

Chapter Six

ONE STEP AHEAD



The Viking quickly became a very popular model, with its hard lines, its brawny, masculine, powerful hull shape, its raised engine hatch, elegant windscreen and sparkling performance. New hardware, designed and manufactured by Ditchburn, graced the varnished decks. Leather seating for nine on three benches, plus the possibility of two more in wicker chairs, ensured that everybody could go along.



By 1927, the stepped-hull hydroplane was well known to the world, but the racing fraternity had first recognized its virtues. Ditchburn had by now much experience in racing, having built the famous *Rainbows*, raced by Harry Greening to capture world attention and Gold Cup honours for Canada. But now the desire for greater speed and the ego-driven need to own the fastest craft on the lake were influencing the family runabout market. Round-bilged displacement hulls had long dominated the protected waters of Muskoka, but now an exciting and different product came onto the market.

It had long been understood that the displacement hull, which cuts through the water, was subject to upper limits of speed. It can easily be driven to a speed equal to the square root of its waterline length, but then it gets a lot tougher. Added power increases wave-making, the stern is depressed, and a maximum speed is achieved in the order of 1.4 times the square root of the waterline length. More power will not increase the speed; to go faster the hull must be able to rise up in the water and hydroplane across its surface.

Pioneer British designer and builder, S. E. (Sam) Saunders of Cowes, England, had built several stepped-hull vessels before the First World War, including the multi-stepped, 40-foot, *Maple Leaf IV*, the first boat in the world to attain a speed of 50 knots. She defeated the American entries in 1912 and 1913 for the Harmsworth Trophy, proving the efficiency of her hull design. It is interesting to compare her speed with present-day vessels of similar size and horsepower, for while these modern boats all have engines of less than one-quarter the weight per horsepower of *Maple Leaf IV*, very few go as fast. You'll find this by dividing the top speed in knots by the square root of the waterline length to produce a speed ratio. *Maple Leaf's* top end of 55 knots is divided by the square root of the waterline length, 6.32184, to produce a speed ratio of 8.7.

Sam Saunders' success with stepped hulls would have been well known to the Ditchburn group, particularly to Bert Hawker, designer and plant foreman. An Englishman who had come to Canada in 1907, Hawker had found

work at several Ontario boat builders, including Minett, and upon returning home from the war in 1919, had become an important member of the Ditchburn team. While the designer of the new *Viking* model is not mentioned in company literature, it was probably largely Hawker's work.

The sales brochure described the new Viking as a "standardized Gentleman's Runabout, the fastest boat of its class ever built," and further claimed "unusual speed of 40 to 45 mph with a 150 horsepower engine, made possible by the scientific application of under body lines which greatly eliminate resistance caused by vacuum and wetted surface."

One picture illustrates the vessel carrying eleven passengers, a load of 1,700 pounds, and still being able to achieve a speed of 36 mph. A reference is also made to the Ditchburn-built *Rainbow I*, Harry Greening's winner of the Fisher Trophy Race in Miami in 1920 and 1921. "The *Viking* is 5 and $\frac{1}{2}$ miles faster per hour with a 150 hp motor than the *Rainbow I* which carried a 300 hp motor."



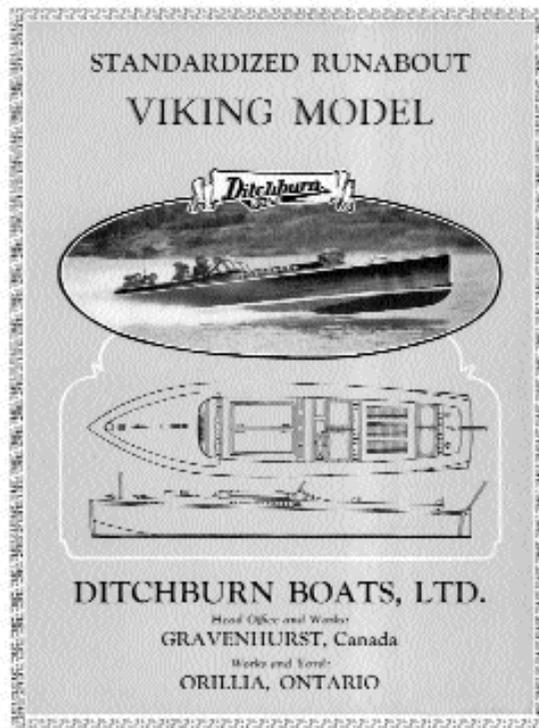
Viking from catalogue with eleven people. Lorem ipsum dolor sit amet, consectetur adipis.

