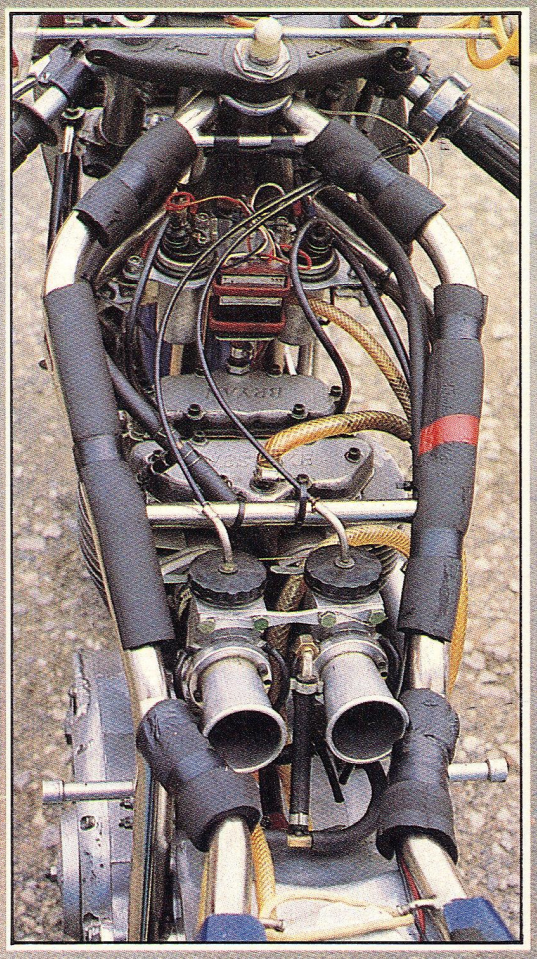
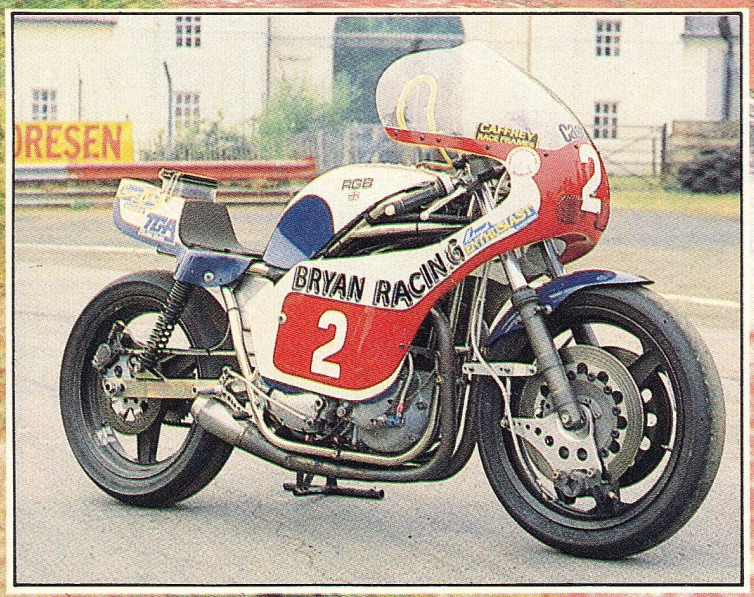
TOWNSEND THORESEN
RACER TEST 925cc RGB Weslake





by Alan Cathcart

Britain's fastest four-stroke

'THE trouble with racing nowadays,' remarked Gary Bryan as we gazed at his superbly prepared RGB Weslake twin on a sultry day at Oulton Park, 'is that all the other classes tell you what you can't do, rather than what you can. Everything's so restrictive: you can't use carburettors more than this big, you can't alter the stroke, you can't change the castings, you can't use more than six gears, you can't use more than this many cylinders — it goes on and on.

'They had the right idea in the old days — stick to capacity limits and a minimum weight rule to stop people producing bikes that are too flimsy, and then leave everything else up to the designers. That's why the Battle of the Twins series is so good. OK, it's got a rule that you can't use more or less than two cylinders, and the machine has got to be a four-stroke, but that's only so that we all start off from the same point.

