

Classic Test **SPICING THE**

ASSOCIATED Motor Cycles were fond of making detail cosmetic year-to-year alterations to products, rather than indulging in radical design changes. The test machines are two 650cc twins with barely three years of AMC output between them, and they look similar under their AJS and Matchless paintwork. But they turned out to be surprisingly different.

One is a Matchless G12 dating from 1959, fully restored from dereliction by owner Alec O'Beirne. The first motorcycle the 43-year-old engineering manager from Berkshire has owned, it served reliably on a three-day 850-mile AJS and Matchless Owners Club marathon.

The later twin is Tony Gale's 1962 AJS Model 31CSR, the sports version of the 650. Owner of a new 31CSR back in 1961, Tony, a 48-year-old salesman, restored his latest model so successfully that it took Best Twin award at the 1988 owners' club rally.

by Mick Duckworth

History

Of the major British makes, AMC were last to offer a parallel twin. But when the original 500cc AJS Model 20 and Matchless G9 were launched in 1948, the Plumstead twins were not copies of rival products.

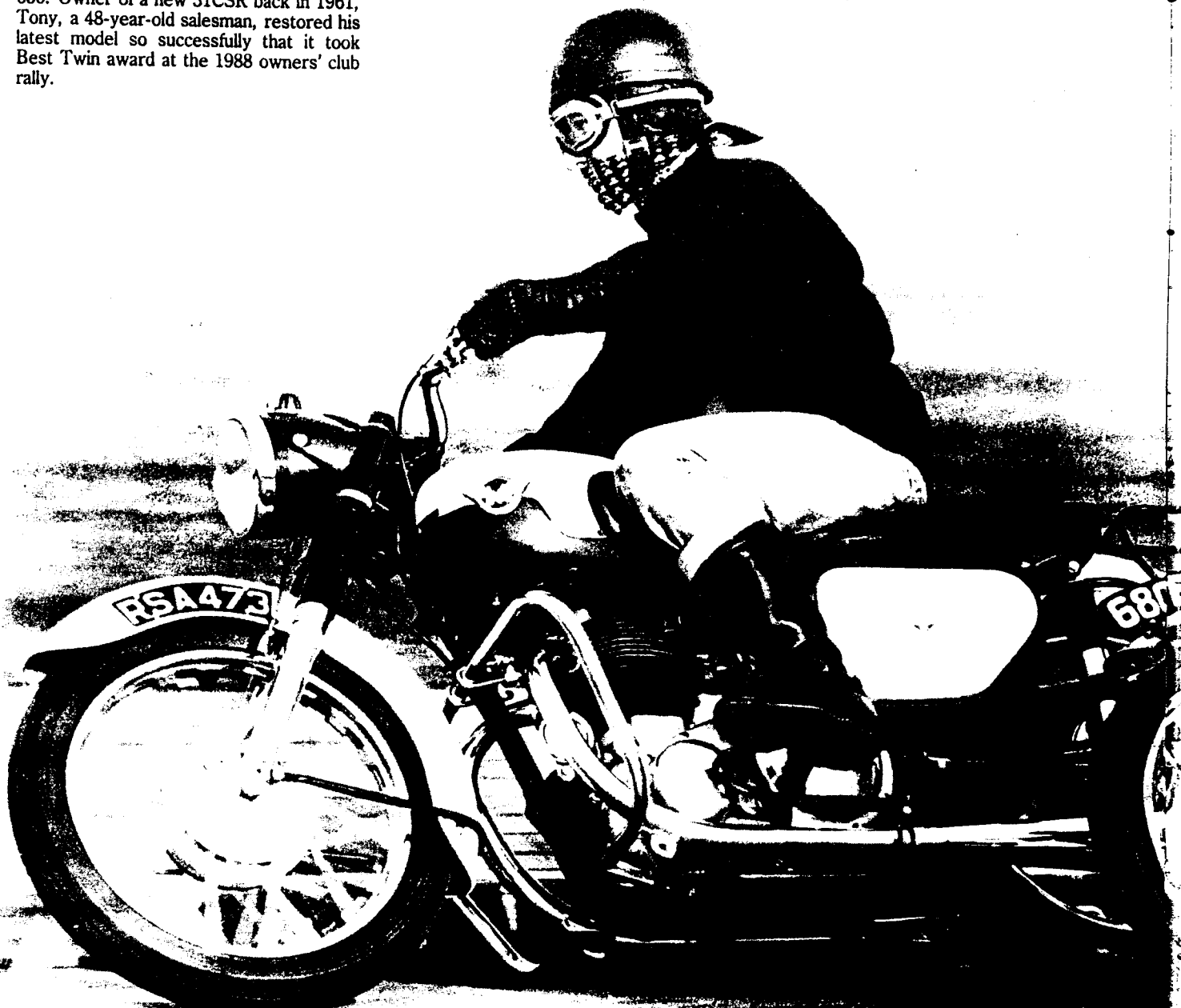
They predicted future trends to swinging arm rear suspension (at that time only offered on twins by Royal Enfield), but their most radical feature was a crankshaft supported by three main bearings. Others

