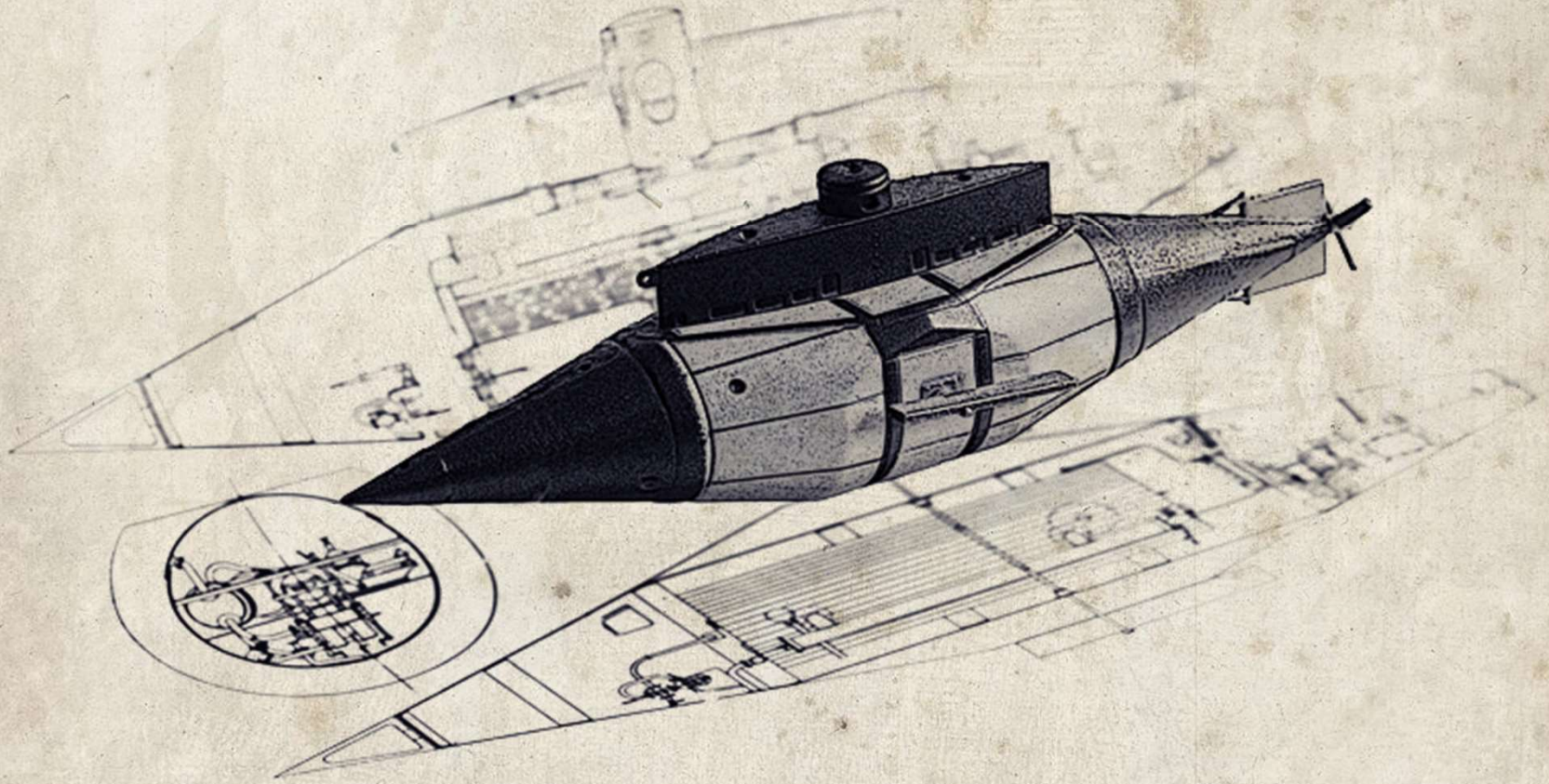


# SubMap

## *The Archaeological Investigation of the Submarine Resurgam*

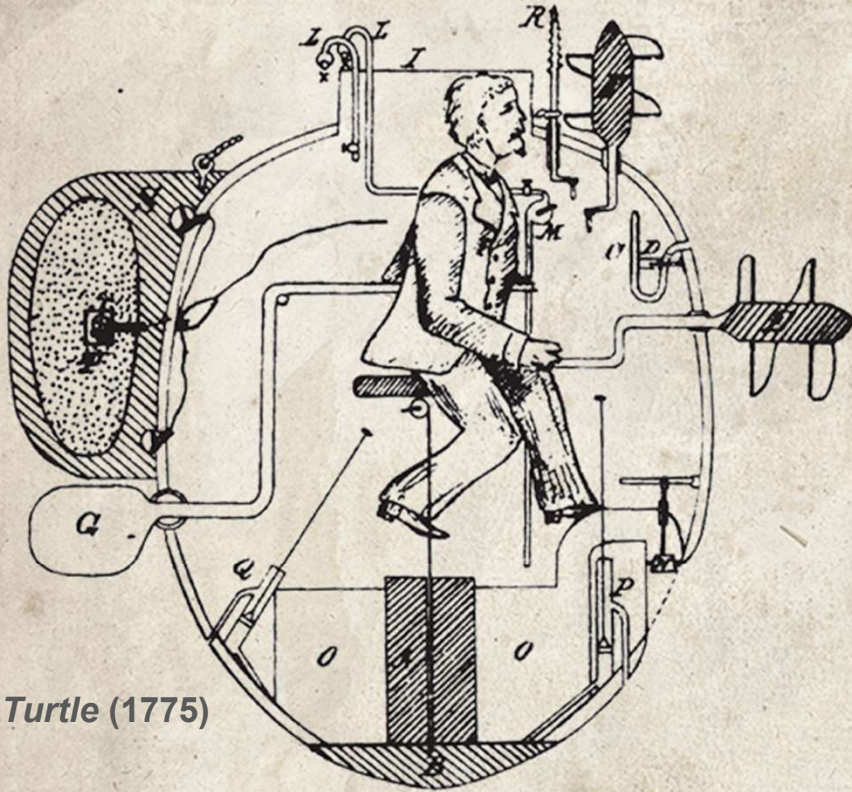


Peter Holt

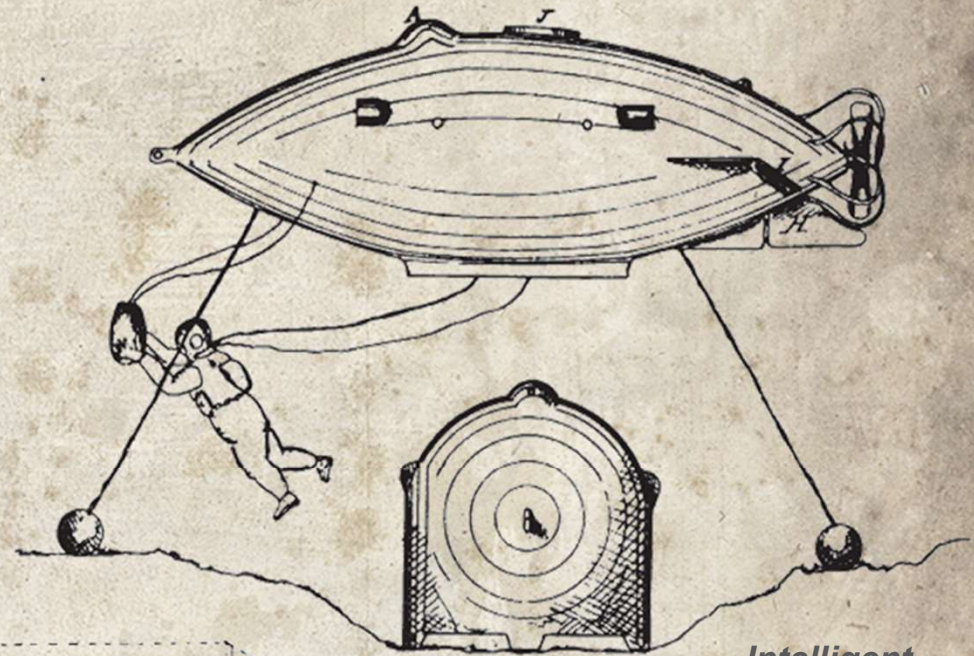
Director, 3H Consulting Ltd.



