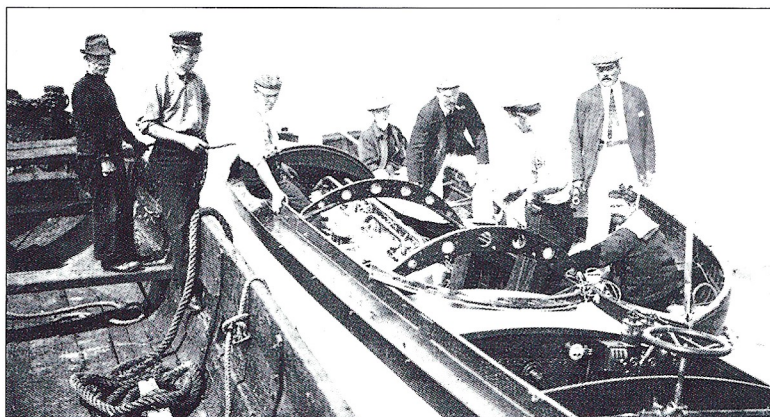


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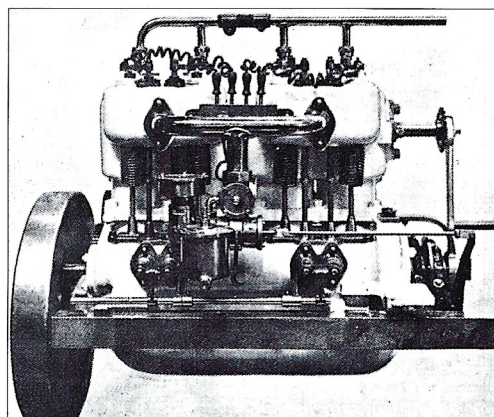
Brave new world

At the time the first issue of *The Motor Boat* was published, you could put a small steam engine into an elegant river launch to create a sedate, graceful and silent mode of transport, suitable perhaps for a riparian gentleman to moor at the bottom of his garden. If, however, you asked the slightly more progressive boatyard next door to fit you an equivalent small petrol or paraffin engine, you had a very different vessel. Although also capable of only modest speeds, its midships-mounted motor, open to the elements and probably unsilenced, produced immensely gratifying quantities of noise and smoke. It was modern, it was exciting, it was addictive – and in the era of the early motor car and the first faltering flights in powered aeroplanes, it was a major and inevitable step in the onward march of progress.

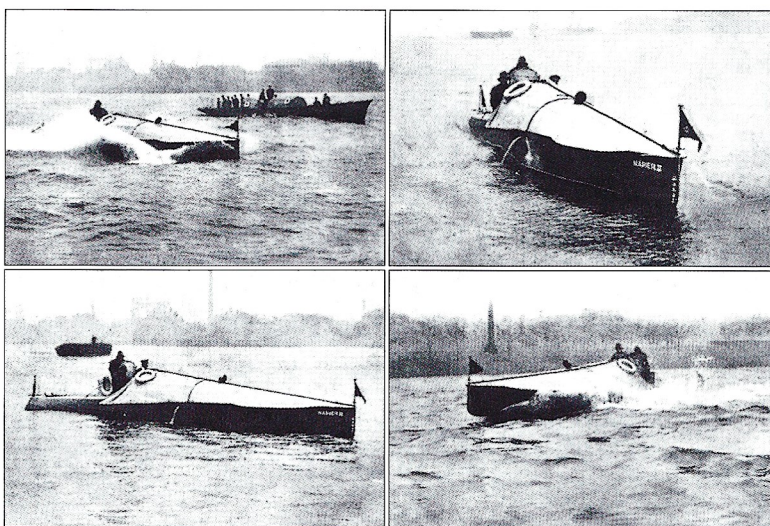
To the enthusiast who embraced this new technology, the steam engine was old hat. With no boiler, no steam pipes, no coal dust and certainly no need for an old-fashioned, soot-spewing funnel, the internal combustion engine was the



Preparing the US Challenger for the 1904 Harmsworth Trophy.



A 1905 four-cylinder 18hp Brooke.



Flat bottom, transom stern, but still a displacement hull: Napier II of 1904 was a transitional design.

future. It was relatively cheap and simple, and compared with a steam engine, easy and quick to start. It was also massively more efficient than its industrial-revolution rival, which although refined to an almost unbelievable degree – the Royal Navy at that time could boast of 400-ton, 30-knot destroyers powered by steam – could not match the power-to-weight ratios achieved by prosaic lumps of cast iron or gunmetal that bore such names as Seal, Blake and Panhard.

