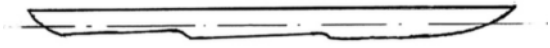
Singers on the Crest of a Wave! - by Nigel Hughes

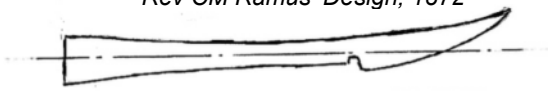
Part 1 - Background to Development of the Skimming Boat or Hydroplane.

Inventors in the Victorian era, including Isambard Kingdom Brunel, George Stephenson, John Boyd Dunlop, Alexander Graham Bell and Thomas Edison, paved the way for creation of many important developments that led to the radically different way of life we enjoy today. But this story starts with the work of two lesser known Victorian inventors, the Rev CM Ramus and Sir John Thornycroft, who both produced designs for hydroplanes with stepped hulls that planed over the surface of the water, and so were unhindered by the drag of a traditional hulled craft, which sits lower in the water.

Rev Ramus lived in Playden, Sussex, and in 1872 developed the hull design for a 'Skimming Boat'. Work started in 1870, and after a number of trials, he finalised a design and built a 29½" long rocket powered model hydroplane with a distinctive hull form having two steps and three equi-spaced planning surfaces. He called this a 'polysphenic ship', the literal meaning being 'many wedges'.



Rev CM Ramus' Design, 1872



Sir John Thornycroft's Design, 1877

Five years later, Sir John Thorycroft, who was to become the head of the famous firm of torpedo boat destroyer builders, produced his own design of single-step model, which he patented.

Over the years the stepped hull was refined and redesigned many times, but all the advanced designs remained still-born because they lacked a suitable, lightweight, reliable power source.

It was only in the 1880s, with the arrival of the internal combustion engine, that things started to look more promising, and it was Gotlieb Daimler who built and raced the first ever power boat in 1886 on a German lake, and from that moment onwards, naval architects and designers set out to conquer the waves by speed.

But there was little progress until the marriage of the petrol engine and hydroplane design of hull, a combination which was effectively exploited by Percy See in the 1920s, when his company became a major builder of racing hydroplanes.

Percy Milner See was born in 1881, the son of artist and photographer Joseph T See. When Percy was four his family moved to Fareham in Hampshire, and it was there he developed a strong interest in boats, which blossomed as his father rose through the ranks to become commodore of the local sailing club.

At the age of 14, Percy gained an apprenticeship as a builder and cabinet maker with master-builder Albert Blackman, who was responsible for many imposing houses in Fareham, including "Admirals Row". Aged 16 he designed and built a gunter rigged sailing boat called "Water Baby", which he raced so successfully it became too heavily handicapped to compete and win, so he sold her and built another boat, the 18ft "Water Witch", which also turned out to be a fast boat, finishing nine minutes ahead of the second boat in her very first race!

Percy's apprenticeship ended when he was 21, and he turned his attention towards a career as a boat builder. His first boats, however, were limited in size because they had to be lowered to the main road from the windows of his rented first floor workshop!

After three years Percy found more suitable premises down at the water's edge. These had once been a temporary "home" to French prisoners from the Napoleonic Wars, and are today the very appropriate home of the Fareham Power Boat and Sailing Club. It was not long before the boathouse was filled to capacity, and he had no option but to move to larger premises. By now Percy was a well established and respected boat builder and repairer, and among the craft built by See's were a range of powered day-boats and dinghies of a type that went on to form an international racing class, some of which were capable of speeds of up to 50 mph.

Workers at Percy See's Boatyard in Fareham

Percy also had another great interest - motorcycles - and he owned a rare Swiss Motosacoche machine with a wickerwork side car, which he bought from Hunt Brothers, and which led to him developing his interests and skills in engineering. Percy married Marion Hunt, sister to the brothers, one of whom, ET Hunt, brought fame to an early See design when he won the Royal Albert Club Regatta at Southsea in 1910.

Percy also had a fascination with flying machines, and was one of several enthusiasts who formed the Hampshire Aero Club. With the outbreak of the First World War, Percy was directed to become Works Manager for Whites of Woolston near Southampton, where he was amazed at the way the company's wooden flying boat hulls achieved strength with low weight by combining double and triple skin construction techniques on very light, closely spaced frames. These important findings were to serve Percy well in his later work back at the yard. During Percy's wartime absence, his yard built boats for the Admiralty, and from 1918 to 1926 he built a range of sailing cruisers of between 18ft and 33ft in length.

It was about this time that Percy bought a 1914 Singer two-seater with dickey seat for £10, along with a small garden shed, a hen house, run and 10 pullets included! The family used to travel in the Singer from Fareham to Sherbourne in Dorset for their holidays, the journey taking nearly all day!

Percy's wartime experience in the aircraft industry had shown him how he could achieve strong and light weight structures that were able to withstand the pounding of a fast moving craft over wave tops, and he soon developed his first high speed hydroplane, a single step 14ft boat. This achieved the then astonishing speed of 25 mph from its small American Evinrude outboard engine. Despite its impressive speed, the hulls suffered from a fundamental problem, in that the water flow across the step's square leading

edge interfered with the overall planing surface. Percy identified that the water was not being thrown far enough sideways for efficient planing and minimal drag.