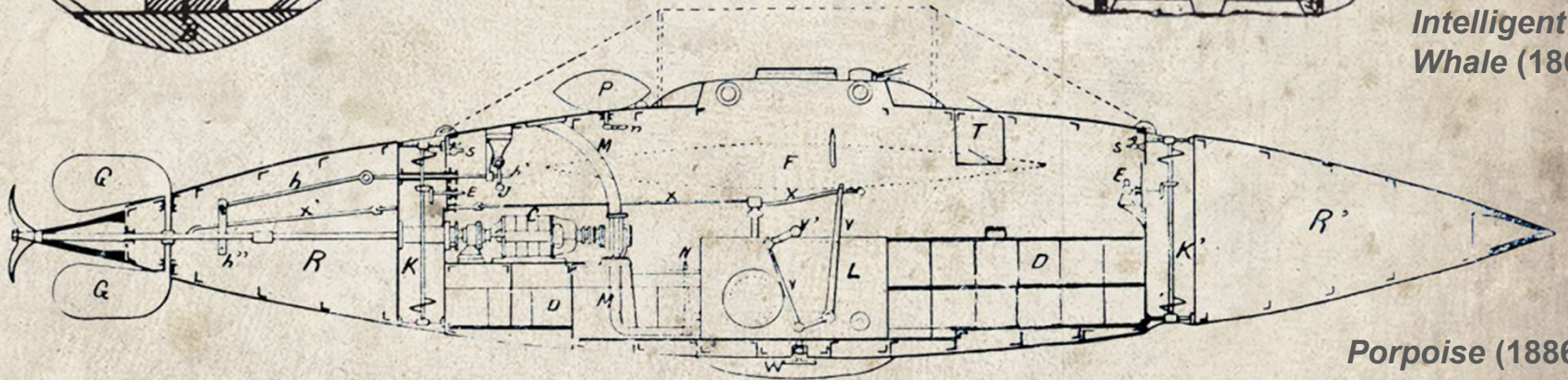
# Early Submarines



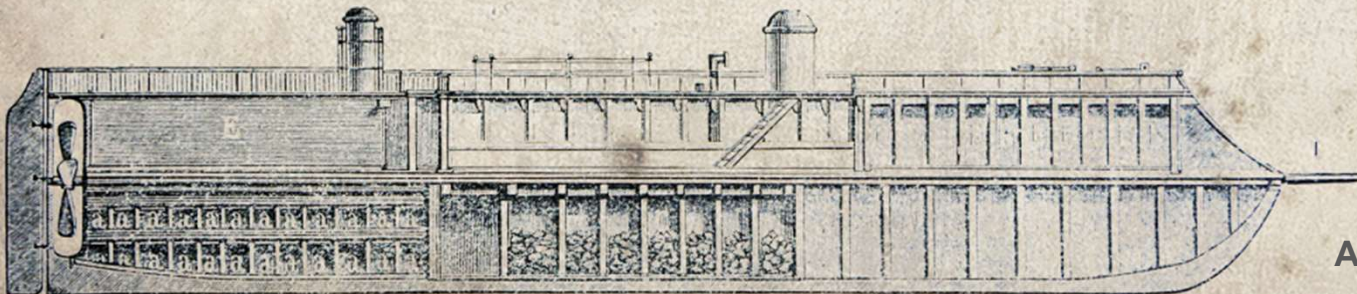
*Turtle (1775)*



*Intelligent Whale (1863)*



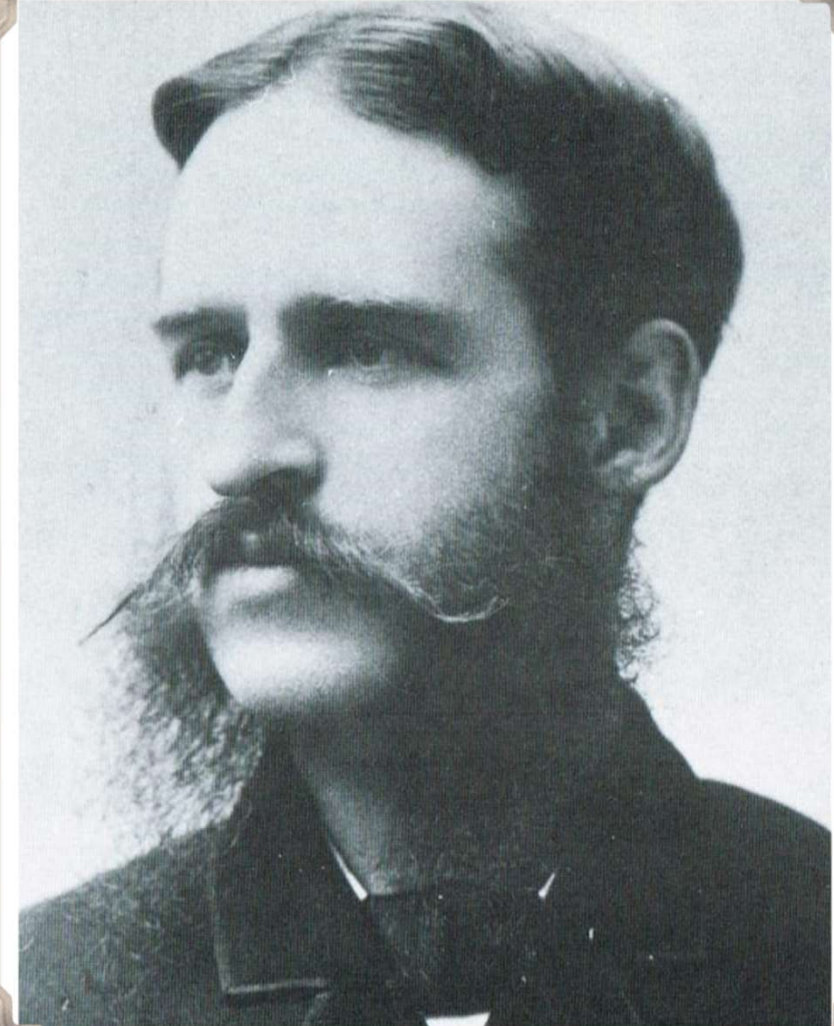
*Porpoise (1886)*



*Alstitt (1863)*

# George Garrett

1852 - 1902



*George W. Garrett*

VISITING TUTOR.

B. A., T. C. D., Ire C. T., Govr. Sc. & A. Dep. Eng.

Classics, Mathematics, Science.