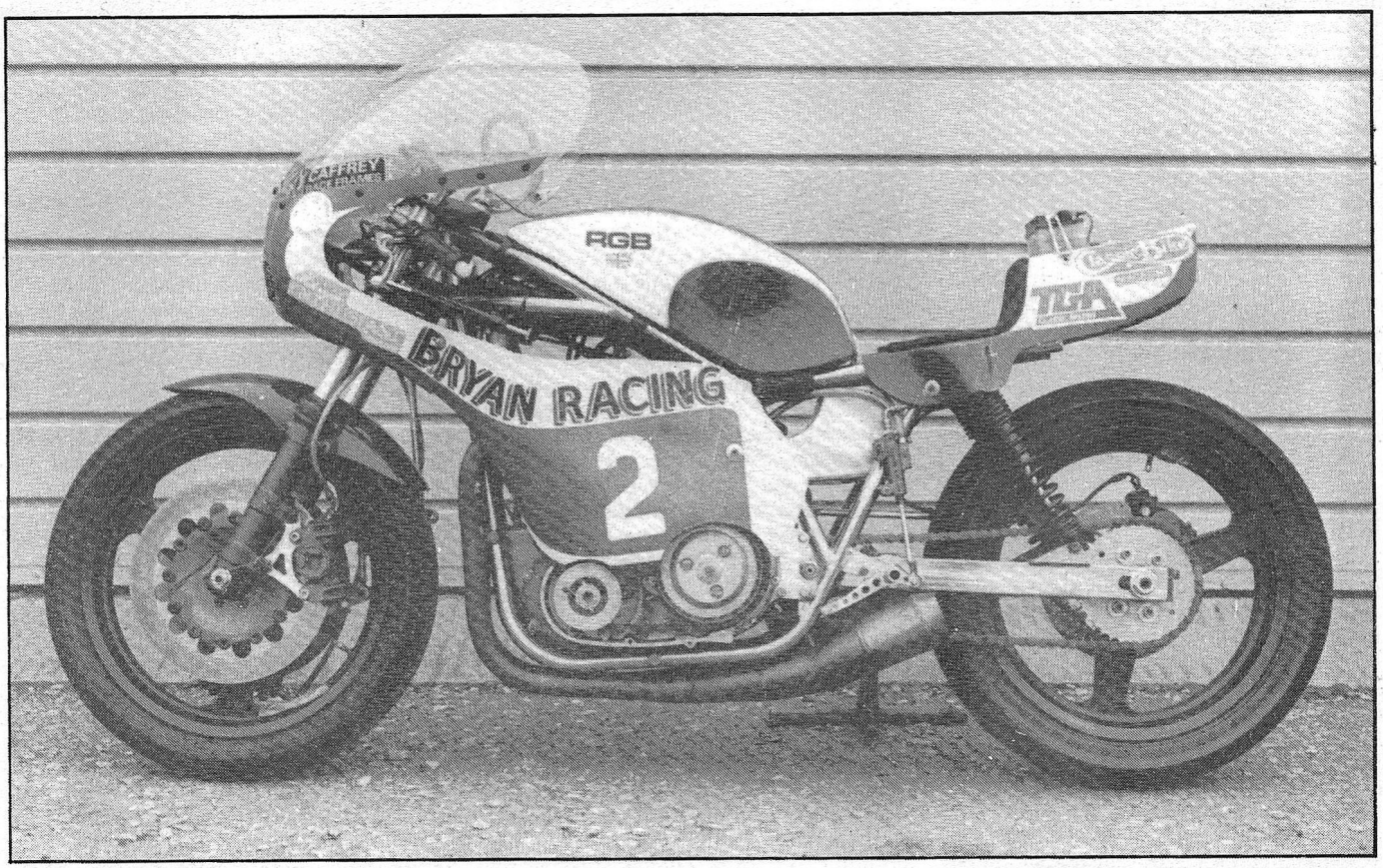
'After that, anything goes — and that makes it a perfect class for anyone who likes to use his ingenuity a bit, like myself. I think the Battle of the Twins is the best thing that's happened to road racing for years. It's brought back a wide variety of different bikes that sound great, don't cost a fortune to run, and give you unlimited scope to try out your own ideas.'