Ditchburn credited their experience in producing six high-speed patrol boats for the Canadian government as the inspiration for the design. These 38-footers, with Lewis machine guns mounted on the foredeck, were kept busy on the Atlantic coast chasing down rum-runners. Ditchburn had won the contract by guaranteeing a speed of 31 mph for these fast and seaworthy revenue cutters. They could actually achieve 35 mph, fully loaded and manned by a crew of three, and the government promptly ordered five more.

It is probable the speed claims of the Viking brochure were somewhat overstated, but with

the larger Sterling and Kermath engines introduced the following year, the Vikings could indeed surpass the 40-mile-per-hour mark. Several of the surviving 27-foot Vikings have been re-powered with V-8 engines for even livelier performance, but the significant weight reduction may cause trim problems.

A single-stepped hydroplane is designed to ride on two points of the hull—amidships, just ahead of the step, and on the hull bottom right aft. Its advantage over a non-stepped hull is that it just rises bodily out of the water, fore and aft the same amount, and skims along the top. The angle of attack is built into her, so she



Viking catalogue cover. Lorem ipsum dolor sit amet, consectetur adipiscing.

does not have to alter her trim in order to plane, as does a stepless boat.

Speed claims aside, the Viking quickly became a very popular model, with its hard lines, its brawny, masculine, powerful hull shape, its raised engine hatch, elegant wind-screen and sparkling performance. New hardware, designed and manufactured by Ditchburn, graced the varnished decks. Leather seating for nine on three benches, plus the possibility of two more in wicker chairs, ensured that everybody could go along.

The principal measurements of this boat are a 27-foot length, with a beam of 6 feet, 6 inches, a draft of 2 feet and a weight of around 5,000 pounds, depending on engine choice. The keel and framework are of selected, air-dried white oak. Planking above the waterline is African or Mexican mahogany, figured stock. Planking below is clear, selected cedar or cypress. Fastenings to frames are copper rivets with heads countersunk and plugged to match planking. Decks are African or Mexican mahogany, edge nailed and blind fastened to white oak carlins,

and seams are caulked and payed with bright yellow compound.

Forward of the engine compartment is a waterproof, cedar bulkhead with a fireproofing material on the engine side. Aft of the engine is another waterproofed, soundproofed and fire-proofed bulkhead, with mahogany on the passenger side. The cockpit floor is made of removable mahogany gratings, while the engine-room flooring is plywood covered in aluminum corrugated matting. The driver's bench has a removable centre section to allow access to the rear; the stern seat back is removable to allow access to the steering gear and main gasoline tank. An auxiliary fuel tank is fitted in the forward compartment.

Four instruments are mounted in an AC German silver panel, itself mounted on a varnished walnut panel fastened to the mahogany bulkhead. The lower section of the windscreen is mahogany-framed plate glass, with two adjustable and unbreakable, hinged-glass plates attached to its upper edge for added wind protection.



Viking outboard test above. Lorem ipsum dolor sit amet, consectetur adipis.

Viking article on new steering device. Lorem ipsum dolor sit amet, consectetur

Viking Ad. Lorem ipsum dolor sit amet, consectetur adipis.

Offering the utmost in motor-boat beauty, speed and luxury ...

The Ditchburn VIKING MODEL

Scientifically designed and embodying the features that have enabled Ditchburn boats to establish world records for speed and endurance, the Viking model of motor beauty and phenomenal speed is a craft of which you will be proud in any company.

Universal ease of control for feminine hands, and unexcelled maneuverability, make the Viking model the ideal boat for those seeking the finest class of sea family recreation.

The Viking model will develop forty to forty-three miles per hour, and accommodate twelve persons. The Viking can truly be said to provide beauty, speed and luxury unexcelled, along with long life and safety.

Ditchburn Marine Sales Ltd. King Street West Toronto

Ditchburn BOATS Limited

Head Office: Gravenhurst, Canada
Works: Gravenhurst and Delhi

New Power and Steering Unit

Interesting New Device Being Developed in Ditchburn Shops



THE writer has had the opportunity to follow the experimental work that has been underway in the Ditchburn, Gravenhurst, shops relating to the Stern Gear Drive which has been the ambition of many to perfect direct from the engine clutch—no reverse gear is necessary—and applied through bevel gears to the vertical shaft; another set of bevel gears transmit power to the propeller. With the exception of the upper bevel gears the unit is much the same as the practice in outboard motor design.