No single company had yet established any kind of dominance in this new market. Street-corner foundries could set up as engine manufacturers almost as easily as the more established engineering companies, and big boatbuilders such as Thornycroft also made their own motors. So there was an extraordinarily

varied selection of engines on display at the Olympia Motor Boat Show in February 1905. Everything was new. In *The Motor Boat* 'Nautilus' debated the benefits of hot-air warming of the carburettor, as employed by Simms or Delahaye, against the more up-to-date water-jacket system adopted by Thornycroft. Removeable cylinder heads, he felt, were asking for trouble – "a gas-tight joint is not easily made" – although Simms, Clift and Maudslay were to be commended for adopting the overhead camshaft. And simply adapting a car engine for use in boats would seldom answer, because of the pressing need to keep the shaft line as low as possible. "It has been very satisfactory to be able to claim that, as a rule, British motors are in this respect not such bad sinners as the French."

With such new and rapidly-developing technology nothing could be taken for granted, and the magazine took a close interest in the annual Reliability Trials, organised by the Motor Yacht Club over two days in August in Southampton Water. The 1905 event attracted a wide range of entries, from an 18ft (5.49m) Groves & Guttridge launch powered by a 6hp, two-cylinder Dean & Burden petrol engine (retail price £150 complete), to a 55ft (16.79m) Thornycroft cruiser fitted with a 75hp paraffin motor of the company's own design (£2,700). Irrespective of their design speeds, the boats were required to run non-stop for ten hours each day – although that year a gale forced the organisers to call a halt on day two after only five hours. The majority of the 31 entrants were petrol powered,

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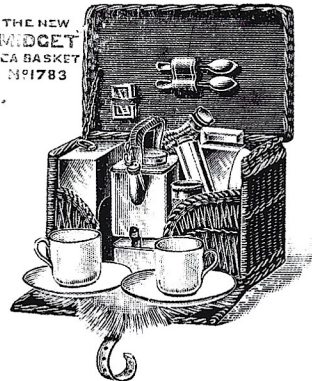
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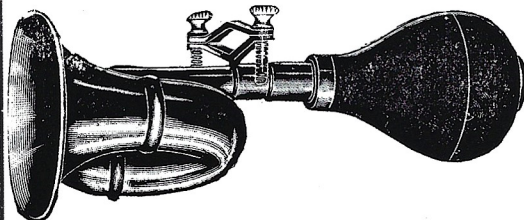
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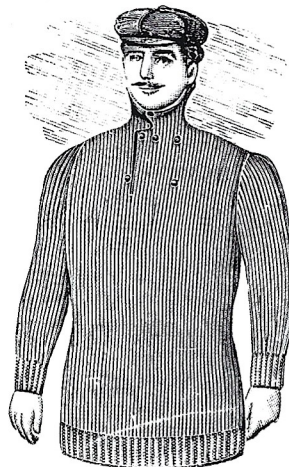