Enthusiastic words, but only to be expected from the man whose bike dominated the early days of Twins racing on this side of the Atlantic in the hands of last year's British road racing champion, Bob Smith. The RGB Weslake fared less well on its American sortie to Daytona in March, when a succession of troubles resulted in Smith failing to start the final after lapping at speeds that would have assured him a midfield starting sport in the 200-miler itself. He was also running fourth in the Twins heat race before the gremlins struck.

The chapter of accidents would have disheartened most men if spread out over a whole season, let alone one week, and included two broken primary belts (which had never given trouble before), a new battery which turned out to be a dud, an exhaust system that broke off on the first lap of practice and, to cap it all, a mysterious misfire that appeared for the first time in the warm-up area before the big race. Eventually traced to a minute particle of metal trapped in the pilot jet, the latter problem resulted in Smith non-

Based on a traditional British vertical twin engine, the RGB Weslake has been transformed into a modern racer developing over 100bhp.

PHOTOGRAPHY BY ROD SLOANE



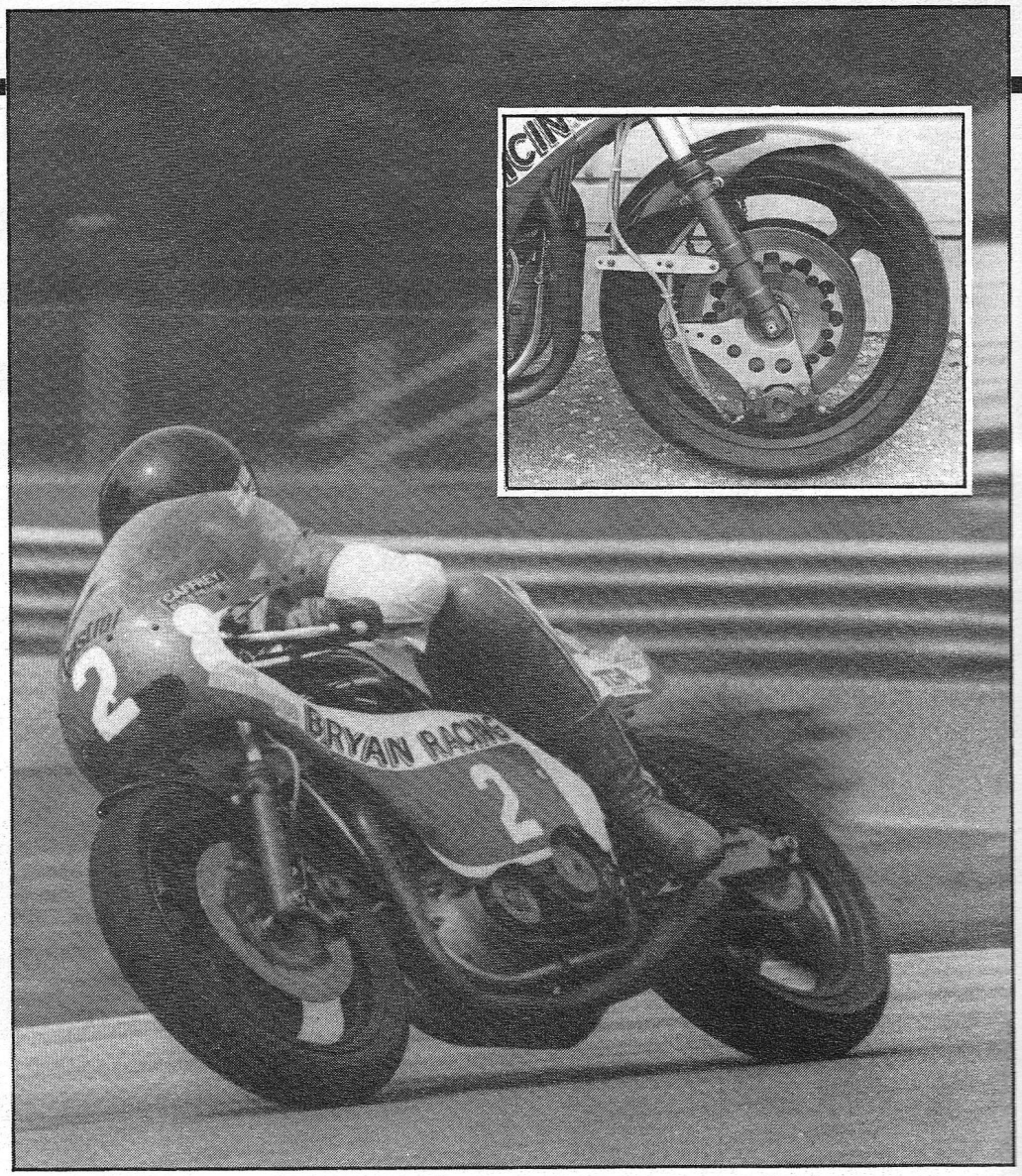
starting after the team had travelled 4,000 miles and laboured in vain for a week. Back in Britain, though, the RGB proved as invincible as ever in the Scarborough and Donington rounds of the UK Twins series.