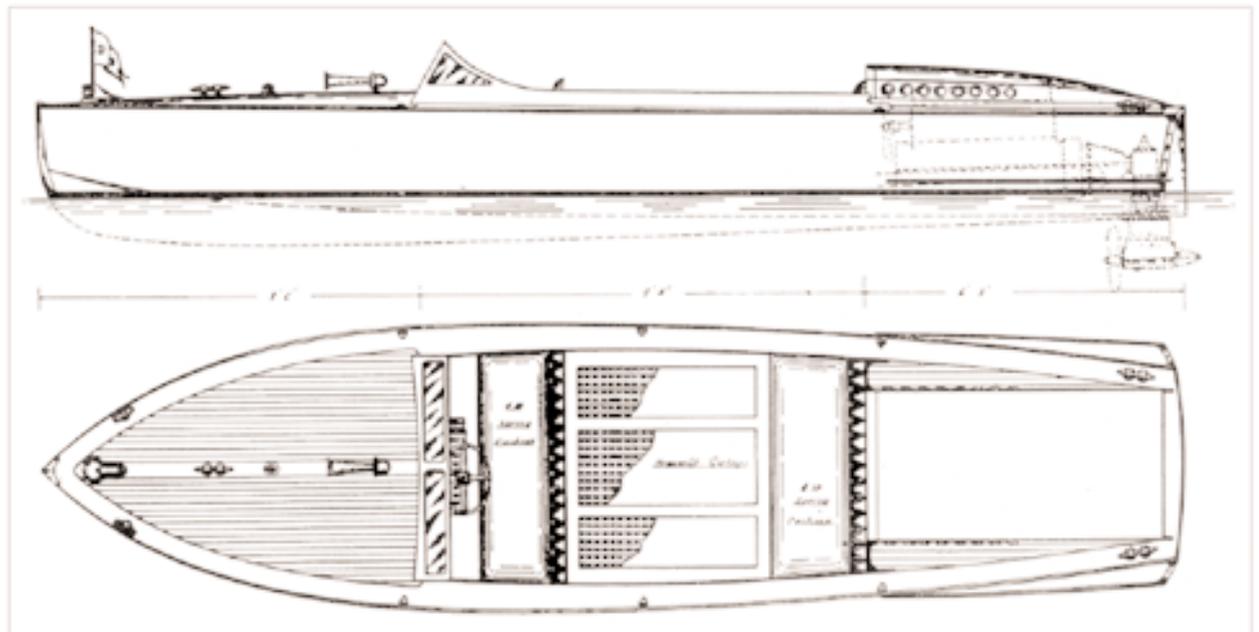
There are two main objections to this form of drive. First, the loss of power through the gears. Secondly, the engine weight being so far aft. The loss of engine power would not exceed ten percent which is more than overcome by the gain in efficiency obtainable through arranging correct gear ratios between engine and

propeller and because of the zero-angle of the propeller to the advance of the boat.

Secondly the weight being aft can be supported by giving greater beam and buoyancy where it is needed. In the accompanying photo the effect of this heavy weight aft can be discerned in the bad angle at which the boat is running. This boat was not designed for this rear gear drive and was only fitted with same for experimental purposes. The plan reproduced herewith shows a 24 footer designed especially for this form of drive.

Another difficulty that all previous experimenters have discovered is that of the tendency of the power egg to revolve around the vertical shaft. It is understood Mr. Ditchburn has overcome this problem.

After having explained the drawbacks to this form of drive,





1928 Mowitza II dash. Lorem ipsum dolor.

Opposite: 1929 Hibiscus amet, consectetur adipis. Lorem ipsum dolor consectetur adipis.

Exposed wood was covered with six coats of spar varnish and four coats on protected surfaces. The hull below the water got two coats of lead-based paints and two coats of marine bottom paint. Above the water, the hull was finished natural with five coats of varnish. All the materials used were of the best grade and highest quality, and the engineering and workmanship was of the highest standard.

Still, it was not a boat for everyone. An elderly Muskoka cottager recalled Tom Greavette, then sales manager for Ditchburn, coming to the family island to demonstrate the new vessel to his father. Apparently it was not a good day for the demonstration, as a light breeze grew steadily stronger, and the long uphill pounding to home dock convinced the family to order a more conventional Minett-Shields launch, which offered a slower but more familiar ride.