466 Lenox Ave.,

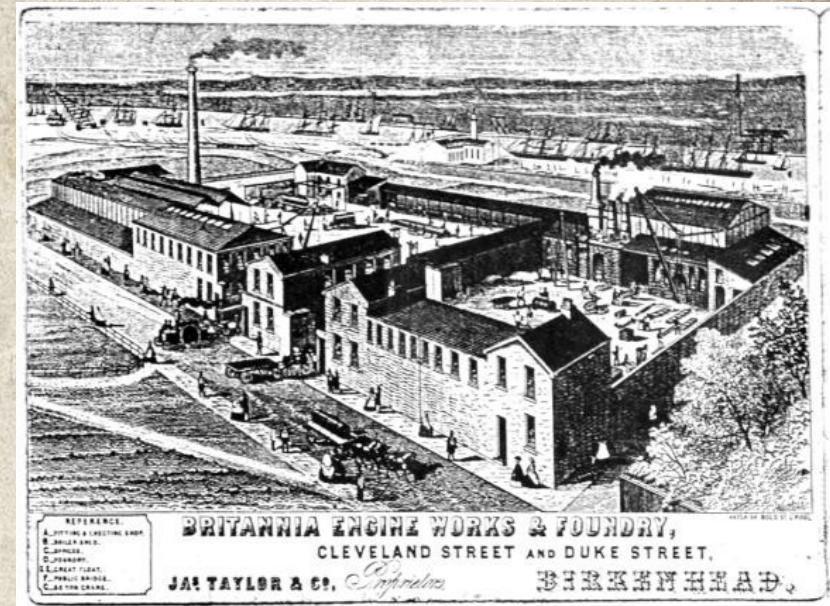
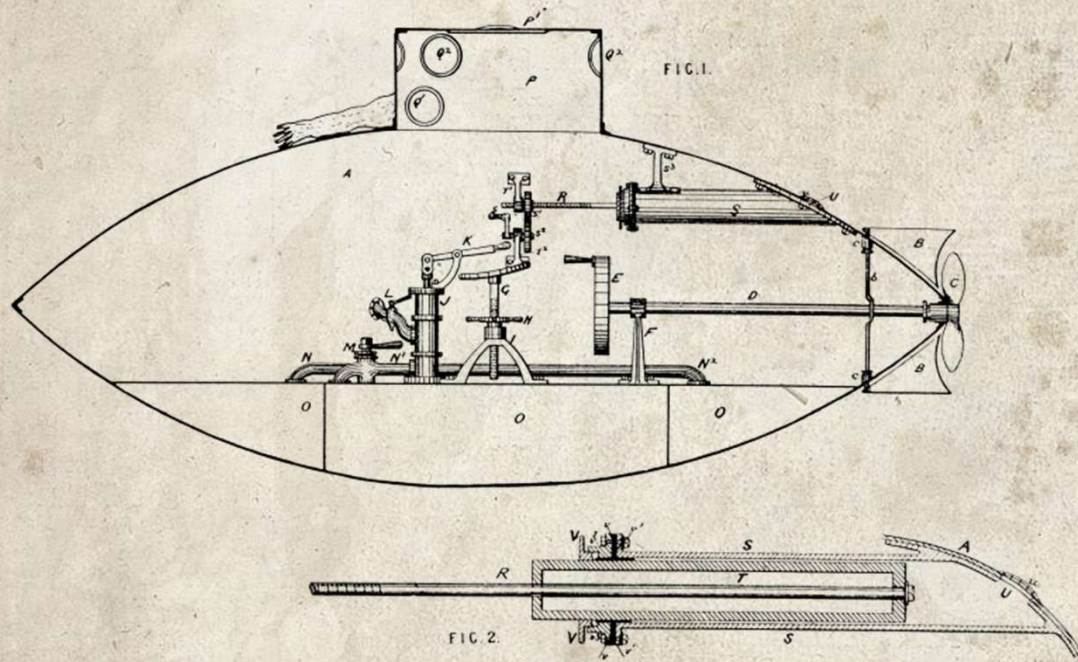
New York.

A.D. 1878, May 8. N<sup>o</sup> 1838.  
GARRETT'S SPECIFICATION.

(1 SHEET)

# The Curate's Egg

May 1878



## Submarine Boats for Placing Torpedoes, &c.

LETTERS PATENT to George William Garrett, of 82, Chorlton Road, Manchester, in the County of Lancaster, for the Invention of "IMPROVEMENTS IN AND APPERTAINING TO SUBMARINE OR SUBAQUEOUS BOATS OR VESSELS FOR REMOVING, DESTROYING, LAYING, OR PLACING TORPEDOES IN CHANNELS AND OTHER SITUATIONS, AND FOR OTHER PURPOSES."