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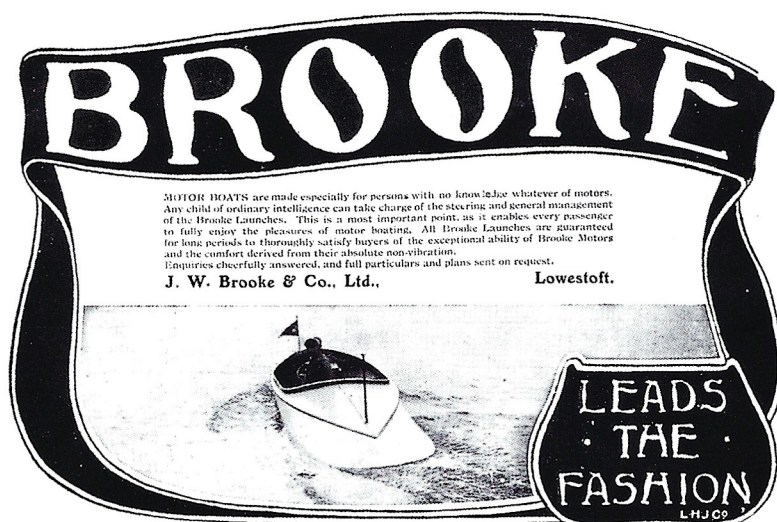
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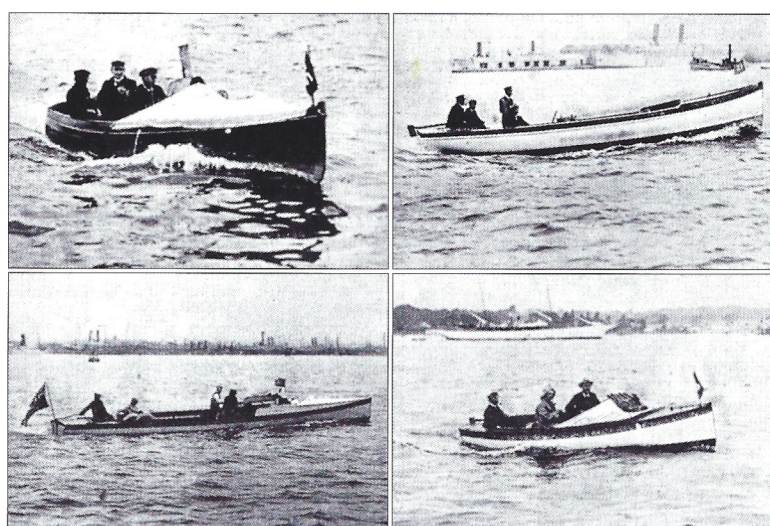
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Motor boats in the Reliability Trials, 1904. Three using petrol engines, one using paraffin.

and while noting "with regret" in *The Motor Boat* that the fuel systems were not up to par on an alarming number of boats, the judges pronounced themselves broadly satisfied with the results. They looked for sturdy engine installations and protected electrics in particular, as well as the integrity and safety of fuel tanks and pipes. "The design and equipment of the boats shows a marked advance," they commented, "many of the features of the boats which competed in last year's trials having been improved upon." Ten boats posted a perfect non-stop performance, though seven, mainly the smaller ones, succumbed to the second day's heavy weather.



But while reliability was crucial, speed was the primary obsession of the new marine motorist. Powerboat races had been held in France since 1900, and in the US since 1902. The first Harmsworth Trophy contest had taken place in 1903, won for Britain by E. Campbell Muir in *Napier* at 21.6 knots. *The Motor Boat* reported dutifully on every new motor yacht, covered the trials of the RNLI's first motor lifeboat in one of its first issues, and passionately championed the cause of the small, affordable river launch. But at the same time it devoted enormous amounts of space to going fast.

In 1905 the world speed record for motor boats, set by the Frenchman Emile Dubonnet, stood at over 29 knots – while the outright water speed record of 39 knots, held by the 132ft (40.23m) steam-powered American yacht *Arrow*, would barely see out the decade. Progress was rapid, and public interest was great – as shown by the magazine's early sales success, and by the fact that the second modern Olympic games, held in Britain in 1908, featured races for both Restricted and Unrestricted motor boats.

But boat design lagged behind engineering. As contemporary photographs show, the majority of boats in these early races were of displacement form – that is, boat-shaped, with round bilges – and were only able to attain competitive speeds by virtue of their narrow beam, and by the application of horsepower, much of which was expended in the task of shovelling tons of water out of the way in great sheets of spray. But the principle of 'planing' – designing a boat with a suitable shape to allow it to ride over its bow-wave and skim across the surface – was known to a few in France, Britain and the USA. Much of the development work proceeded in parallel, so that even then it was not easy to disentangle the various threads and credit the invention of the planing hull to any one pioneer. The Harmsworth-winning *Napier* of 1903 was developed by motor racing ace and Brooklands pioneer Selwyn Francis Edge. Though round of bilge this 40ft steel racing machine was almost completely flat-bottomed, for, as Edge wrote, "I thought that greater speed would result if it were merely to skim along the surface of the water rather than cut through it." He was right of course, but the

Long-distance feats

On land and sea the formidable Selwyn Francis Edge of Napier was a true pioneer – and his interest in promoting the internal combustion engine was not just confined to speed. His 45ft (13.72m) displacement-hulled motor yacht *Napier Major* undertook some great early voyages. The first was a 750-mile trip from the Thames to Shetland in 1905, which he completed in seven days. On the return trip he called in at all the fishing ports to research the fishing industry's engine requirements.