Like most Twins racers, the RGB Weslake has undergone a lengthy process of development over an extended period: there have always been new ideas to try out, new bits and pieces to fit in a quest for constant improvement. And for Gary Bryan, a former top sidecar driver who has been confined to a wheelchair since a multi-machine pile-up at Oulton ten years ago in which two people were killed, the bike's present success in Twins and four-stroke events is plentiful reward for several years of endeavour with various riders tilting — often successfully — against the two-stroke windmill in open class races. The machine dates back to 1975, when Stuart Jones rode it in Superbike races, using a wideline Manx Featherbed frame fitted with a 750cc version of the Triumph-derived Weslake vertical twin engine.

'The 700cc Yamahas were just coming out then,' recalls Gary. 'They had the edge in speed, but we could outbrake and outhandle them. Stuart finished fifth and sixth in a couple of the major races because of that.'

The next step was to increase engine capacity to 850cc, but at this point the power output — around 95bhp in this form — began to prove too much for the standard Triumph Bonneville gearbox, and the gear shafts simply fractured under load. Eventually Gary met John Rea, who's been one of his most faithful helpers since then and is a turner by trade. He made up an outrigger bearing to fit behind the clutch and support the mainshaft more rigidly. That did the trick, but didn't cure another problem which Bryan has had to live with all along, again as a result of the hefty power output. The Triumph box uses a woodruff key on the mainshaft to transmit the drive, and this has continually stripped over the years. Gary resolved this by fitting a modified splined shaft from a Quaife (not used for the test).

This transmission problem only surfaced after 1979, when two things happened: Bob Smith started riding the bike, in doing so exploring the frontiers of its performance for the first time, and Gary began to up the power output to well over 100bhp with an oversize 950cc version of the Wessie engine. The result was a TZ-beater, Smith for instance lying second in the British Championship round at Scarborough in 1980 when he grounded the fairing and came off. With such a hard and competitive rider aboard, Gary decided to capitalise on Smith's small stature and fit a more modern, lighter chassis, which he commissioned from fellow Welshman John Caffrey in the winter of



Above: The bike displays no vicious handling characteristics, but severe vibration at high revs makes it difficult to concentrate on ten-tenths cornering.

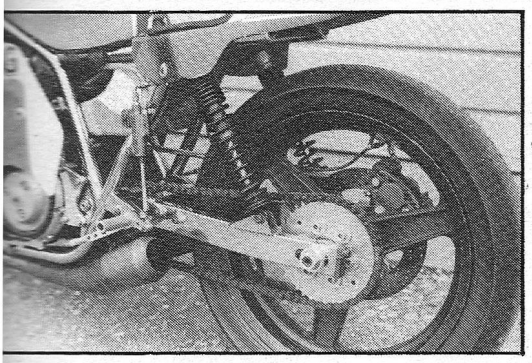
Inset: Mechanical anti-dive system slows fork plunge, but the twins 12.75in discs make the bike over-braked.