relied on a bearing at each end of the shaft, but the AMC type boasted an additional central plain-shell journal.

Like other premier models, the G9 and Model 20 were produced mainly for export. With twins of 650cc available from the rival BSA/Triumph group, it was inevitable that AMC would be pressured to supply bigger machines. Consequently a US-specification 550cc version of the Matchless was created in the mid-fifties, and was soon followed by new 600cc twins introduced for both home and foreign markets in 1956.

In the conservative Plumstead tradition, the bigger Model 30 and G11 were externally

Engine of the G12 (left) is more flexible but lacks zest of the CSR's



PUDDING

650cc Matchless G12 v 650cc AJS Model 31CSR

very similar to the 500s. The main change was enlargement of the cylinder bores from 66mm to 72mm.

Cycle parts across the range altered in keeping with fifties' style. Fuel tanks were embellished with chromium panels and plastic badges, full-width wheel hubs arrived and the well-rounded 'Plumstead pudding' image was established.

Significant technical moves included the Plumstead-made AMC four-speed gearbox which replaced the bought-in Burman in 1956, and the abandonment of AMC's own Jampot rear suspension struts in favour of adapted Girling units for 1957.

Docility and comfort were AMC trademarks, but the company also had strong sporting connections built on respectable achievements in on- and off-road competition. Plumstead sold road racers and the CS cross-country variant of the pushrod single, so it was logical to produce a sports twin – particularly to appeal to export markets.

From 1958, more rugged 500s and 600s were produced, using the off-road chassis developed for singles, plus modest engine tuning. The CS version had knobbly tyres and a small fuel tank, while the CSR was tailored more for road use.