The following year the boat, powered by a single 20hp Napier petrol engine, made a circumnavigation of the British Isles, a distance of more than 2,100 miles, in 50 days – “one of the most remarkable voyages ever made by a motor-propelled boat”.

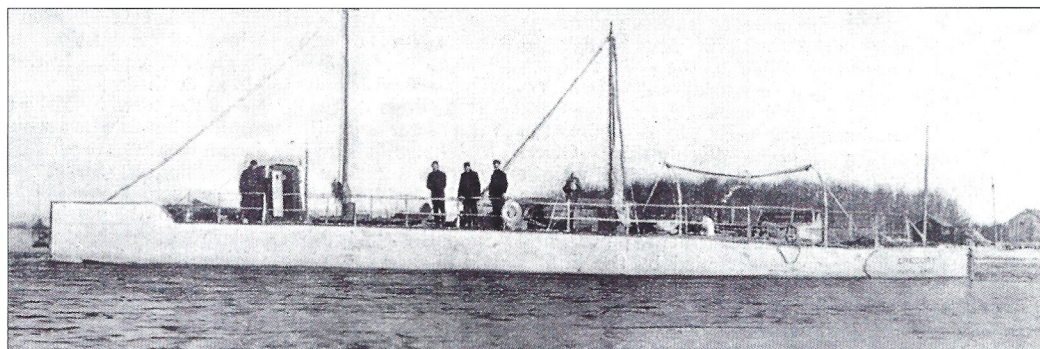
When it came to the ultimate long-distance challenge, however – the Atlantic – the traffic was all one way, for in the earliest years of motor boating it tended to be the Americans who made most of the running.

Surprisingly, *The Motor Boat* was fairly ambiguous about the first of these great pioneering motor boating voyages, the crossing from New York to Falmouth in 1902 by the 40ft (12.19m) *Abiel Abbot Low*: “Few feats of daring have ever been accomplished to rival, or even equal, that foolhardy trip which he completed in 30 days, with his 12-year-old son as his sole companion.” The skipper, William Newman, was paid \$5,000 by the New York Kerosene Engine Co to undertake the publicity-generating voyage, and the boat bore the name of the company chairman.

Three years later the 90ft (27.43m) flush-decked,

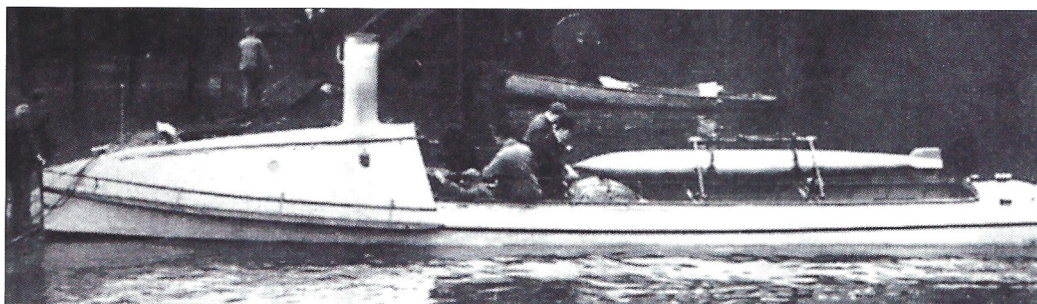
steel-built *Gregory* made the second motor boat crossing. “*Gregory* arrives at Algiers – Terrible crossing” announced the magazine in its May 25 1905 issue. Having set off from New York on January 5, 1905, the crew cannot have been too surprised to find themselves riding out a gale after less than 20 hours at sea, losing all her boats and deck fittings in the process, which forced her into Westport for repairs. Setting off again on February 8 they were beset by even worse conditions, and eventually made their way into Bermuda a week later. After more repairs, and a further unsuccessful attempt – it was a burst cylinder this time – they finally set off again on March 19 and made it to Algiers, after a long wait for fuel in the Azores, on May 18. It was “a perilous and eventful voyage,” but the *Gregory* had achieved “the distinction of being the first large motor vessel to accomplish such a feat”.

The boat which earned most approval from the magazine, however, was the *Detroit*, a lifeboat-like double-ender of just 35ft (10.67m), which made the crossing from New York to Cork in the summer of 1912. With just a single 10hp Scripps petrol engine, this seaworthy, deep-draughted vessel completed the crossing in 21 days, experiencing sustained rough weather for most of the trip, with the added discomfort of a contaminated fresh water supply. *The Motor Boat* gave an unapologetically detailed description of the *Detroit*'s characteristics, “as a vessel of this size, which can survive a gale in mid-Atlantic, is worthy of special note by all motor yachtsmen”. Her ultimate destination was St Petersburg.