1981-82, just in time for the advent of the Battle of the Twins. The rest is recent history: the RGB Weslake is now the most powerful British four-stroke road-racer ever produced, and thus in many people's eyes the ultimate British racing motorcycle.

The most immediate impression you get on seeing the RGB for the first time is how small and low it is. Designed for the five-foot four-inch Bob Smith, the nickel-plated Caffrey frame has a seat height of only 25in, which in turn makes for a low centre of gravity and an easily-flicked, chuckable machine which changes direction very easily. It also encourages the vintage style of riding in which the bike is pushed in towards the apex of the corner while the rider leans outwards, just because it is so low-slung.

But ridding myself of such fanciful notions, I found that a knee-out style was better suited to the grip available from the wide Dunlop slicks, which are mounted on 18in Dymag magnesium alloy wheels. The bike not only steers well, it handles superbly over Oulton's bumps. The combination of twin gas Girlings, a long box-section swinging-arm and 38mm Spondon front forks makes the ripples coming out of Cascades or the near-potholes on Island Bend a cinch to ride over even with the power turned fairly hard on. The front forks could be damped with air pressure only, but experience has found that this makes them stiff, so hydraulics are used on the RGB. This gives a progressive fork action, and is coupled with Gary's own design of mechanical anti-dive linkage.

This is similar to the Spondon type fitted to the works Honda TT F1 bikes, and consists of a system of rose-jointed rods and plates which transmit braking forces to the bottom yoke of the forks. I found that this doesn't completely eliminate front-end dive under braking, as a similar layout fitted to the works 125 Garelli I rode last year had done, but instead slows up the action, however hard



John Caffrey's frame give a seat height of only 25in; the box-section swinging arm carries twin gas Girling dampers.

you grab the front brakes. This is in many ways the most desirable point to aim for, since you still retain feel and damping effect in the front forks, which don't 'freeze' as can happen under racing conditions with some of the hydraulic anti-dive designs.

Two enormous fully-floating 12¾in undrilled brake discs are fitted to the front end, with Spondon calipers, while at the rear there's a smaller drilled disc with a Lockheed caliper. Part of the reason for this apparent overkill on a four-stroke weighing only 295lb ready to race is that to save imposing undue reverse loads on the fragile transmission, Gary asks his riders to use as little engine braking as possible. I tend to use a lot of engine braking, which meant having to rethink my approach to riding a four-stroke, but even so I felt after the end of my ride that the RGB is definitely over-braked, and Gary agrees. Expect the bike to appear in the near future with only one front disc, which will save a useful 10lb.

Finished patriotically in red, white and blue, the RGB uses an abbreviated fairing and a small, sturdy seat which carries the battery that sparks the twin six-volt coils feeding the Boyer ignition. An oil cooler sits behind a mesh grille in the nose, and a Krober rev-counter and an oil pressure gauge are squeezed into the space behind the top crown: the oil reading when hot is 70psi. The dry-sump system employs a double relief-valve design, and the small, carefully shaped tank is located under the seat.

To those cynics who expect that this ultimate British parallel twin should leak oil as a matter of course, I can report that a more spotless bike after 20 minutes round Oulton Park could not be imagined. Thanks to a conversion to a QPD belt-drive primary, the standard Triumph clutch runs dry. I found it extremely stiff to operate, probably because of the heavy-duty Norton springs fitted to stop it slipping under the extra power. There are five fibre and six steel plates; Gary says he plans to convert the unit to hydraulic action over the winter.

The original primary belts were 30mm wide, and were replaced every two meetings when the bike was in 850cc form and running on lower compression. Daytona's experience, when the teeth ripped out of one belt after just four laps, prompted Gary to move to a 40mm belt with the bigger engine, and he's had no trouble at all with it since then.

