



VOL. VI

NO. XI

NEWSLETTER

<http://home.vicnet.net.au/~bmbg/>

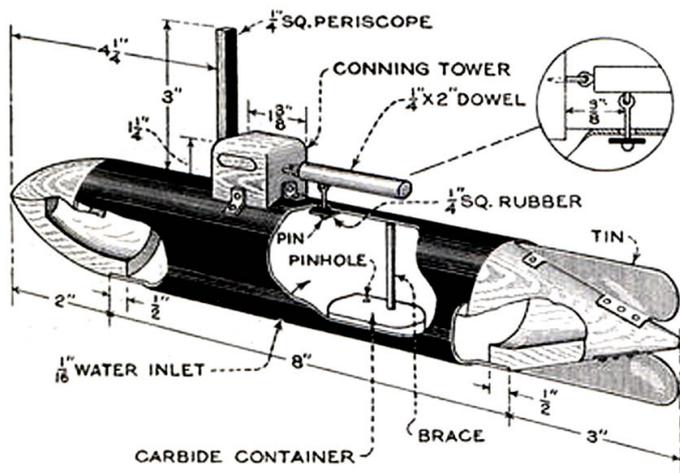
Ensign's report 1st November 2013

I've received a couple of longer newsletter contributions recently, and will be pleased to present these over the next two or three months - many thanks to those who made the effort.

A working toy submarine

This illustration below provides full constructional details for a working toy submarine. There is no means of forward propulsion, but the sub will continually dive and re-surface by itself. The plans originally appeared in the December 1924 issue of the American *Popular Mechanics* magazine, in an article by F D Burke.

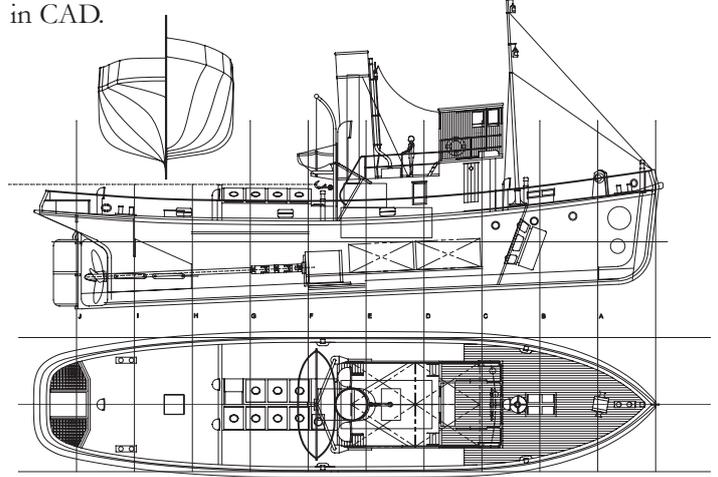
A small hole in the underside allows water to enter the hull, pushing the air out of the air valve on the top. As the sub dives below the surface, the dowel float causes the air valve to close. A pellet of calcium carbide reacts with water in its container producing a gas (acetylene) which forces the water out from the hull, causing the sub to re-surface and repeat the cycle. Carbide is difficult to obtain these days, but Alka-Seltzer tablets or baking powder may be substituted.



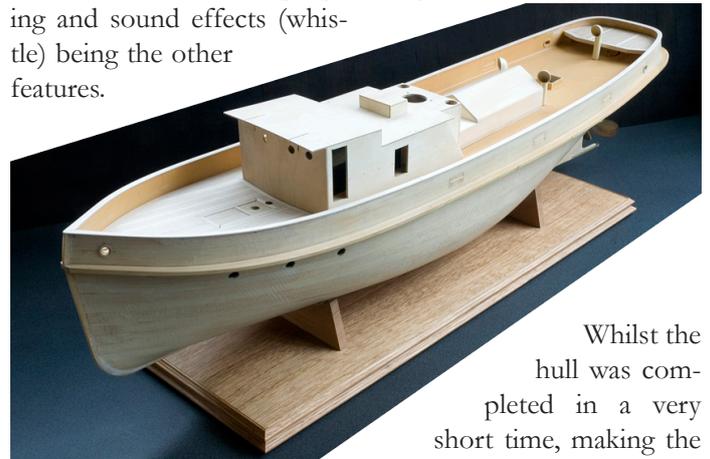
As a young lad I made a model diving bell that worked on this principle and sent it on many deep dives to the murky bottom of our water tank to collect the methane gas being produced there by rotting leaves.

The ST Wattle

With the 1:1 ST Wattle under restoration here in Melbourne, I had a natural candidate for a model subject and this year's *Model Boats* Winter Special. The prime source of information was the original dockyard drawings from the National Archives, but comparing them to the actual Wattle soon showed discrepancies, indicating that the drawings had never been updated to reflect the 'as built' ship. Sorting these out took some time and thought as I worked up the model drawings in CAD.



1:24 scale was chosen to match my other tug, the Craig. The projected displacement was up to 9 kg on a hull just over one metre long. A 24-volt system was adopted to provide power both for the nebuliser smoke generator and direct drive motor for the 90mm 4-blade propeller, lighting and sound effects (whistle) being the other features.



Whilst the hull was completed in a very short time, making the superstructure with its complicated davit support structure and other details was time consuming. The cowl vents were 3D printed by Shapeways. On-water performance is very stable with about 2.5 hours run time with smoke on or 3 hours without.