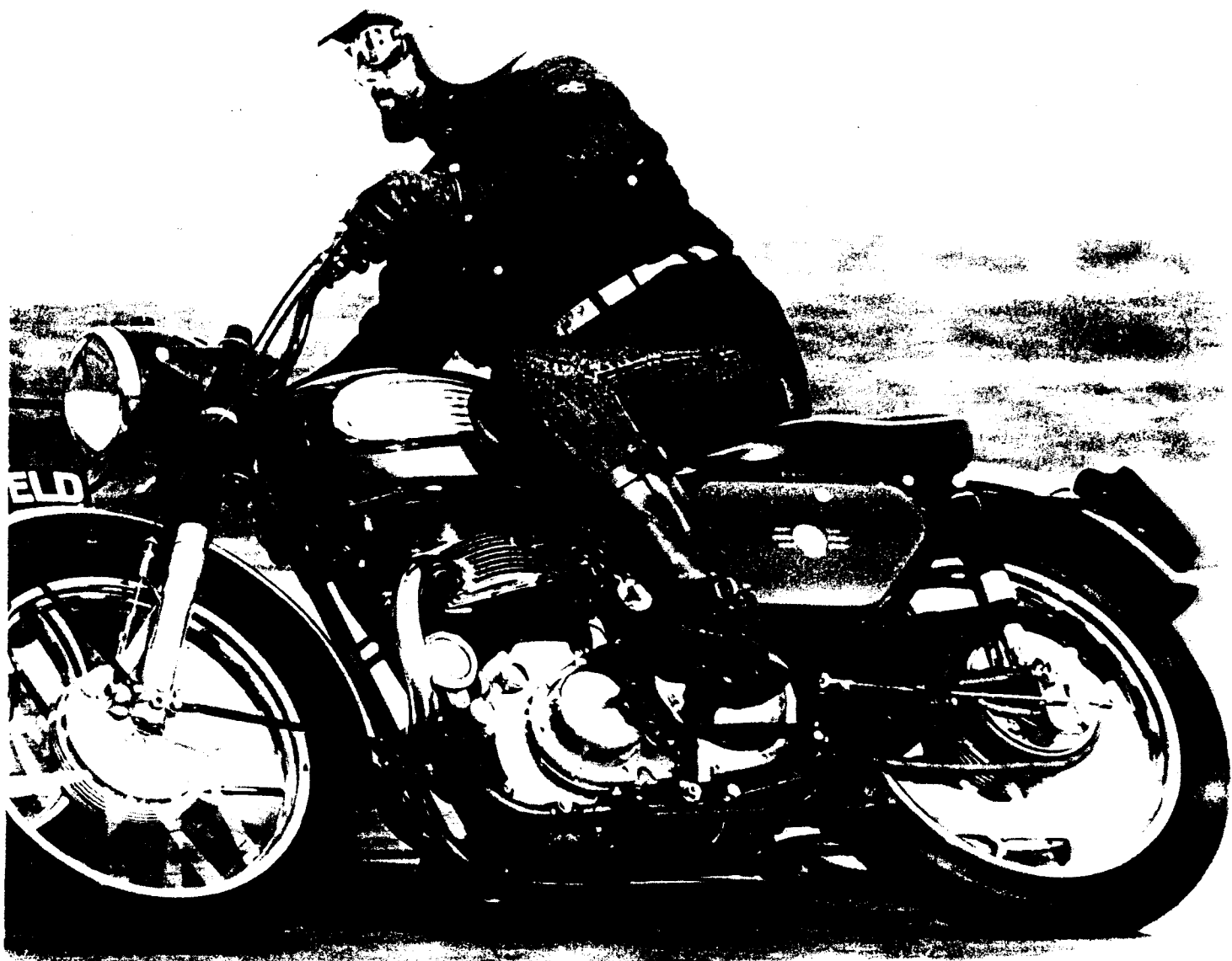
Full 650cc twins were made from 1958. Retaining the 600's bore, the engine for Model 31 and G12 machines was created by elongating the 72.8mm stroke inaugurated on the 500s to 79.3mm.

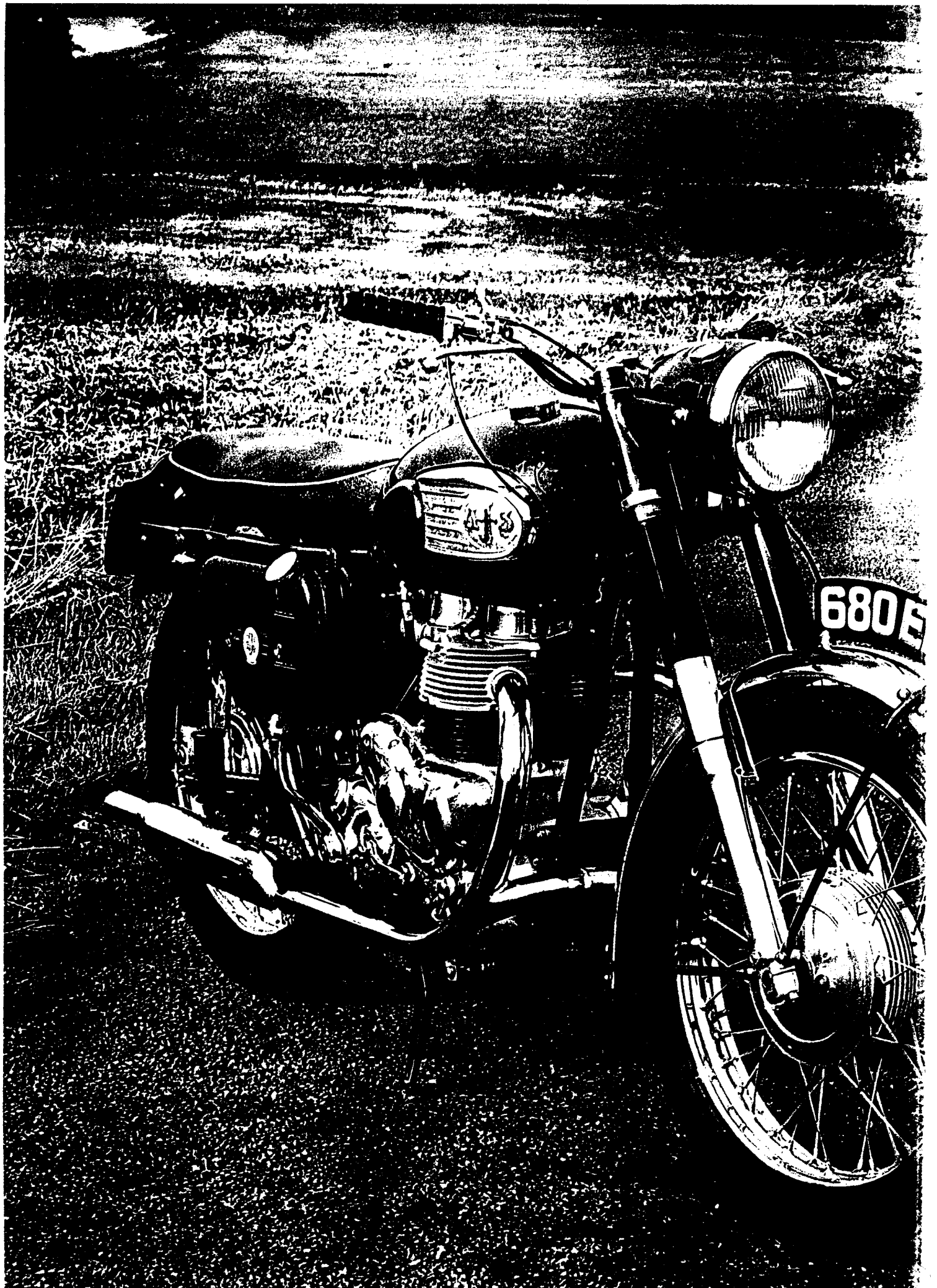
Used in standard and CSR models, the 646cc three-bearing twin lasted through the mid-sixties, when 750cc Norton engines were adopted for top-of-the-range models in the factory's final years.