The cause of all this aggravation is the 103-105bhp churned out by the 80.5 x 91mm, 927cc eight-valve engine, which uses a one-piece Nourish nitrided 360-degree crankshaft stroked from 88.5mm in 850cc form to obtain the extra capacity. Weslake pistons, valves and rods are fitted to the plain-bearing pushrod engine, which runs on 11.5:1 compression using 50/50 Avgas and four-star. Weslake's own 320 road racing camshafts permit a wide spread of power throughout the rev range, but of course you don't get a parallel twin to produce that sort of poke without making some pretty canny internal modifications, about which Gary is understandably reticent. He does admit to having opened out the inlet ports to 40mm to match the choke size of the Mk II Amal carbs, as well as modifying the Weslake-spec exhausts slightly. He's now thinking of making a two into one exhaust, as the left pipe grounded sometimes with Bob Smith riding — but not with me aboard!

Riding the bike a couple of weeks after Smith's Scarborough victory I found the bike still set up for him, which meant that I couldn't squeeze my head under the screen with a helmet on — it's that compact a machine. Otherwise things seemed fine, apart from the Charles Atlas-spec clutch action, as I burbled round on the first lap to get the feel of things. But as I began to open the engine up I encountered all sorts of problems.

First, though there's power from as low as 3,000rpm and a strong pull from 4,000rpm up to the 8,000 maximum, I found the vibration which sets in very forcibly over 6,000rpm so bad that it was difficult to concentrate on braking and finding the right line round corners. It makes riding the bike at those engine speeds so uncomfortable that your mind subconsciously urges you to ease things down a bit until you get to the smooth waters of six grand and below.

With the heaps of torque on offer and the nicely spaced ratios of the five-speed Triumph gearbox, there really doesn't seem much point in exposing yourself to this sort of torture unless absolutely necessary, which would be fine on a British short circuit perhaps, but impossible on the wide open reaches of Daytona, where over half of every three mile-plus lap is spent flat out at peak revs. My fingertips tingle at the very thought of it! Interestingly, I encountered the same sort of problem on the 975cc Big D Triumph that I rode earlier this year. That machine buzzed like mad at anything approaching peak revs, where its smaller 750cc brother did not. Punching these engines out to extremes would seem to alter the balance factor adversely.

Not being able to get flat on the tank was a bit of a disadvantage round Oulton's hills and dales, where you like to get weight over the front wheel, especially at places like Deers Leap, to stop it pawing the air. Thanks to the engine location, two inches further forward in the Caffrey frame than it had been in the Featherbed unit, this never really became a problem even in the semi-upright position dictated by the screen.

What I was less able to cope with was the uncertain action of the Triumph gearchange. I don't think a single lap went by without my missing at least one change. This was nothing to do with the lever position, which was fine, so into the pits I went for a talk with Gary. Told that I had to keep my foot on the lever until I felt two clicks, which would indicate that the gear was home, I went out again, and though things were slightly better I can't pretend I felt really confident about swapping cogs on the bike. At the end of my second session I returned to base, where a possible cause of the problem was diagnosed. The woodruff key on the mainshaft had gone: the Triumph box's perennial problem had raised its head just in time for me to sample it during the test.

Gary Bryan's RGB twin is a mean, lean (only 15in wide at the engine cases) and powerful motorcycle. Years of development have been aimed at making it more purposeful rather than refining it, and it's a bike that would scare the pants off a novice rider who tried to exploit its amazing performance to the ultimate. I've ridden a few big and powerful four-strokes in my time, but I have to admit that it daunted me. When Bob Smith got on it, it did the same thing to the opposition.

Specification

Engine	ohv twin
Bore x stroke	80.5 x 91mm
Capacity	927cc
Compression ratio	11.5:1
Carburation	2 x 40mm Amal Mk II
Ignition	Boyer electronic
Output	103bhp @ 8,000rpm
Gearbox	5 speed
Frame	twin-loop
Suspension (front)	telescopic
(rear)	swinging arm
Brakes (front)	2 x 12¾in discs
(rear)	10in disc
Tyres (front)	3.50/4.50 x 18
(rear)	3.75/5.00 x 18
Weight	295lb
Top speed	150mph
Year	1982 (as tested)
Owner	Gary Bryan, Gresford, North Wales