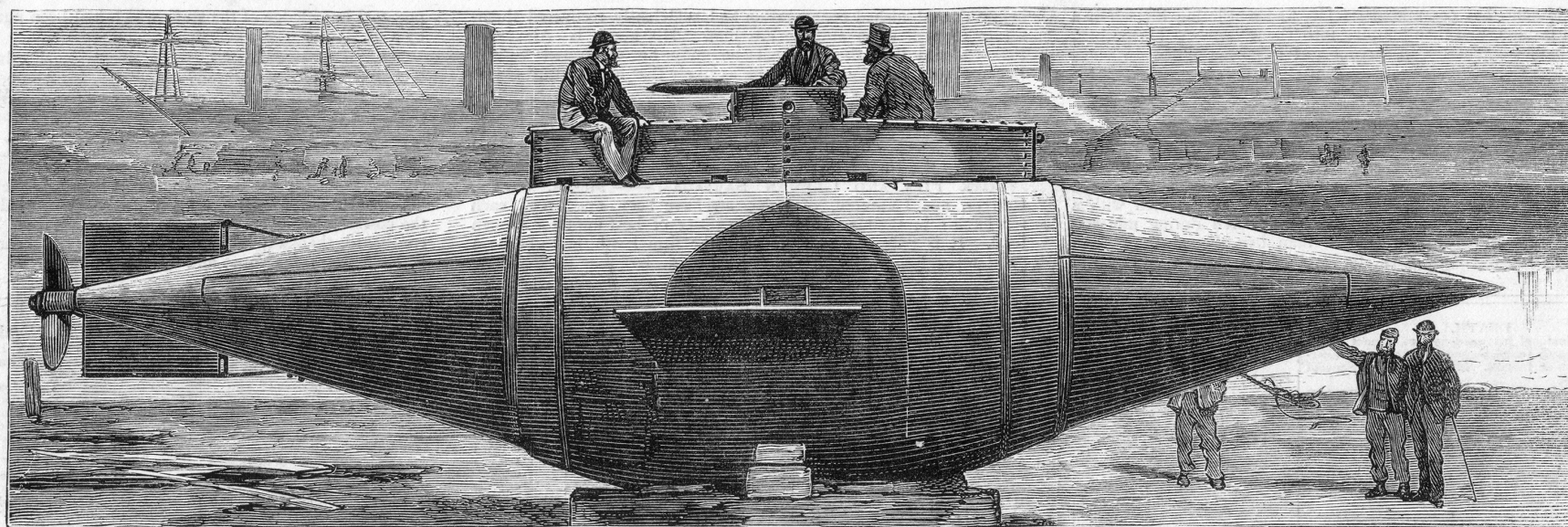
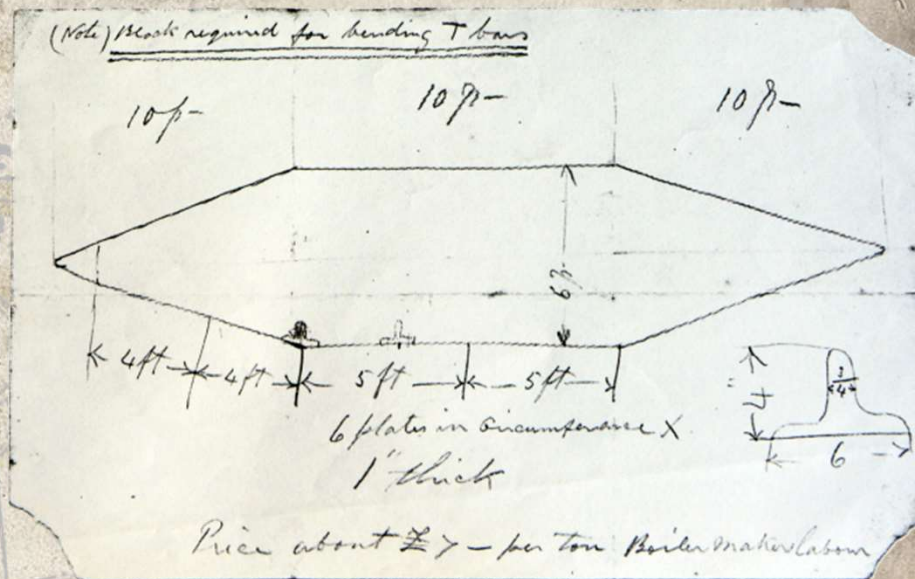
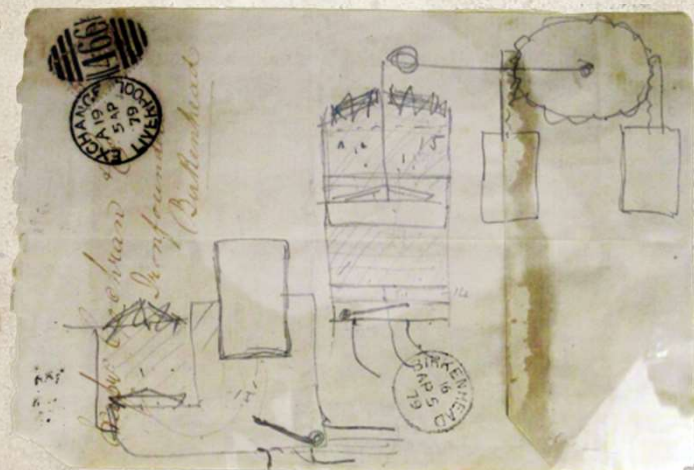
Sealed the 29th October 1878, and dated the 8th May 1878.

# Garrett Submarine Boat

## "Resurgam."

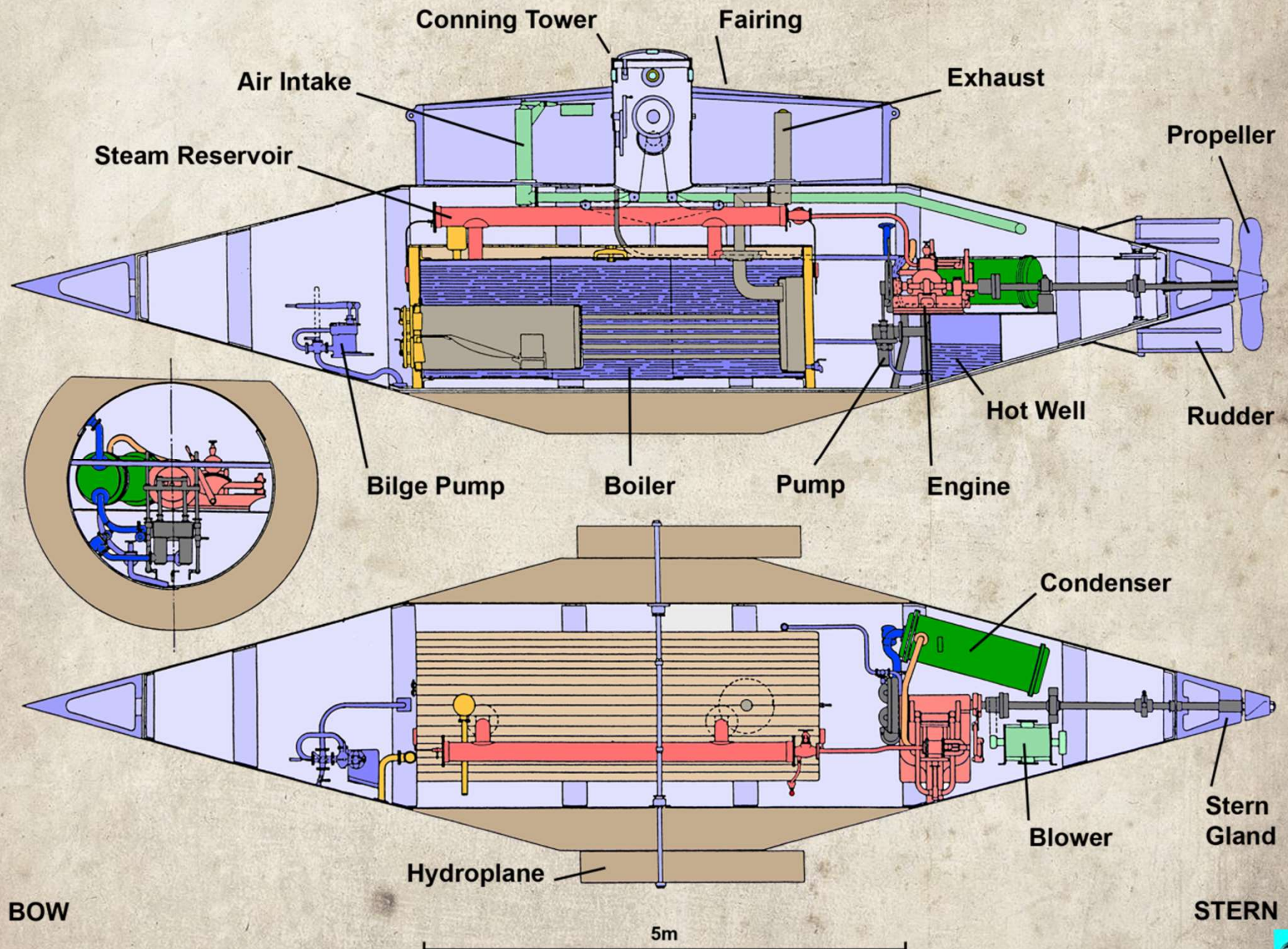
# Building Resurgam

April 1879



THE GARRETT SUBMARINE TORPEDO BOAT

# Construction



# Launching

26 November 1879

GARRETT'S SUBMARINE TORPEDO BOAT.

MESSRS. COCHRAN AND CO., BIRKENHEAD, ENGINEERS.



# Voyage to Rhyl

10 December 1879

## FIRST TRIAL TRIP OF THE GARRETT SUBMARINE TORPEDO BOAT THE RESURGAM.

The Torpedo vessel which visited our harbour on Saturday last and stayed for a few days attracted considerable attention, and many hundreds visited the Voryd and inspected the little craft.