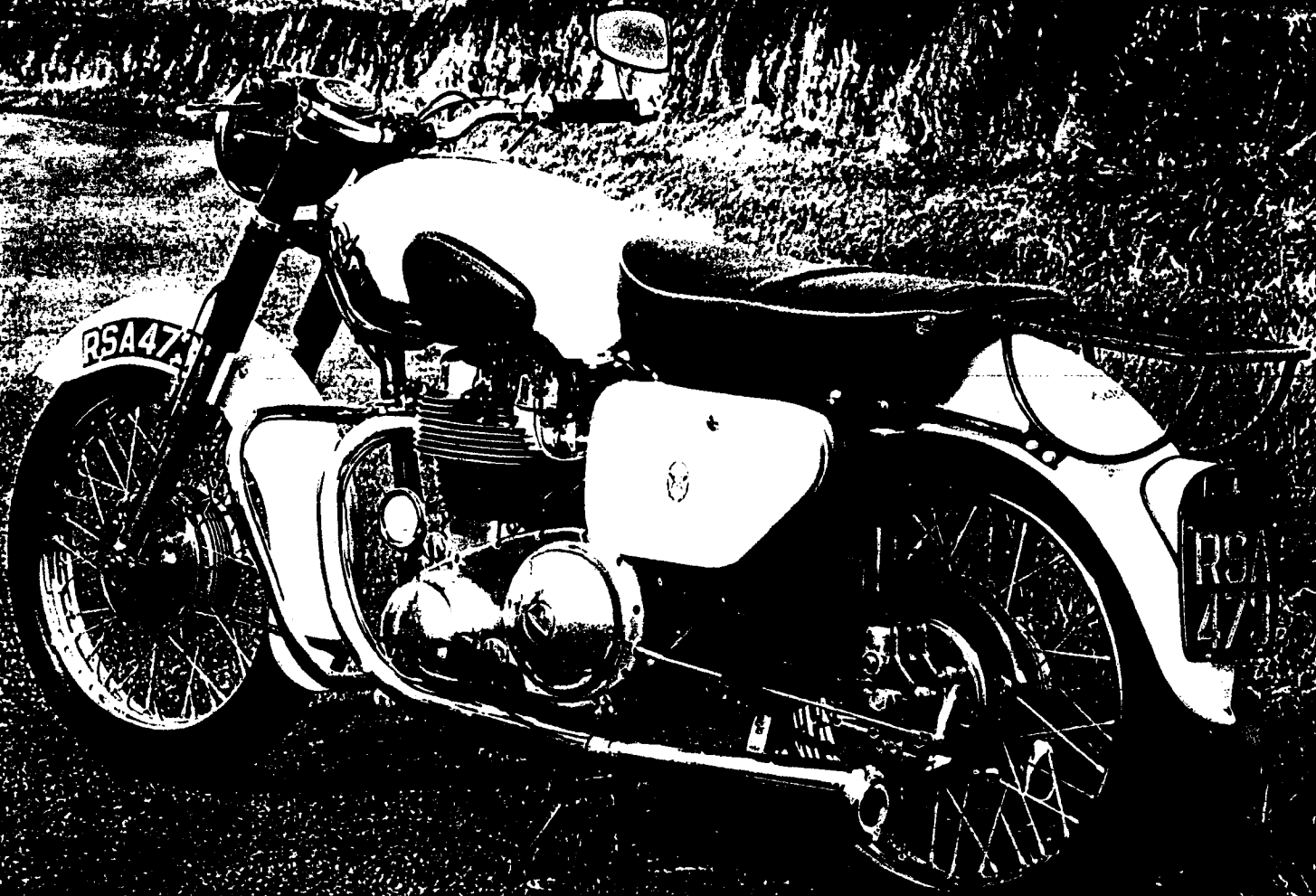
Problems with early versions gave the 650s an unfortunate reputation for mechanical failure, but development brought greater reliability, including a 500-mile race win at Thruxton in 1960.

