Brave new world

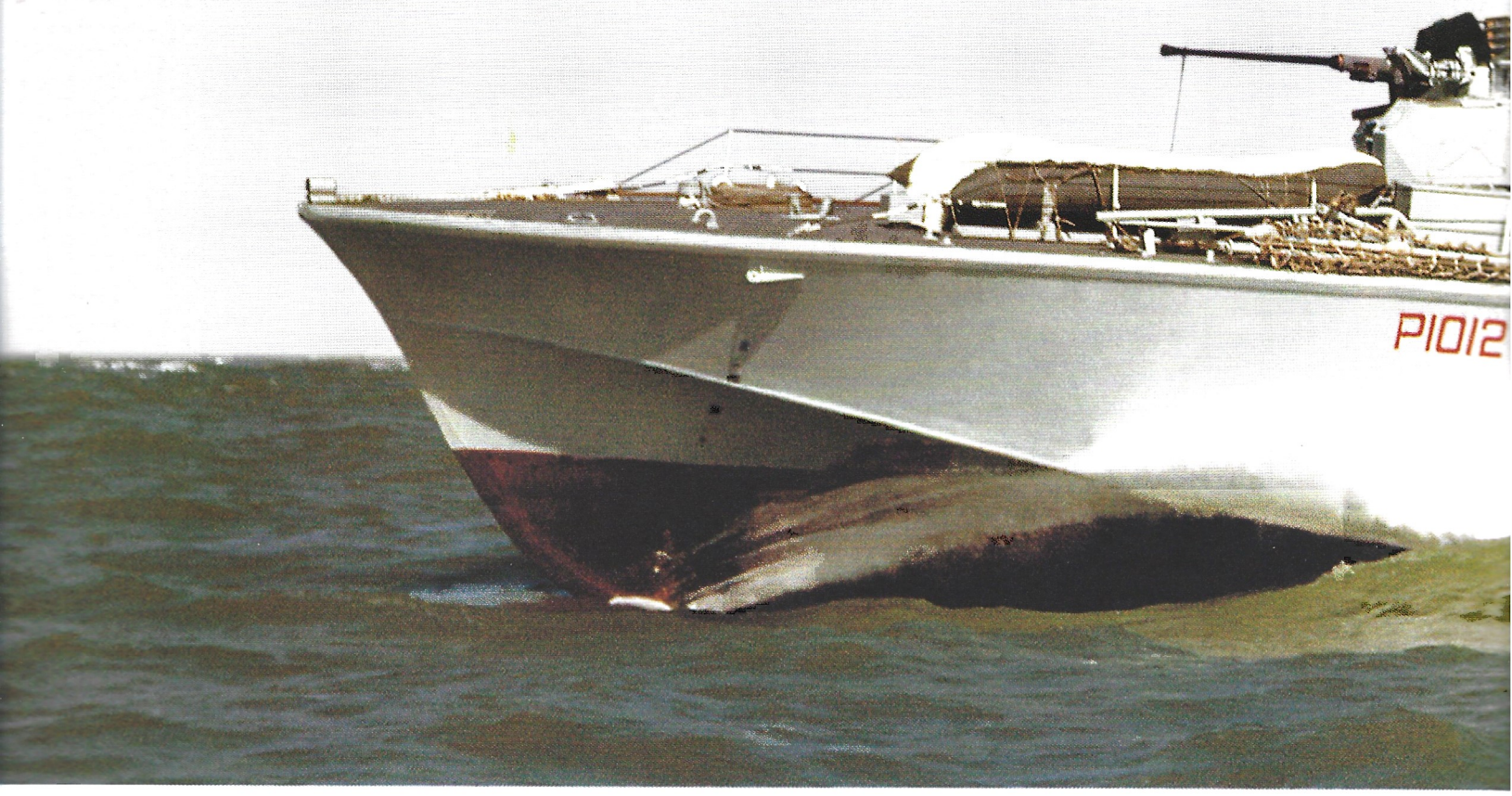
THE BRAVES WERE THE FASTEST WARSHIPS IN THE WORLD – BUT WERE THEY ANY MORE THAN AN EXERCISE IN HIGH-TECH NOSTALGIA?