Gregory, the American 90-footer which crossed the Atlantic in 1905.

Nurse, the screens



Dragonfly on trials (left and below) in 1905.

Magazine editors of every persuasion occasionally find themselves offered fiction and even poetry by unpublished and often deluded individuals who yearn to see their names in print. One of the very few occasions when an editor of *The Motor Boat* succumbed to such an approach was in the issue of April 6 1905, when an extraordinary story "edited by Arthur F. Evans from the records of the late Lt Foster, RN" made its appearance.

The country at the time was undergoing one of its periodical bouts of anti-German suspicion. Much of this had been whipped up by Erskine Childers's *The Riddle of the Sands*, published two years before to widespread acclaim. *The Riddle* hinges on the fictional discovery, by two English amateur yachtsmen, of German plans to mount an invasion from the Frisian Islands across to the Essex and Suffolk coasts in barges. Taking this idea a stage further, *The Motor Boat's* ripping yarn of 1905, 'Foster's Faithful Fight', purports to be an account of the repulse of just such an invasion, using the latest new-fangled naval weapon – the motor torpedo boat.

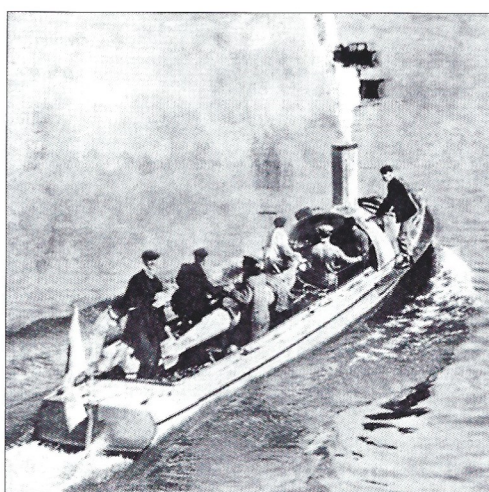
The story was clearly inspired not just by Childers, but also by the exhibition, earlier that year at Olympia, of Thornycroft's sleek 40ft (12.19m) MTB *Dragonfly*, the first of its kind.

The writing is not bad. The style is cool and snappy, and packed with details of nifty military hardware, like an opiated Tom Clancy of the *Boy's Own* era: "Now an MTB is 50ft long and 6ft beam. She carries an 18in torpedo with compressed air firing, a 300hp check action, double distilled, six-cylinder, automatic, special service motor, made in a glazed brick, parquet floored, 'remove-

your-hat-as-you-cross-the-threshold' sort of works in north-west London. She had gyroscopic compressed air steering for herself when required, and the usual gadgets..."

The drama is also well handled, and the pace maintained skilfully. Things trip along quite nicely, and it's just shaping up to be a good yarn when suddenly, without warning, the contemporary reader's bubble of suspended disbelief is cruelly popped as the author succumbs to a magnificently bonkers Edwardian outburst: "How dare these insolent people attempt to ravish our virgin beaches?" he demands, foaming at the mouth. "Should they be allowed to sully dear Walberswick's shores, and fill with landing floats the artist-haunted Blythe?"

And then, after a slight, embarrassed pause, he collects his wits and carries on as though nothing has happened.



The world's first MTB excited the magazine, but not the Admiralty.

boat's tapering canoe stern was fatal to its efficiency – a fault rectified in the transom stern of the Yarrow-built *Napier II* in 1904. Yarrow had tested various hull shapes for efficiency by towing models at speed behind a (steam-powered) torpedo boat, and results led them to follow up *Napier II* with a 27-knot 60-footer (18.29m) known simply as 1176. This boasted five engines turning three propeller shafts, and a maximum draught at rest of just 12in (0.30m). "We consider that the Admiralty should thoroughly interest itself in the question of motor torpedo boats," pronounced the magazine after an impressive sea trial on the Greenhithe measured mile.

Alphonse Tellier and others in France were also well aware of the planing principle, and the diminutive and aptly-named *Glisseur*, designed by Count de Lambert and Englishman Horatio Phillips, achieved 14 knots from just 14hp on the Seine in 1904.