Equipment

Alec O'Beirne's Matchless is finished in a white and red offered as a de-luxe option. More tangible luxury is provided by a roomy and yielding dual seat, which blends with the tank to give a comfortable ride.







*1962 650cc AJS Model 31CSR
and 1959 650cc Matchless G12*

Classic Test

Deeply-valanced mudguards offer much more weather protection than the CSR's blades (alloy as standard, but of stainless steel on the test machine), and the G12's Smith's Chronometric speedo is far easier to read than the over-designed dial on the later machine, which is a confusion of grey and white.

The G12's frame has single top- and down-tubes, with the rear subframe and bottom tubes bolted up. The swinging-arm pivot is carried in a cross-tube on the single mid-frame down-member, pivoting on phosphor-bronze bushes which the owner must keep sweet with heavy-grade oil. Lugs and bosses are fitted for sidecar pulling – a job the G12 should do happily.

The full-width hubs are of neat outside appearance, but while a 7in drum brake should be sufficient at the rear, it's a marginal size for a 650's front anchor, especially with shoes less than an inch in width.

Though using many similar components, Tony's '62 AJS is quite different to look at. Not just because of its blue livery, but mostly because the skimpy mudguards, shallow seat and siamesed exhaust system give it a leaner, hungrier image.

It has the large tank badges AMC adopted in '62 to the horror of many enthusiasts: it's funny how Triumph's large tank emblems are regarded as design classics, while the Plumstead 'knee-knockers' are reviled.

The Ajay's frame is of the twin-downtube full duplex cradle type adopted for the twins in 1960, but its overall shape is similar to earlier machines and the rear sub-frame is still neatly filled by slab-sided containers for oil and tools.

The oil tank, on the left side, has a double outer wall to insulate the rider's leg from heat. This machine's chassis is similar to those of its non-CSR contemporaries, whereas prior to '61 the sports models had a different rear frame without pillion footrest mounting ears.

Both machines have alternator electrics, but while the standard tourer has a Lucas distributor and coil ignition, the CSR retains the magneto favoured by sporting riders for its manually adjusted spark timing.

The chunky alloy primary drive cover used by AMC from the late fifties does well at keeping oil in, although Alec found careful assembly is vital to prevent leaks from behind the clutch. He also finds the left-hand exhaust pipe a nuisance if the cover's outer half has to be removed for maintenance work.

Although twin-carburettor kits were available, stock CSR machines were sold with the same solitary 1½in Amal Monobloc instrument as the tourer, but with a larger main jet. The cylinder heads on the test machines are noticeably different, however. The CSR has extra finning on the lower part of the casting, which distinguishes the redesigned head fitted to all of the 650 twins from 1960. Internal differences include revised valve arrangements to improve tract shape and allow better breathing, while domed pistons were replaced by flat-topped components.