Probably the best known of the seven known survivors is *Mowitza II*, ordered in September, 1928, by Fred Burgess, an experienced and devoted boater who had visited the Toronto

showroom on King Street to finalize his purchase. Delivered in June of 1929, *Mowitza II* was immediately put to the test in the Muskoka Lakes Association Annual Regatta, where she scored a second in the senior motorboat event. In 1930, she won her class when *Whippet*, an out-and-out race boat, broke an oil line. She also competed well for another three years, but the exact rankings remain unknown.

To prepare for these important competitions, the vessel had been lifted at the Gravenhurst factory, allowed to dry out for several hours, then had her bottom polished with a graphite compound. She was then fueled with only 15 gallons of gasoline to keep her weight down. On occasion, ether, oil, and airplane gas were added to the tank as secret ingredients.

Despite her racing success that first summer, her new owner had some complaints that he took back to Herb Ditchburn. While Ditchburn work was always to the highest standards, Fred Burgess felt the foredeck planking was not matched and varnished to his satisfaction. In addition, he had now seen *Mint Julep*, a Viking





recently delivered to the Eaton family, and the latter vessel had a more elegant dashboard and instrument panel than the one fitted in *Mowitza*. Two small shelves port and starboard had also been added to this area.

Herb Ditchburn wrote to Burgess on July 2, 1929, to confirm that the company would respond immediately to all these concerns: “We appreciate that your boat is being used alongside some of our competitor’s best,” he stated in his letter, “and are therefore anxious to bring it into a condition which will leave no room for criticism.”

Don't you wish you could get a warranty response like that today! But this was not an isolated incident. Ditchburn quality was always high, and Herb Ditchburn never hesitated to keep it that way.

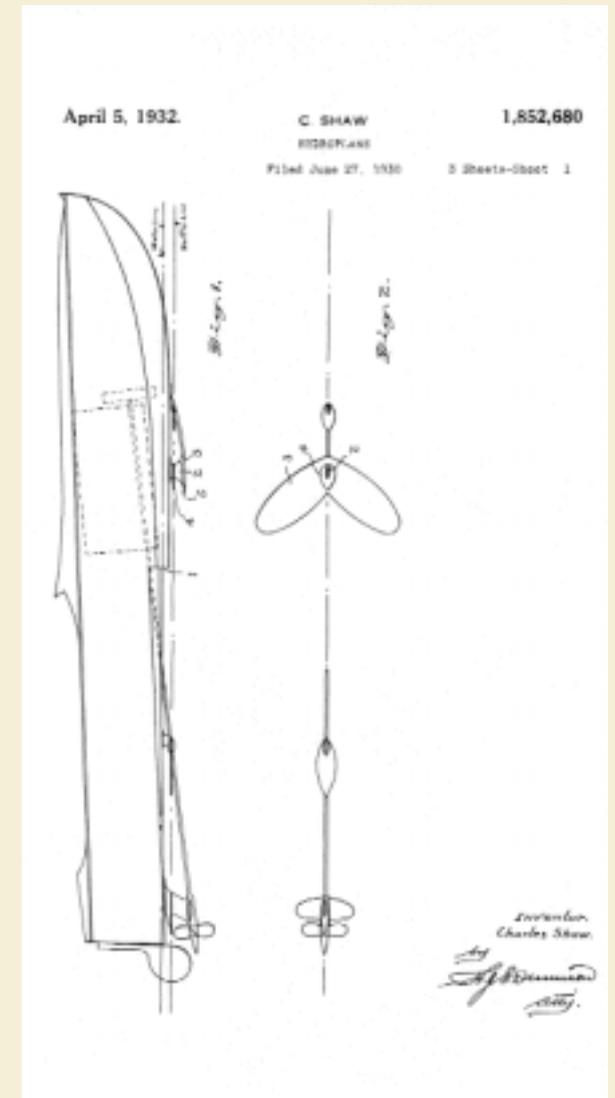
Burgess paid \$5,870.50 for his *Viking*, which was a fair price for a top, new, custom product

1930 Ponder. Lorem ipsum dolor sit amet, consectetur adipiscing.

from Canada’s largest builder of high-quality yachts. It was far beyond the workingman's range, but wealthy Muskoka residents were enthusiastic, and twenty hulls were sold in the next two years. Unfortunately, the disastrous stock-market crash was just around the corner, and luxury boat builders were to suffer the most.

A totally unknown story came to light in researching Herb Ditchburn’s personal records. Always wanting to be on the leading edge of technical development, Ditchburn and a friend, an engineer named Charles Shaw, had secretly been researching and developing a hydrofoil to be mounted under the hull of the 27-foot *Viking* to enhance its already remarkable speed and to lessen the power requirement to attain that speed.