Words • Brendan Lewis

For a midshipman in the 1960s Royal Navy, a Brave class boat was a dream posting. This was a time when the service still retained some vestiges of its pre-war yacht club ethos, and the Brave boats, 98ft (30m) long with triple gas-turbine engine installations, were as glamorous as any motor yacht afloat – as celebrated for their technical prowess as for their speed, and guaranteed to turn heads in any harbour.

"I mainly remember careering about the place at 50 knots," says David King, who during his sea training in 1962 spent little time on destroyers, submarines and aircraft carriers, but six glorious months aboard *Brave Swordsman*.

Fresh out of college at Dartmouth, young Midshipman King was perfectly placed to enjoy the horsepower without the responsibility. "We ran down the coast to the Scillies that summer," he recalls. "Then there was Cowes Week. Our first lieutenant was sailing secretary of Itchenor Sailing Club."



They were based in Portsmouth Harbour, and owing to the experimental nature of the boat, operated towards the fringes of the regular navy. Foreign governments were interested. There were demonstrations to run, and visiting dignitaries to entertain.

Last of the line

Swordsman had just one sister ship, *Brave Borderer*, and together they represented the last in a line of British motor torpedo boats that could be traced back more than 50 years. Such craft had become something of a new tradition with the Royal Navy. They used to be known as 'mosquito boats' – small, fast and deadly – and first came to wider public notice when Lt Augustus Agar won a Victoria Cross for sinking the Russian cruiser *Oleg* in Kronstadt in 1919.

Heroes such as Robert Hichens and Peter Dickens during WW2 cemented the popular reputation of these dashing little ships. The press was fuelled with stories of close action with the enemy, and Peter Scott's autobiographical account of events in the English Channel and North Sea, *The Battle of the Narrow Seas,* was a classic of the genre. Boatbuilders like the British Power Boat Co and J.S.White became household names.

The gallant Lt Agar's success against the Bolsheviks apparently made little impression on the defence procurement bigwigs, because 20 years later, with a new war looming, the Navy's fleet of coastal forces craft numbered less than two dozen. Nevertheless, as the reality of Britain's situation gradually sank in, more and more orders were placed for these wooden hulled, aero-engined, miniature warships.

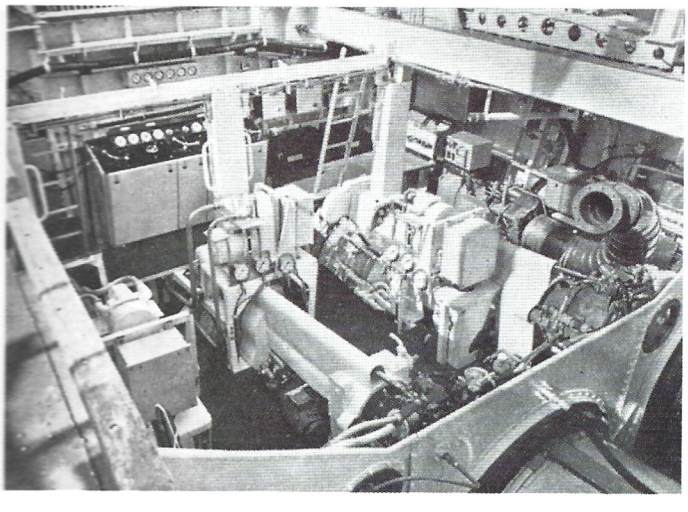
Two specialist shipyards received the lion's share. In Hythe, near Southampton, British Power Boats had developed a range of fast boats for the Royal Air Force, as well as racing craft for Sir Henry Segrave. Across in Portsmouth, engineers and yacht builders Vosper Ltd had recently built the 140mph *Bluebird K4* for Sir Malcolm Campbell. Both yards had produced prototype MTBs as private ventures.