Six-volt ignition was standard on both machines, but Alec has uprated his system to 12 volts. Tony describes the lights on the AJS as 'Okay in the summer'.

Useful propstands are welcome, especially on the older machine, as using its centre stand takes an almost superhuman effort. The later model's was a vast improvement.

Neither of the twins is claimed to be dead original. The AJS has many stainless parts and fasteners made by the owner, including higher-than-normal handlebars. The Matchless carries period crashbars and a rear view mirror.

Performance

The Matchless made a good first impression by being easy to start. The gentle 7.5:1 compression ratio and coil ignition could be expected to make kicking easier than on the AJS, with its 8.5:1 ratio. Also, the CSR's oil filler cap is more prominent, calling for care to avoid catching it with the kick-starting leg.

A deep and healthy sound emanates from the G12's pseudo-megaphone silencers, but the engine is mechanically silent and far from rorty. Pulling happily from low speeds, it feels responsive and tractable, and is able to burble along in top at 30mph and below.

Third gear is useful for overtaking in the 40-60mph range, but the engine just doesn't encourage the rider to go much faster than this for long periods. The higher the revs, the less satisfactory it feels, and vibration becomes more obtrusive.

While not drastically shakier than parallel twin contemporaries of other makes, the vibrations from the AMC three-bearing engine are slightly harsher – as though the centre bearing is containing the problem rather than preventing it. The later Ajay is equipped with extra cushioning on the fuel tank mounts as a precaution against fracture from vibration fatigue.

There's another good reason for not pushing earlier 650s too hard. Their crankshafts, made of Meehanite cast-iron material, have a reputation for breaking, usually at the drive-side big-end journal.

By the time the CSR on test was built AMC had changed the crankshaft material in all 650s to an iron with a less brittle microscopic structure. Knowing the nodular iron shaft is inside the CSR allays anxiety – after all, any type of replacement AMC crank is virtually unobtainable today.

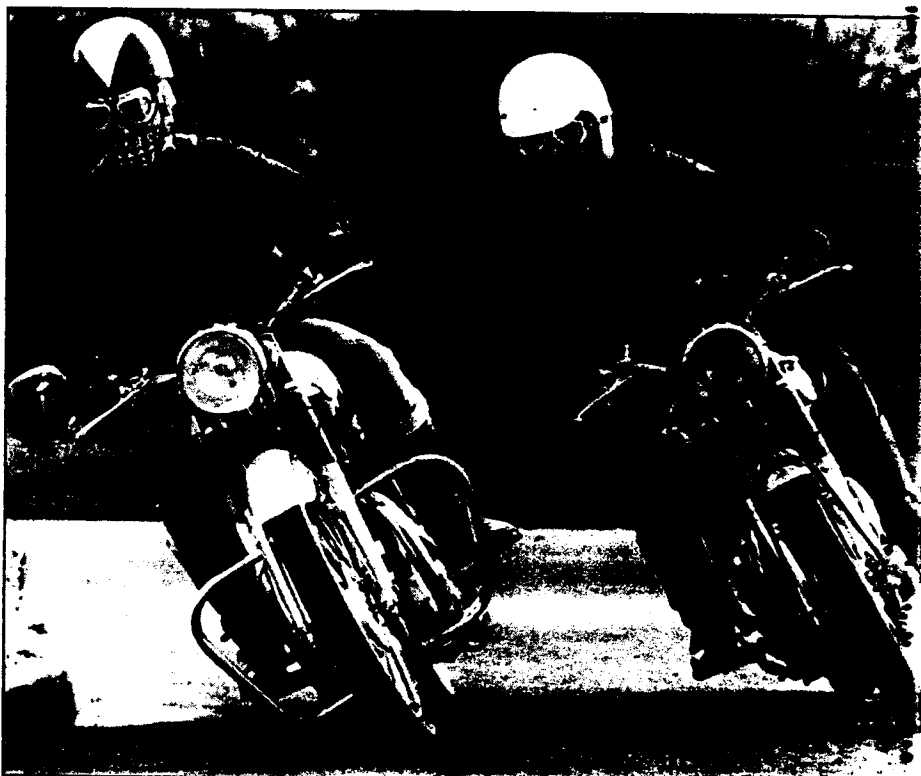
And with this machine's healthy performance, no-one would want to be inhibited. For an engine so similar in basic specification to the G12's, the Ajay's is startlingly more top-end inclined, but with a tenser and much less flexible feel. Two factors should be mentioned here: Tony runs high gearing with an 18-tooth gearbox output sprocket, and his engine has done only a modest mileage since being rebuilt by AMC twin specialist Ernie Merryweather, of Northants Classic Bike Centre.