# The Loss of Resurgam

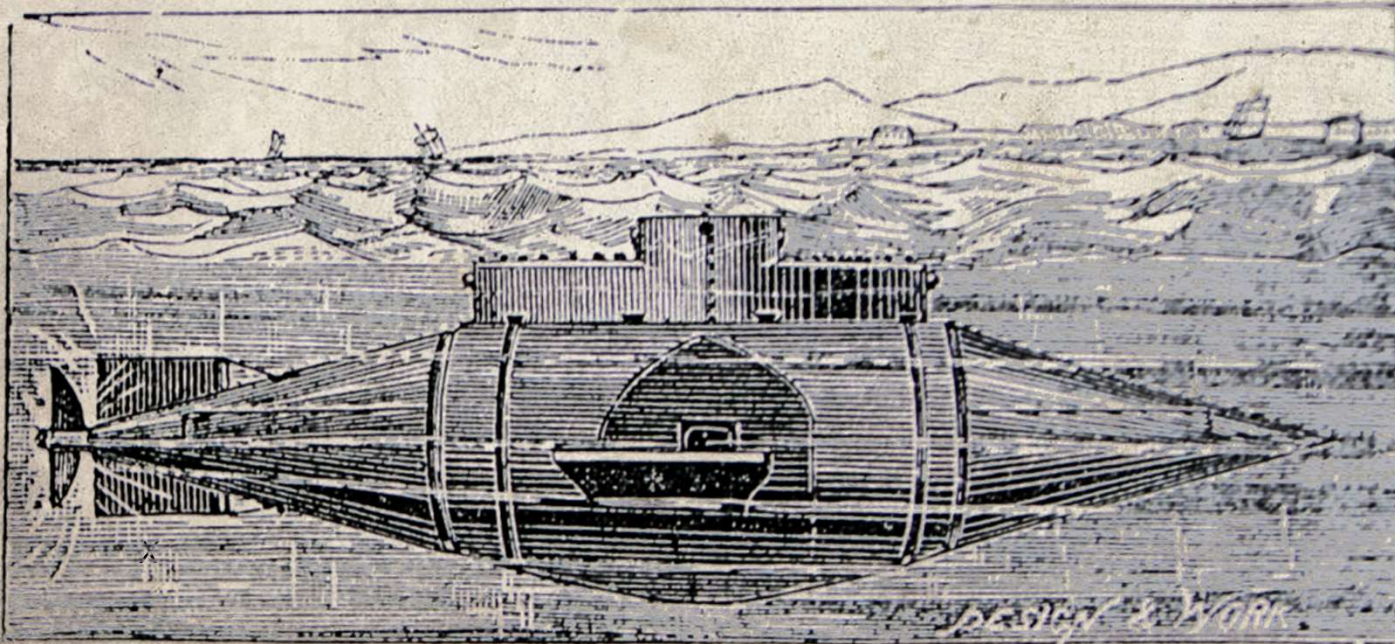
25 February 1880

It was at Rhyl that the voyage ended. No one can say what happened to the Resurgam, for she was missing one evening when the crew came back from enjoying a meal ashore.

*Garrett*

During that time a gale sprang up, and prevented us from returning to the submarine. We towed her until ten o'clock the following morning, when she broke her hawser, and consequently we lost her.

*Price*



# Sea Breezes

## The P.S.N.C. Magazine

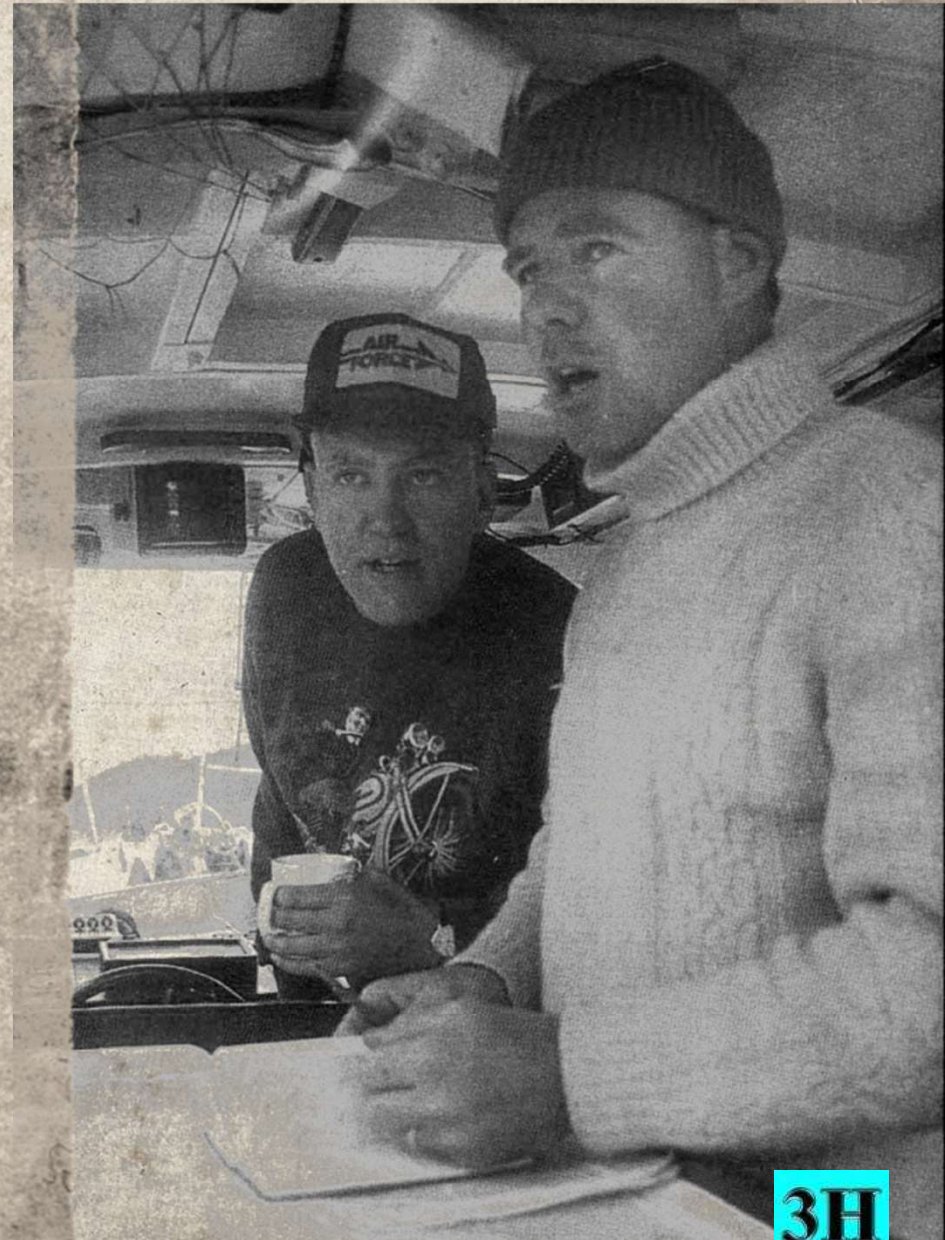
No. 28, Vol. III. March, 1922. Edited by T.E.E.