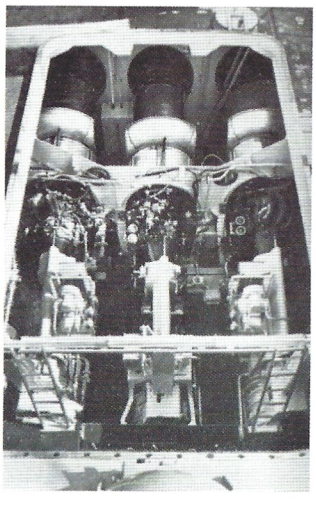
The war was the making of Vosper. The 68ft (20.73m) prototype led to larger, more capable designs, of which hundreds were built. The man behind them was managing director and chief designer Peter du Cane, a former Navy engineer who had joined the firm in 1931 and cultivated close ties with his former alma mater. When, after WW2, the Admiralty's curiosity was aroused by the new jet engines, they turned to him.

They wanted a new class of fast patrol boat, "of the hard-chine type and as small as possible commensurate with seakeeping and speed requirements". Top speed should be "not less than 44 knots in the gunboat version with half fuel". The turning circle at full chat was to be no more than eight boat lengths, and the hull had to be capable of operation in three-foot (one-metre) seas at the engines' maximum continuous rating. ➤➤

Back to the future: a combination of wartime ideas and post-war technology. *Swordsman* at speed in the Channel.

At full speed, showing the single trim tab. Below: two views of the machinery space, with three gas turbines and vee-drive gearboxes.





Triple gas turbines

Du Cane came up with a radical proposal. Settling on a length of 98ft 4in (29.97m), he took 50 knots as his benchmark, not 44, and although the navy was prepared to entertain the idea of diesel engines, he came down firmly in favour of gas turbines: three 3,500hp Bristol Siddeley Proteus, marine versions of those in the Britannia airliner, mounted in a neat row in the stern and driving through W.H. Allen vee-drive gearboxes. This combination of engine and transmission produced an impressive power to weight ratio of 0.83lb/hp (0.50kg/kW). Not content with this, Du Cane also elected to fit generators powered by a pair of lightweight Rover IS/60 gas turbines.

Their construction was a mix of old and new techniques. The hull was built of double-diagonal mahogany planking, fixed with stainless steel bolts