The sports machine's zest makes it fun to squirt along minor and major roads. It will leave the tourer for dead, even on back-roads, for while the CSR has masses of cornering clearance, the G12 would scrape tarmac readily as soon as it was heeled into a bend.

Clearance on the left was found to have been reduced by the centre stand footsprag, bent by a clumsy tester. Even so, normal clearance on the right was restricted too, with the silencer slung so near the road.

With this limitation, the single downtube frame's handling was fine, except for an odd quirk in the steering noticed when the machine was first ridden. Alec suspects this is the legacy of a major shunt in the Matchless' past.

Lacking the strong brace that secures the G12's front mudguard, the Ajay's forks were firm and unshakeable nonetheless. And whilst not dramatically powerful, the 7in brakes proved adequate.

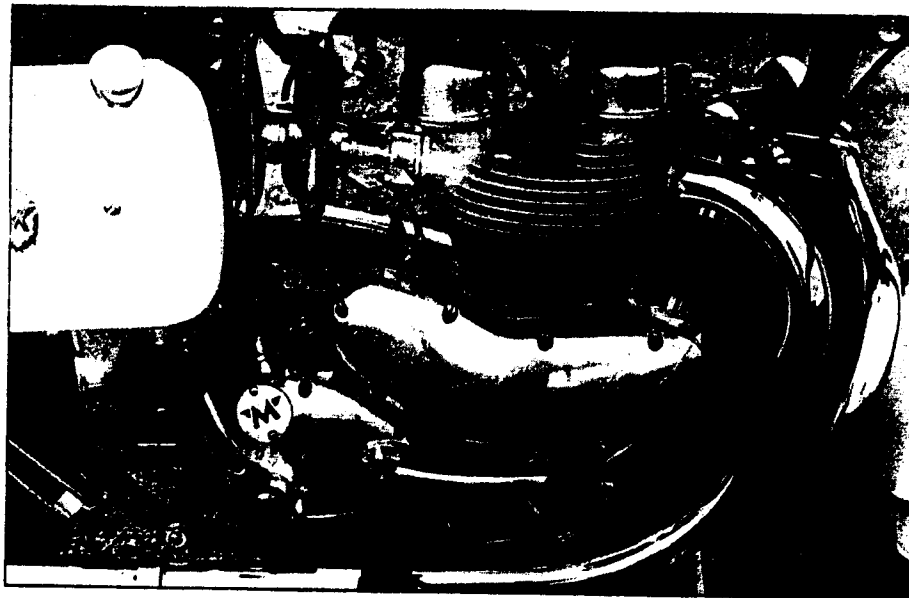


Conclusion

Plumstead twins have always been overshadowed by the more popular – and reliable – products from BSA and Triumph. But these two examples of the 650 version are proof that they make practical and pleasurable mounts for today's classic enthusiast. The dreaded crankshaft spectre apparently mostly haunts the pre-nodular models with alternators, so less risk is attached to dynamo-equipped or later models.

The major discovery that came from riding them was that two ostensibly similar designs could feel so different. The G12 is obviously suited for sedate touring in comfort, but the CSR immediately eggs the rider on to spirited roadburning. Where the 50s' model tails off, the 60s' version takes off.

It's amazing what Plumstead were able to do by shedding a little weight, raising the exhaust system and tweaking the cylinder head



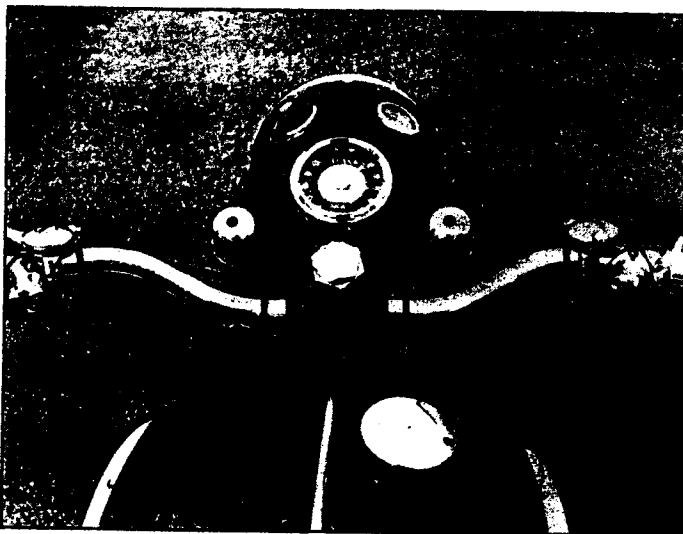
Above: pre-'60 head has less finning, smaller mounting bolts than later type