Various other weird and wonderful craft were tried during the next couple of years, but with the limited power-to-weight ratios of these early engines the real breakthrough came with the stepped hull, where the designer built in a hard edge – or often a series of them – to unstick the

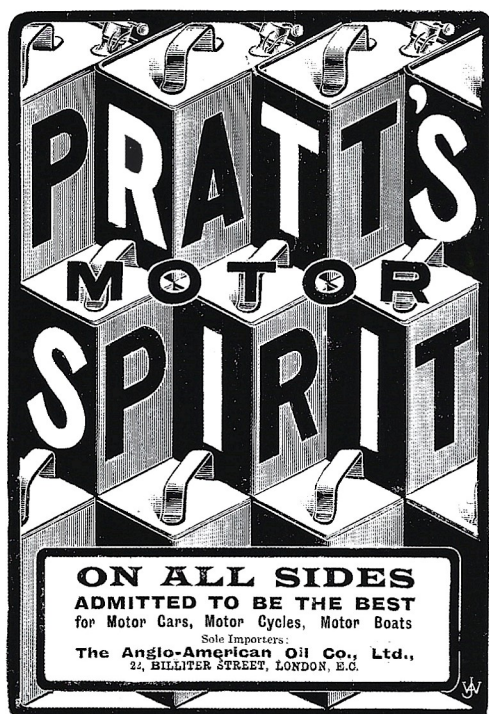


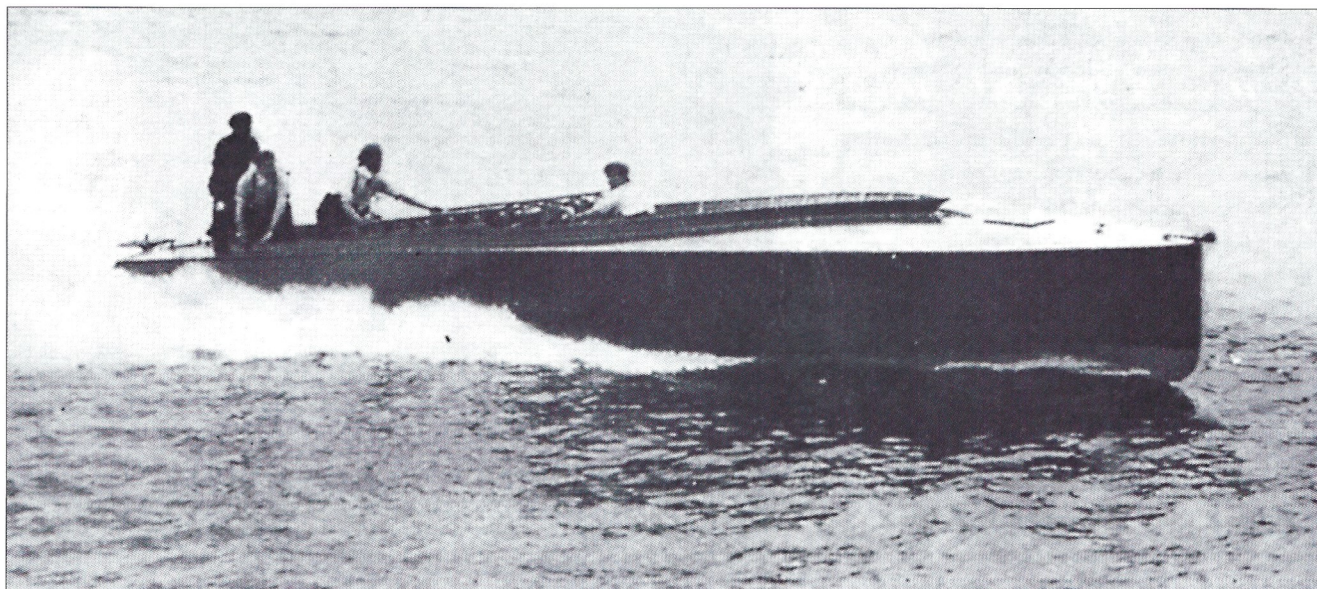
boat from the water and reduce drag. Paul Bonnemaïson of Paris filed a patent for a neat little single-step design in 1907, and the French-based American William Fauber drew a multi-step form the following year.

Ricochet XVI, a 12hp hydroplane that achieved 18 knots in 1908.