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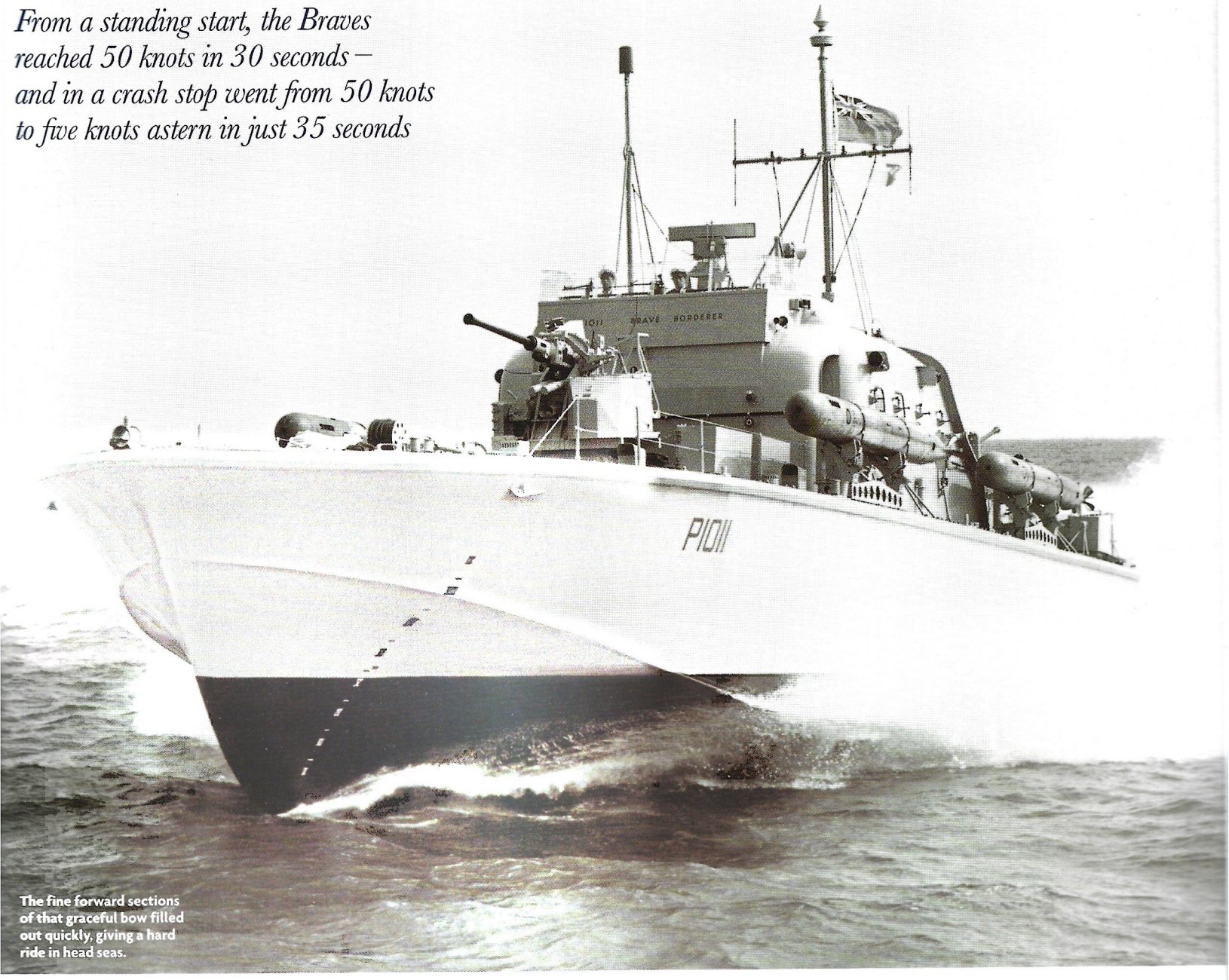


The fine forward sections of that graceful bow filled out quickly, giving a hard ride in head seas.

to aluminium frames, with fibreglass sheathing below the waterline. The superstructure was aluminium, and the air intake structure aft was of a lightweight fibreglass sandwich.

On initial trials the first boat, *Brave Borderer*, comfortably exceeded 50 knots, making her the fastest warship in the world. Later, with different propellers, both sister ships would achieve nearer 60 knots. From a standing start, *Borderer* reached 50 knots in 30 seconds – and in a crash stop went from 50 knots to five knots *astern* in just 35 seconds. Her turning circle at full speed was not eight boat lengths, but four.

Faced with a similar project today, a naval architect could opt for the efficiency of jet or surface drives – but Du Cane didn't have that choice. His Braves were a technical tour de force. Propeller and gearbox design were particular challenges. A new-fangled 'transom flap' was fitted, which we would now call a trim tab, but it made no difference to top speed – a sure sign of a fine-tuned, highly evolved hull design.

Using gas turbines at sea brought certain practical difficulties, however. Searing exhaust gases emerged through three large, circular ports in the transom. "There was something like 500lb of thrust available just from the exhaust," David King recalls. "There would be a fifteen-foot jet of flame on start-up." It reminds him of an incident in Mousehole – one of Cornwall's smallest and most picturesque fishing villages. "We were taking part in an exercise with some special forces, and had to get going in the middle of the night. But unknown to us, in the dark, a fishing boat had moored just astern. His rigging got a bit scorched." It could have been worse. ➢

Vital statistics

Vosper Brave Class MTBs

Length overall	98ft 4in (29.97m)
Length waterline	90ft 0in (27.43m)
Beam	23ft 11in (7.29m)
Draught	7ft 0in (2.13m)
Displacement, max	100 tons
Engines	3 x Bristol Marine Proteus gas turbines, 3,500shp (half-hour rating), 2,800shp (continuous)
Generators	2 x Rover IS/60 gas turbines
Complement	3 officers, 3 petty officers, 13 seamen
Maximum speed	58 knots
Cruising speed	46-52 knots
Range	400 miles at 46 knots
Designer	Peter du Cane, 1958
Builder	Vosper Ltd, Portchester

The stern of *Borderer*, showing the protective exhaust flap arrangement. Below: the WW2-style open bridge.