Our steamer *Ebro* at anchor in Cumberland Bay, Juan Fernandez. This is the latest photograph received in

# The Search for Resurgam

1975 - 1995



# Resurgam Found!

## ANFIELD DELIGHT

Fowler double sinks United

— Pages 28 and 32

FUSS-FREE FASHION — Party-time wear for Christmas — Pages 16-17

# SEABED GIVES UP ITS SECRETS



The find of my life: Chester diver Keith Hurley (left), delighted after his historic discovery and (right) the Resurgam as he found her, lying on the seabed



THE wreck of the world's first mechanical submarine, built and launched on Merseyside nearly 120 years ago, has been discovered by chance by a North-west diver.

Chester maritime adventurer Keith Hurley found the wreck of the Resurgam by accident, lying off the North Wales coast — more than 100 years after it was last seen.

Train driver Mr Hurley, from Hoole, discovered the ancient sub, one of the region's most sought after wrecks, by sheer accident as he was diving off the coast

## Diver finds historic Mersey sub, unseen for 100 years

By Carl Butler Daily Post Staff

near Rhyl to help a friend. The 45ft-long 30-ton submarine, invented by Victorian corvette Rev George Garrett, and built by Cochran in

Birkenhead, has been filmed where it sank in 1880.

But the director of the Royal Navy Submarine Museum in Gosport, Commander Jeff Tull, pleaded for calm and caution last night. "The historical importance of Resurgam is very high. It is the first British-designed submarine and the first mechanical submarine in the world."

"We do not want anyone messing about with it. It is a dream — we couldn't ask for more."

## Top star to grace turf of Anfield

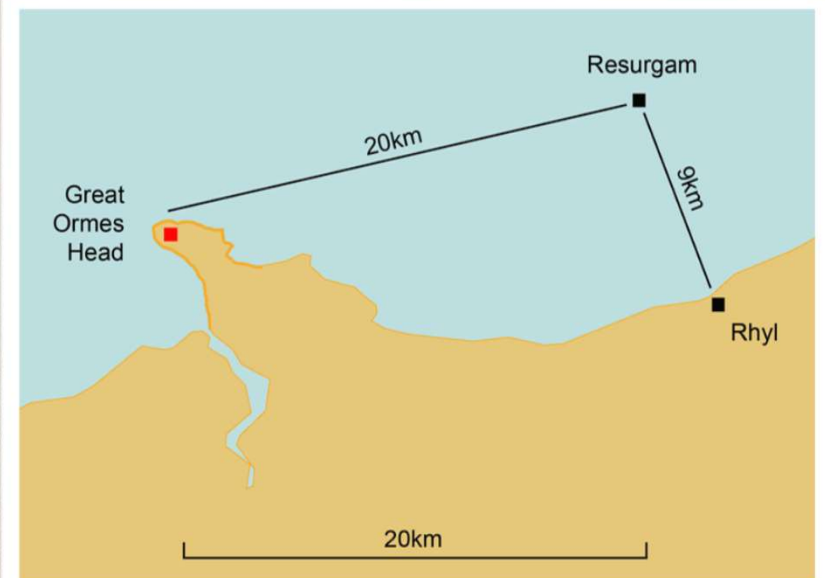
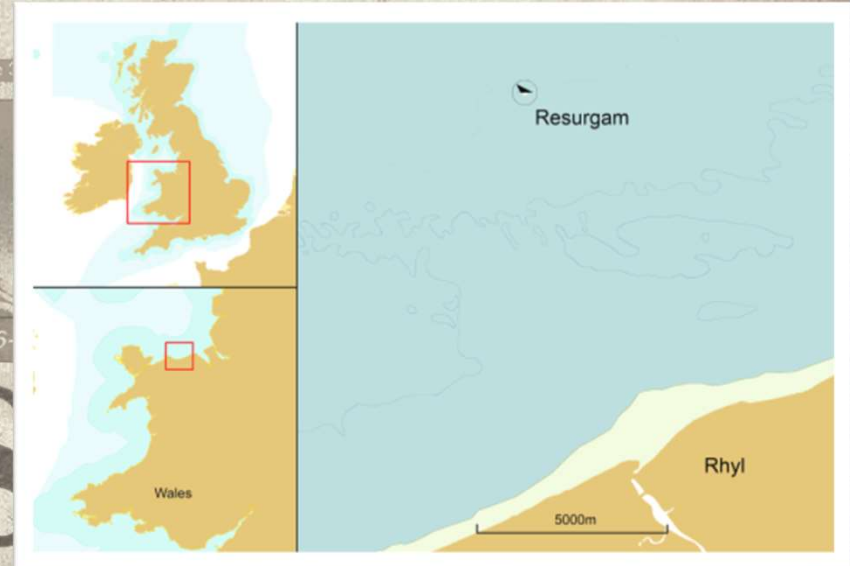
SOME of the world's greatest footballers will be displaying their skill on Merseyside next year. They will be playing at Anfield in the Euro Championships, the first for which took place in Birmingham yesterday.

Local soccer fans drooling at the prospect of watching Italy, Germany, Czechs and Russia in the Group B matches.

Peter Garrett, from Football Supporters' Federation, said: "It is a dream — we couldn't ask for more."

"The first match at Anfield will be between Italy and Russia and could prove to be one of the best of the tournament."

Details — Pages 7 and 27



October 1995

**3H**  
Consulting

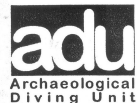
## The Resurgam



### Pre-Disturbance Survey & Recovery: Preliminary Research Design & Methodology

Prepared for the  
Garrett Sub-Marine Navigation & Pneumatophore Co.  
Plainfield, New Jersey, USA  
by

**Mark M. Newell**  
Georgia Archaeological Institute  
Augusta, Georgia, USA.  
September, 1996



### Project Design

*SubMap has been organised because  
world's first powered submarine is under*

The Reverend Garrett's pioneering *Resurgam* the development of submarines. She was engine rather than relying on human power vessel, even though now designated under 1973, may be under threat from powerful boats begin operating in North Wales soon.

*The main aim of SubMap is to  
archaeological work necessary before  
moved.*

The principal components of the first phase

- Record and remove the plants &
- Record the exterior of the submarine
- Record the corrosion activity of
- Attach sacrificial anodes to the hull
- Locate all exposed and buried if the submarine

If limited excavation is authorised by the Wales), the second phase of *SubMap* will

- Excavate sediments to allow debris field
- Move any item associated with adjacent to the wreck

Phase three will involve:

- Excavating sediments from within
- Recording the interior of the hull

These phases will be followed by activities. Depending on the time and resources available protected in situ, or a lifting cradle may be prepared for moving it to a place of safe



P002Q581 DD CP

**PROTECTION OF WRECKS ACT 1973**  
**LICENCE UNDER SECTION 1 TO EXCAVATE THE SITE**  
**OF A WRECK OF HISTORICAL, ARCHAEOLOGICAL OR ARTISTIC**  
**IMPORTANCE LAYING ON THE SEA BED**

**RESURGAM WRECK SITE, APPROXIMATELY 5 MILES**  
**NORTH -WEST OFF THE COAST OF RHYL**

Whereas, by the Protection of Wrecks (Designation No.1) Order (hereinafter called the restricted area), where a wreck of historical importance is believed to lie on the sea bed at Latitude 53° 23.7 03" 33.18" West, is designated a restricted area for the purposes Wrecks Act 1973;

And whereas by virtue of the operation of the said Act and Order directed to the exploration of the Wreck other than the authority by the Secretary of State for Wales are prohibited in the restricted

And whereas Alexandra Hildred desires to dive and excavate the lying wrecked in the restricted area;

And whereas the Secretary of State is satisfied that the persons (hereinafter called "the Licensees") have a legitimate reason to excavation;

**NOW THE SECRETARY OF STATE**, in the exercise of his Section 1(3) and (5) of the Protection of Wrecks Act 1973, **HE** **AUTHORISES** the Licensees during the period 1 May 31 October 1997 inclusive to dive in the restricted area for the objects within the debris field of the said vessel, using such equipment necessary or expedient for that same purpose.

