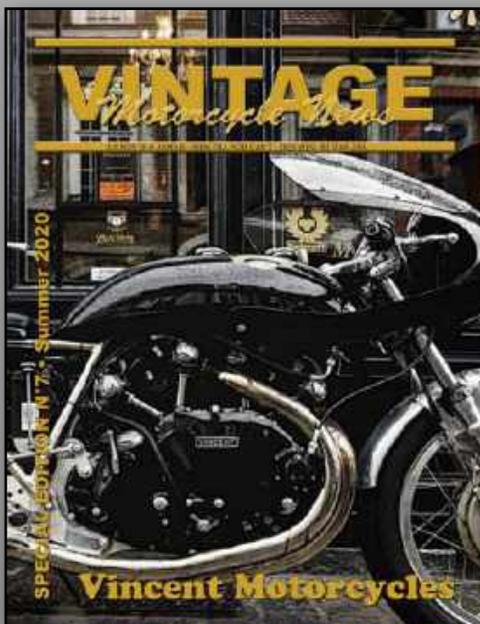
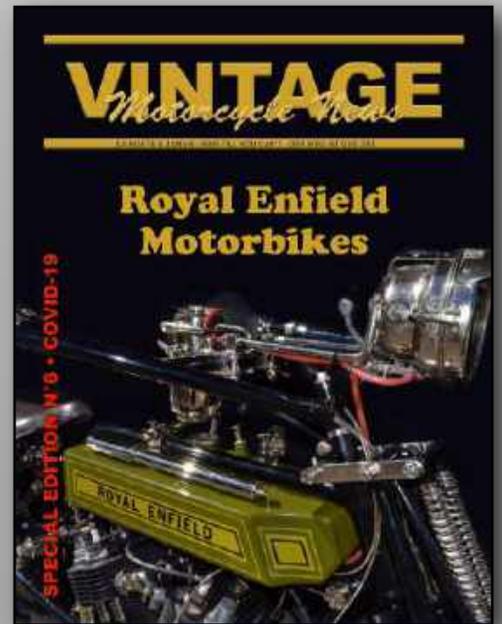
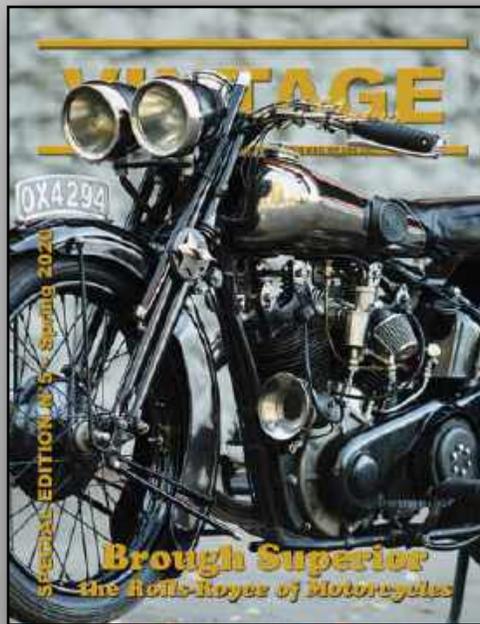
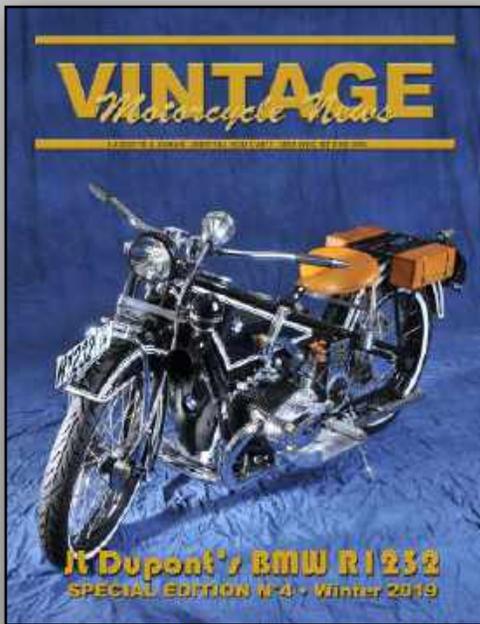
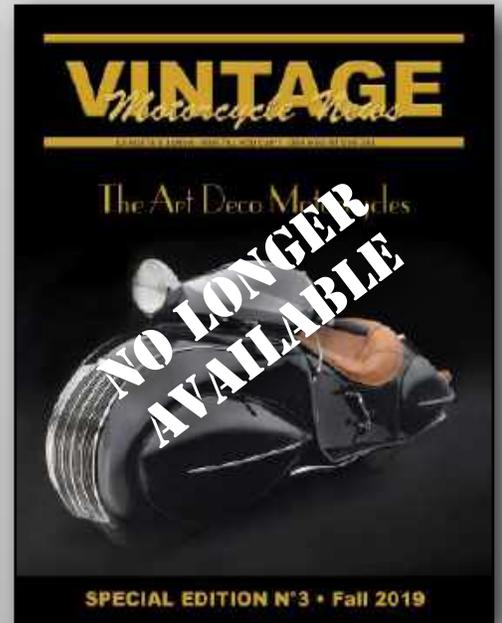
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