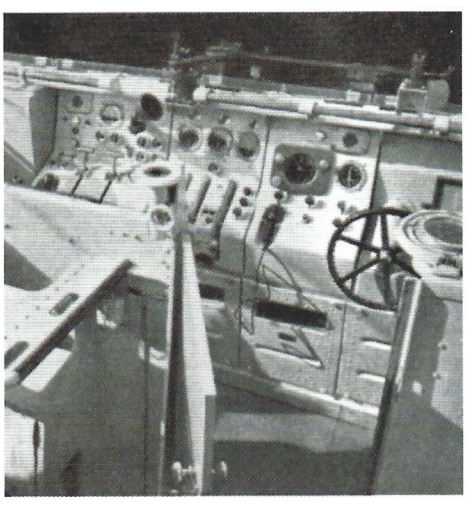
Hard ride

Start-up itself was far from straightforward. The Rover units needed to be fired up first, to provide the power to turn the main engines. Getting them going seemed to be the midshipman's job: "We had an enormous crank handle, and you had to wind them up to 1,500rpm before pushing the plunger. It was massively geared, of course, but it still took two or three minutes."

While the Braves were bigger, faster, more powerful and better armed than their wartime predecessors, they did inherit some of their shortcomings – and a hard ride in head seas was one of them. During David King's time on board, *Swordsman* had to run up the East Coast to Invergordon, to take part in a minelaying exercise. "It was blowing five or six," he remembers, "and the hull wasn't very deep forward, so there was a lot of pounding. We had a sprung floor on the bridge, and it was bad enough there – I wouldn't like to have been manning the Bofors up on the bow." Easing the sharp change in deadrise between forefoot and midships would probably have helped, but at the expense of speed.

Legendary Cowes yacht designer Uffa Fox hitched a ride to Torquay aboard *Brave Borderer* for the Cowes-Torquay offshore powerboat race, and later hitch-hiked back again in *Ferocity*, a twin-engined version of the Braves built as a private venture by Vospers. He was enraptured. No stranger to fast boats, having served his apprenticeship at S.E. Saunders, he wrote: "I could hardly spare a moment to go down below to the comfort and cosiness of the cabin, so stayed mostly on deck enjoying the swift rush past Portland Bill, St Alban's, Anvil Point, in through the Needles and up the Solent. I have never experienced such a feeling of exaltation at sea ..."

David King also enjoyed the vantage point of a Brave boat during the 1962 Cowes-Torquay. He remembers meeting many of the racing personalities of the era, including Sonny Levi, whose designs came to dominate the race for a period during the 1960s. But that year the race winner was a powerful 40ft (12.2m) motor yacht called *Tramontana* – designed by Peter du Cane, and built at Vospers.



Nuclear age

It was ironic that during his time on board, *Swordsman* seemed to David King more like a motor yacht than a warship. The question of what such boats were actually for in the guided-missile, nuclear age was one that the navy never seemed able to answer. *Swordsman* spent her career as a trials vessel, while her sister served in fisheries protection – presumably without torpedoes. Several variants on the design were sold to foreign navies, but the two British boats were laid up in 1970, after just ten years of service.

As for young Midshipman King, giving the future founder of Princess Yachts a Brave class boat to play with was not, as it turned out, one of the Navy's better decisions. "After *Swordsman* I began to realise that life in the navy was never going to be that much fun again," he explains. "At that age, without a mortgage or responsibilities, if you see life starting on a downward slope, you think, 'why let it?'."

So he left – and it was the Navy's loss. He would probably have made a decent admiral.

The designer Uffa Fox hitched a ride to Torquay, and was enraptured. "I have never felt such a feeling of exaltation at sea," he wrote