Matchless G12

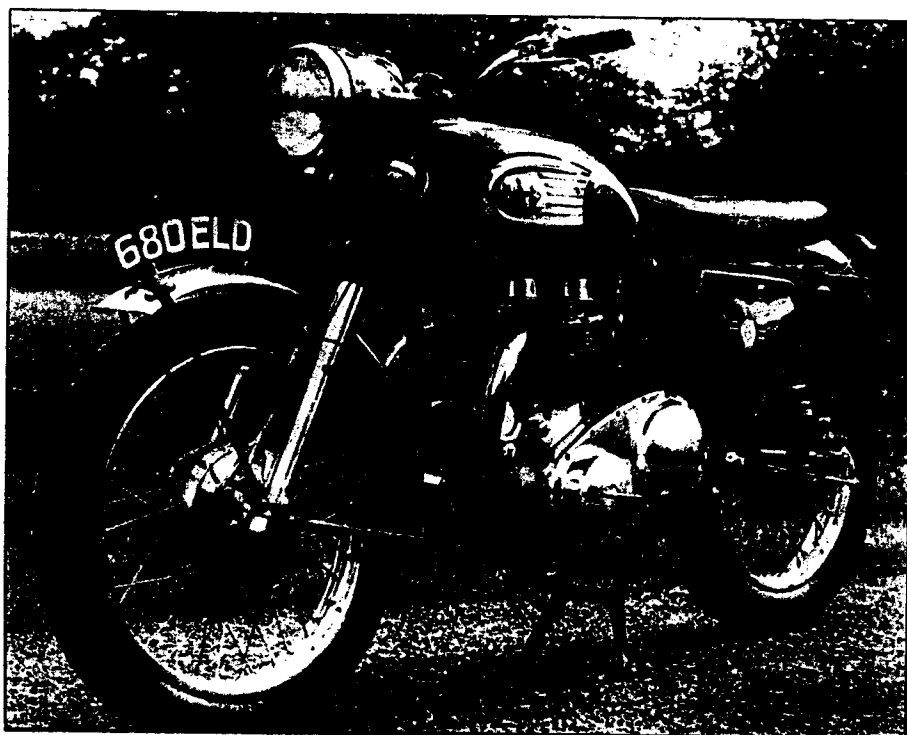
FOR: good mannered flexibility, comfort
AGAINST: poor ground clearance, fragile crankshaft, awkward centre stand

AJS Model 31CSR

FOR: lusty performance with good roadholding
AGAINST: minimal seating, mudguarding and lighting



Left: controls are simple, but the CSR's speedometer is not easy to read



Left: more clearance allows the CSR (right) to corner faster
Above: owner Tony Gale made his own upswept 'bars for the AJS

specifications

ENGINE

Type: ohv parallel twin. Bore x stroke: 72 x 79.3mm. Capacity: 646cc. Compression ratio: 7.5:1 (CSR 8.5:1). Carburation: 1 1/2in Amal Monobloc. Output: n/a Electrical: alternator, 6 volt battery, coil ignition (alternator, 12 volt battery, magneto ignition)

TRANSMISSION

Primary drive: single-row chain. Clutch: multi-plate, wet. Gearbox: 4-speed.

CYCLE PARTS

Frame: tubular, single-downtube, bolted up (tubular, twin downtube, bolted up) Suspension (front): AMC Teledraulic fork; (rear): swinging arm, Girling units. Tyres (front): 3.25 x 19in Avon SM; (rear): 3.50 x 19in Avon SM. Brakes: 7in drums. Wheel base: 55.25in. Seat height: 31in. Ground clearance: 5.5in. Dry weight: 400lb (385lb) est. Fuel capacity: 4.5gal (4 gal).

PERFORMANCE

Top speed: 95mph (105mph) est. Fuel consumption: 60mpg (55mpg).