His solution was to redesign the step into a "vee" shape. This would channel the water outwards at an angle to the outer edge of the hull, so that, as the boat climbed up onto the plane, the area in contact with the water (the "Wetted surface") was reduced until, theoretically, it reached a point. The design worked and led to a flurry of orders for similar boats.

Percy's next boat was 2ft shorter, but achieved 30 mph, beating the American record for outboard powered hydroplanes by 4 mph. It cost 55 Guineas (£57.75), complete with 5 gallon fuel tank and upholstery.

In 1928 a See hull was the first outboard powered hydroplane to exceed 40 mph, and in the same year Percy took one of his craft on a 50 mile, non-stop return trip from Fareham, round the Isle of Wight, racing through Portsmouth harbour - much to the interest and indignation of the Admiralty, who witnessed the spectacle!

It was daring and cheeky acts like this that exemplified the brilliance of Percy's design finesse, and along with impressive results in racing and competitive events, his reputation rapidly grew far and wide.

At the Welsh Harp in Hendon on 14 July 1928, the Duchess of York Trophy was won outright by HJP Bomford in "Seahopper", a 12ft See hydroplane, powered by a 486cc Evinrude outboard engine on its first outing. It beat 76 other competitors, causing a sensation in the boating world, and graphically illustrated the pedigree of See-built boats.

Another famous name associated with See built boats was the Hon Mrs Victor Bruce, who, in September 1928, made the fastest ever non-stop double crossing of the English Channel in Mosquito 137, taking 107 minutes to complete the venture. Mrs Bruce was also to make the first solo flight from Britain to Japan in 1930 in a Blackburn Bluebird light bi-plane. *(To see a film clip of Mosquito on this run go to www.britishpathe.com/video/across-the-channel-and-back-in-107-minutes)*


Mosquito at Speed

Another boost came when See's were called upon to provide boat racing entertainment in-between the Schneider Trophy races. Such high profile opportunities undoubtedly bolstered the image of the company and its products, and, by 1930, See's boatyard had built and sold over 120 hydroplanes of various sizes and types, which were exported as far afield as Assam, Australia, Canada, France, Persia and the USA. They were also successfully raced not only in Britain, but also in Belgium, France and Germany.

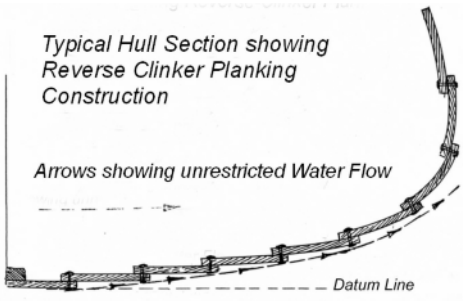
The quality of Percy's boats was outstanding in every way, and all his craft were built under the strictest of supervision by three skilled shipwrights and two or three apprentices, who tended the "clenching up". Percy took as much pride in each timber used as he did in the finished boat, and always personally chose the wood. Most of the hydroplanes were built of spruce on oak frames, and he would handpick his timber and have the spruce "riff sawn" for a diagonal grain that allowed the timbers to be more easily bent into the curvaceous hull forms.

Once completed, all See's boats were finished with three or more hand applied coats of Rylard high gloss varnish. But times were changing -the power of the boats was climbing year on year, and this meant finding suppliers of ancillary fittings that not only matched See's exacting standards, but that would also withstand the ever harsher operating environments, and this was sometimes problematic.

In about 1927, Percy's eyesight began to fail, and he persuaded one of his sons, 14 year old Eric, to join him in the business. This was to prove a very wise decision for both, for within a very short time, Eric's brilliance as a self taught naval architect, his attention to detail and expertise as a boat-builder, were to win the yard even wider acclaim. Within two years, Eric had taken over the design side of the yard's work, and he led the company with a range of designs of outstanding style, quality and outright ingenuity. It was to be the dawn of an era of unparalleled success, and one that would take the small firm to the very peak of its operations.

When a local client asked Percy See to build him something suitable for getting him to his fishing spot as quickly as possible, he cannot have foreseen the international repercussions that were to follow this seemingly innocent request. The resulting outboard powered dinghy, designed and built by Eric, had such an impressive performance that it was adopted by the British Marine Motoring Association as a class of craft suitable for family and racing use. This was just as well, because hydroplane racing had slipped into the doldrums in the early 1930s.

Like his father, Eric had become fascinated by power on water, and he was driven to exploit every ounce of motive force from an engine, allied to designing ultra efficient low drag hull forms, and he experimented with a number of design options. One of his finest developments was a unique form of reverse clinker construction, in which each hull plank overlapped the next in a reversal of the usual top down laying up, thus aiding the clearance of water from the landing strakes of each plank and reducing drag on the hull as it passed through the water.



The racing dinghy class gained international status in 1933, and a number of competitive trophies became available, with FCH Storey winning the Motor Boat Trophy in a See boat, soon followed by CH Livesey winning the Star Cup, Britannia Trophy and Duchess of York's Trophy in successive races - all in See-built boats.

Roy (later to be Sir Roy) Fedden was renowned for his aircraft engines, which were produced by Bristol Aeroplane Company, where he worked as Chief Designer. Roy commissioned the yard to design and build him a 15ft 9in International Class hull, which he went on to trial on Lake Windermere, achieving 35.22 mph with a 1,000 cc engine.