Cast in aluminium, this vee-shaped foil was to be mounted just forward of the midship step and would provide lift as speed increased. Eventually, the dead weight of the hull and its wetted surface would be significantly reduced, while smoother, safer riding and turning would be accomplished, according to Shaw and Ditchburn.



Above: Viking patent. Lorem ipsum dolor sit amet, consectetur adipiscing. Lorem ipsum dolor sit amet, consectetur adipiscing sit amet, conse.

Unfortunately, it appears that their theories were never put to the test. Ditchburn had agreed to pay the cost of the patent attorney, but he was overcome by business problems threatening the future of the company. Dated April 5, 1932, the United States Patent Office issued patent number 1,852,680 in the name of Charles Shaw alone. There is no record or knowledge of any attempt to test the invention.

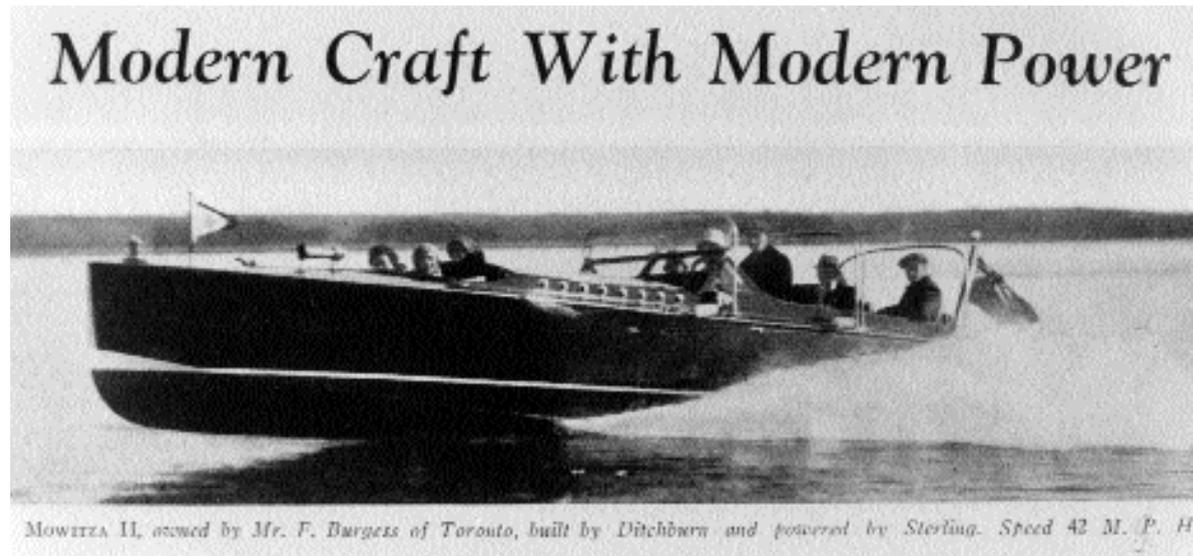
Shaw and Ditchburn had also co-operated on the development of a stern drive, for which the United States Patent Office issued patent number 1,765,789 on June 24, 1930, to Herbert Ditchburn, of Gravenhurst, Ontario, Canada.

At the time, at least a dozen American companies were marketing a stern drive or a vee-drive, all trying to solve the same problems—more passenger room in the boat, less noise and

exhaust fumes, and easier installation of a standard propulsion unit. These companies included Outboard Marine Corp., Gray Marine Motor Co., Columbian Bronze Co., Capitol Gear, D. W. Onan and Sons, and many others. None worked well enough to achieve marketing success, and many years passed before the out-drive became practical and widely used.

Ditchburn's design involved a tractor propeller, which could be operated in either direction, and a rudder, which could be operated independently. At least one unit was built and tested on a specially built hull, but the story seems to end there. Overcome by the pressing financial problems that enveloped the company, all experimentation ceased.

Today we can enjoy seven survivors of the original twenty *Vikings* produced—six in Ontario and one at Lake Tahoe in California. Their daring design, flashy performance, and handsome appearance never fail to attract attention. They remain a signature work that would never have come from an ordinary builder.



1928 Mowitza II ad. Lorem ipsum dolor sit amet, consectetur adipis.

Opposite: 1929 Voodoo. Lorem ipsum dolor sit amet, consectetur adipis.