The licence is granted on condition that:

1. during the carrying out of the said diving operations under the overall archaeological direction of Alex Rose Trust, College Road, HM Naval Base, Portsmouth
2. the excavation of artefacts within the debris field Resurgam and within the designated area shall be following the completion of the plotting of the area
3. the survey of the debris field by side scan sonar, scanning sonar, video camera and acoustic positioning planned as part of the submap project and the licence with the project co-ordinator of that project, Mr Richard Bufton to ensure



### SUBMAP Project

'Resurgam' Site  
North Wales, UK.

### Outline Site Survey Plan

Client	Archaeological Diving Unit
Issue	1.00
Date	26 Mar. 1997
Document	SURPLAN1.DOC
Prepared By	Peter Holt

SONARDYNE INTERNATIONAL LTD

Blackbushe Business Park, Yateley, Hampshire, GU46 6GD, United Kingdom  
Tel : (0) 1252 872288 Fax (0) 1252 876100 email sales@sonardyne.co.uk

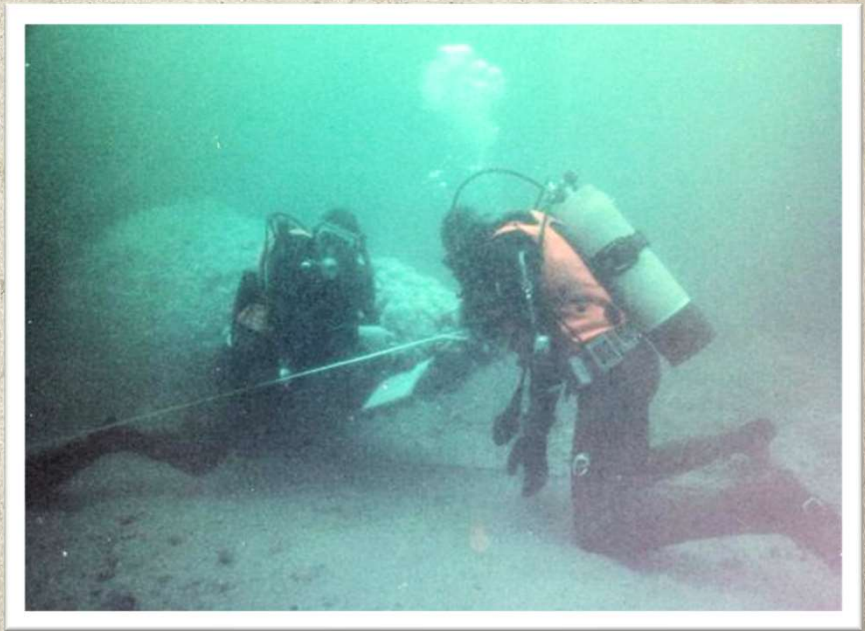
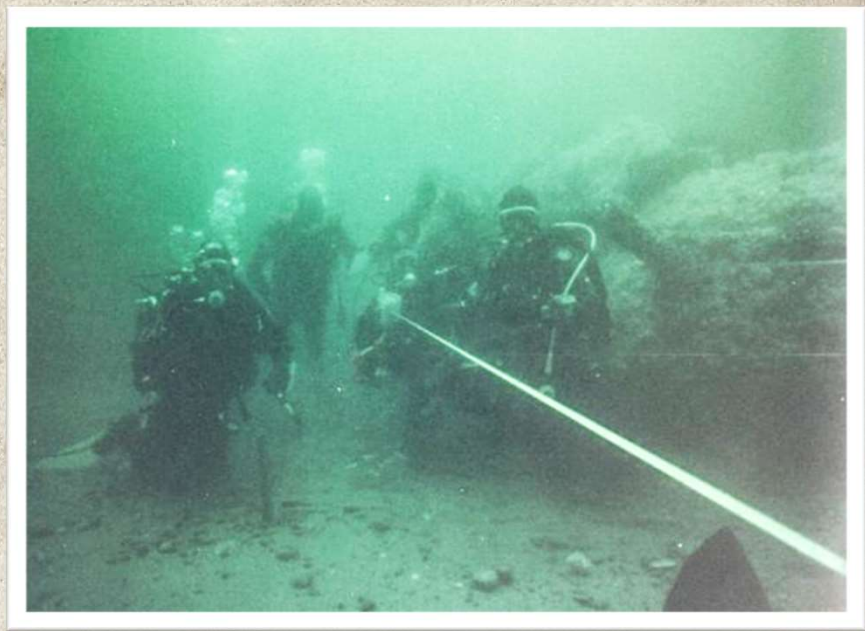


# SubMap Teams



NAS, MADU, LOMAG, ADU, *Terschelling*

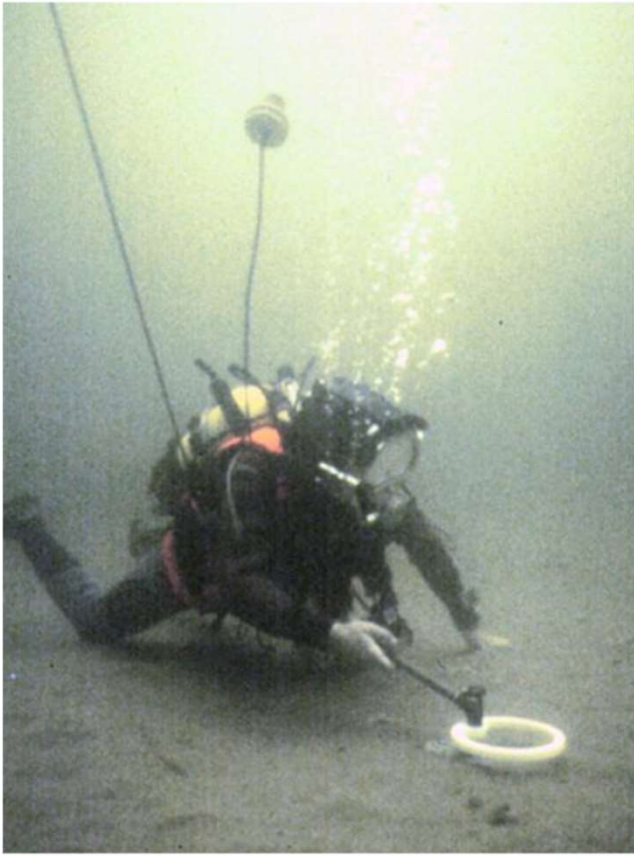
# Diving!