The stepped hydroplane was starting to revolutionise the racing scene. The boats which made most impression on *The Motor Boat* were Bonnemaïson's *Ricochet* series, and in 1908 the magazine proudly unveiled its own hydroplane design for readers to build: a 13-footer (3.96m) with a single step, "more or less of the *Ricochet* type, as that is the form about which most data are available", and which, "fitted with a really good light engine, should attain a speed of 20 knots".

Soon afterwards *The Motor Boat* ran a series of articles to disentangle 'The Early History of the Hydroplane', tracing its origins, quite correctly, to the experiments of the Rev C. M. Ramus of Sussex, who in 1872 had built small models of single and multi-step hulls to prove the idea. Lacking a suitably lightweight power plant, the reverend used rockets, so that on one trial a model achieved an estimated 72mph. The





Maple Leaf IV: the first boat in the world to break the 50-knot mark.

Admiralty showed polite interest, but as Ramus was thinking of big ships rather than small boats it was realised that the idea was not really practical. Nevertheless, a short while later Sir John Thornycroft filed a patent for a single-step hull. But as *The Motor Boat* observed, "it was impossible in those days to obtain a sufficiently light source of power, and so the whole matter was forgotten, but the perfection of the internal combustion engine has reopened the subject after 30 years." Could the principle be applied to bigger, non-racing boats? The magazine wasn't

sure, but "in these days of progress it is not safe to say that the difficulties so easily apparent to the technical mind will never be got over."

In 1909 the Duke of Westminster traded in his 35-knot, 760hp round-bilge racer *Ursula* and commissioned *Pioneer* from Sam Saunders in Cowes. With less than half the horsepower, this 40ft (12.19m) multi-step hydroplane was capable of over 39 knots, and but for a tangle of seaweed blocking its cooling water inlet, it would have wrested the Harmsworth Trophy back from the Americans in 1910. He failed again the following year – with the Americans this time fielding a hydroplane of their own, the 540hp Clinton Crane-designed *Dixie IV* – and British triumph had to wait until 1912.

That year Sir Edward Mackay Edgar's magnificent Saunders-built *Maple Leaf IV*, driven by racing driver and aviator Thomas Sopwith, trounced all-comers in Huntingdon Bay, and then repeated the performance the next year in the Solent. Everyone said that the 55-knot 40-footer, based on Fauber's patent but considerably refined, could have taken the Trophy a third time. With its fine entry, hard chines, five steps and twin 400hp Austin petrol engines, *Maple Leaf IV* was the ultimate Edwardian motor boat – incontrovertible, fire-breathing proof that the planing era had arrived.

But then came the war.



Panhard Levassor, a 30-knot, 480hp displacement craft, at Monaco in 1908.

Build your own hydroplane

The planing hull was the holy grail of early motor boating – but unlike the Wright brothers and their *Flyer*, we don't know for sure who built the first successful example, nor what became of it. So many designers and inventors were working in parallel, in Britain, France, the US and elsewhere, that development was almost impossible to keep track of, even at the time. Now, 100 years later, the crystal ball is somewhat fogged.

Nevertheless, *The Motor Boat* was right up to date in its issue of October 1, 1908, with a set of plans and instructions entitled 'How to Build a Hydroplane'. The shape was based on Paul Bonnemaïson's *Ricochet* boats, although development was proceeding so rapidly that the magazine admitted, "All hydroplanes must be regarded as experimental, and the present design is no exception. It is quite possible, indeed probable, that the experiences of next season will show that a vast improvement may be effected on the existing forms."

The boat was 13ft (3.96m) long, and intended to be raced in the new Motor Yacht Club class as a

single-hander – although there was space for a passenger, "as, apart from racing, planing with a companion would be far more interesting than bumping along in solitary state like a motorcyclist afloat."

With a single, right-angled step and box-like sections, the boat was designed to be easily built by an amateur with basic carpentry skills. Great attention was paid to weight, "as so many failures have occurred in the past through a fatal tendency to underestimate". The hull and engine were to weigh 399lb – and "could therefore be lifted by a couple of men". The helmsman, a wiry Edwardian, was estimated at 150lb, and with petrol, oil, water, and spray hood the overall racing weight should have been 645lb.

Steering was by tiller, and the forward-mounted engine was connected to the propeller by a shaft about 8ft long, held in place beneath the hull by a sturdy A-bracket. The petrol tank, a five-gallon cylinder, was mounted right aft. With "a good engine of the V type" the magazine confidently predicted speeds of around 20 knots.

