



SAIMENA

(Cape Town Branch)

IN MEMORY OF WILLIAM FROUDE

The 200th year memorial celebration of William Froude (28 November 1810 – 4 May 1879) was commemorated at the Garden of Remembrance at the Old Burial Ground in Seaforth, Simon's Town on 28 November 2010 at a joint ceremony between the South African Institute of Marine Engineers and Naval Architects (SAIMENA), the Simon's Town Historical Society and the South African Navy.



FLR: Capt (ret) Ron Carroll, Dr Brian Gowans, Mr Malcolm Lyness, Capt (ret) Bill Rice, Mrs Rice, Councillor Nicki Holderness, not identified, Read Admiral (JG) Kevin Watson. Mr Richard Daggitt not in picture. Photo by Chad Chapman.

Councillor Nicki Holderness laid a wreath on behalf of the City of Cape Town; R Adm(JG) Kevin Watson laid the SAIMENA wreath and Dr Brian Gowans laid one for RINA.

William Froude (November 28, 1810 in Devon – May 4, 1879 in Simonstown, South Africa) was an English engineer, hydrodynamicist and naval architect. He was the first to formulate reliable laws for the resistance that water offers to ships (such as the hull speed equation) and for predicting their stability.

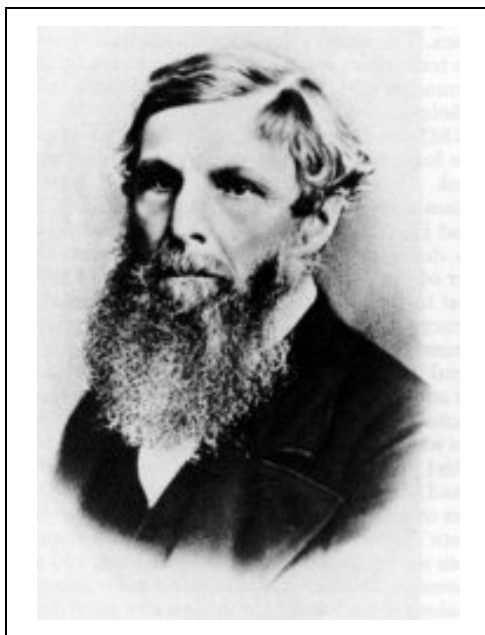
Froude died while on holiday, as an official guest of the Royal Navy, in Simon's Town and was buried there with full naval honours. He is annually honoured by SAIMENA which lays a wreath at his grave in Simon's Town.



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WILLIAM FROUDE BIOGRAPHY (1810-1879)



Personal information

Name	William Froude
Nationality	English
Birth date	November 28, 1810
Birth place	Devon
Date of death	May 4, 1879
Place of death	Simonstown, South Africa
Education	Westminster School

William Froude (November 28, 1810 in Devon – May 4, 1879 in Simonstown, South Africa) was an English engineer, hydrodynamicist and naval architect. He was the first to formulate reliable laws for the resistance that water offers to ships (such as the hull speed equation) and for predicting their stability.



The hulls of *Swan* (above) and *Raven* (below) on display in the Science museum, London. A sequence of 3, 6 and (shown in the picture) 12 foot scale models constructed by Froude and used in towing trials to establish resistance and scaling laws. *Raven's* sharp prow followed the "waveline" theory of John Scott Russell, but *Swan's* blunter profile proved to offer lower resistance

Froude was born at Dartington, Devon, England and was educated at Westminster School and Oriel College, Oxford, graduating with a first in mathematics in 1832.

His first employment was as a surveyor on the South Eastern Railway which, in 1837, led to Brunel giving him responsibility for the construction of a section of the Bristol and Exeter Railway. It was here that he developed his empirical method of setting out track transition curves and the geometry of masonry skew bridges.

THE SOUTH AFRICAN INSTITUTE
OF
MARINE ENGINEERS
AND
NAVAL ARCHITECTS



DIE SUID-AFRIKAANSE INSTITUUT
VAN
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INGENIEURS

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At Brunel's invitation Froude turned his attention to the stability of ships in a seaway and his 1861 paper to the Institution of Naval Architects became influential in ship design. This led to a commission to identify the most efficient hull shape, which he was able to fulfil by reference to scale models: he established a formula (now known as the Froude number) by which the results of small-scale tests could be used to predict the behaviour of full-sized hulls. His experiments were vindicated in full-scale trials conducted by the Admiralty and as a result the first ship test tank was built, at public expense, at his home in Torquay. Here he was able to combine mathematical expertise with practical experimentation to such good effect that his methods are still followed today.

Froude's most important work was in determining the amount of force that water exerts on a body passing through it. This was of great concern to the British navy, who wanted to maximize the speed and efficiency of their ships. Froude conducted a great deal of laboratory research before developing *Froude's law*, which is a tool used to determine the amount of force required to pull an object against the retarding wave that is built up in front of it as it travels. By using Froude's law, the British navy was able to tow its ships from one place to another more efficiently.

There were two important devices that were invented during the development of Froude's law: the model study tank and the water brake. In order to simulate conditions on open water, Froude had to create a water environment in his laboratory. The model study tank allowed him to perform his experiments and extrapolate their results to larger bodies of water. The water brake, a type of dynamometer, was actually an offshoot of Froude's research. Primarily used to measure the horsepower of internal combustion engines, the water brake consists of a rotor encased within a water-filled compartment; the engine turns the rotor, and the water resists that turning, slowing it down. The horse power of any engine can thus be determined by measuring the amount of resistance exerted by the water.

He died while on holiday (as an official guest of the Royal Navy) in Simonstown, South Africa and was buried there with full naval honours.

Merriam Webster Online (for brother James Anthony Froude)

Brown, Derek K; and Lambert, Andrew (2004). *Oxford Dictionary of National Biography*. Oxford University Press.

From Wikipedia