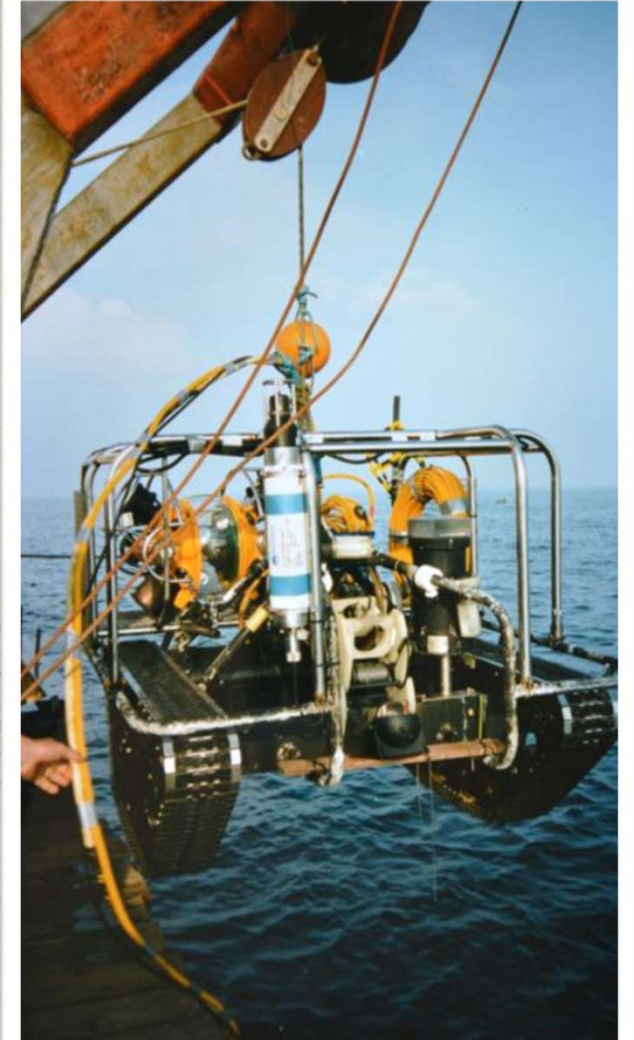
# NAS Courses



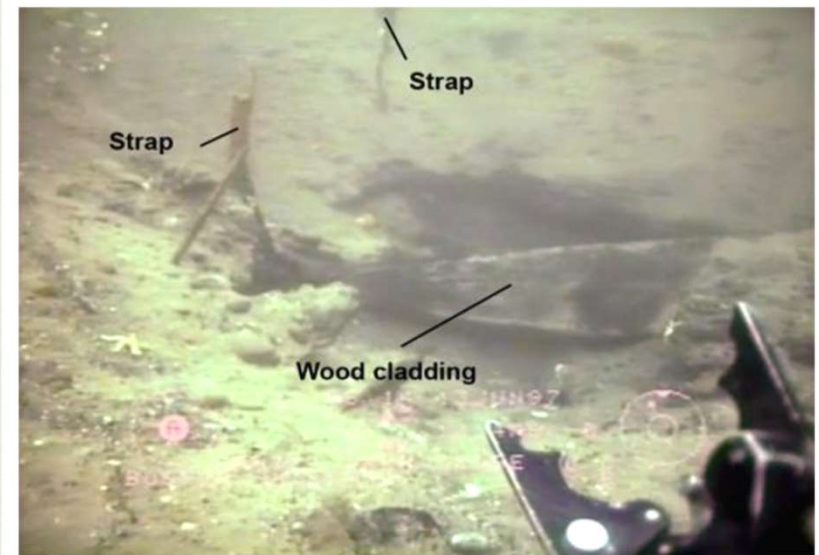
# Site Mapping and Searching



5016405



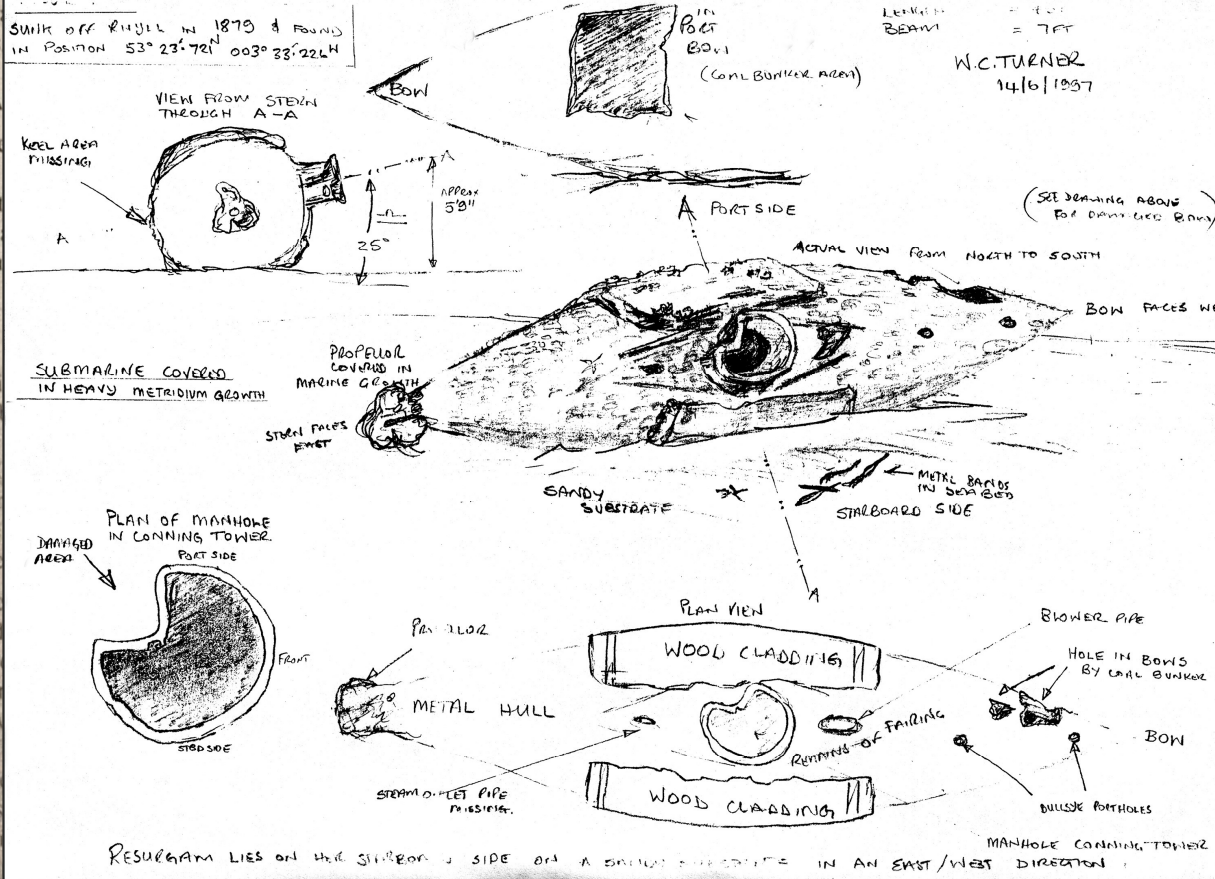
# Excavation



# A Job Well Done in Wales

It was 101 NAS divers and non-diving volunteers who helped make SUBMAP a resounding success. Garry Momber, Welsh Training Officer, describes a very full fortnight at Rhyl on the north Welsh coast.

During the first two weeks of June NAS Training coordinated 91 volunteer divers and 14 boats to assist with the survey of the world's oldest engine-powered submarine, the *Resurgam*. The vessel was lost in 1880 five nautical miles north of Rhyl. It was rediscovered in late 1995 when



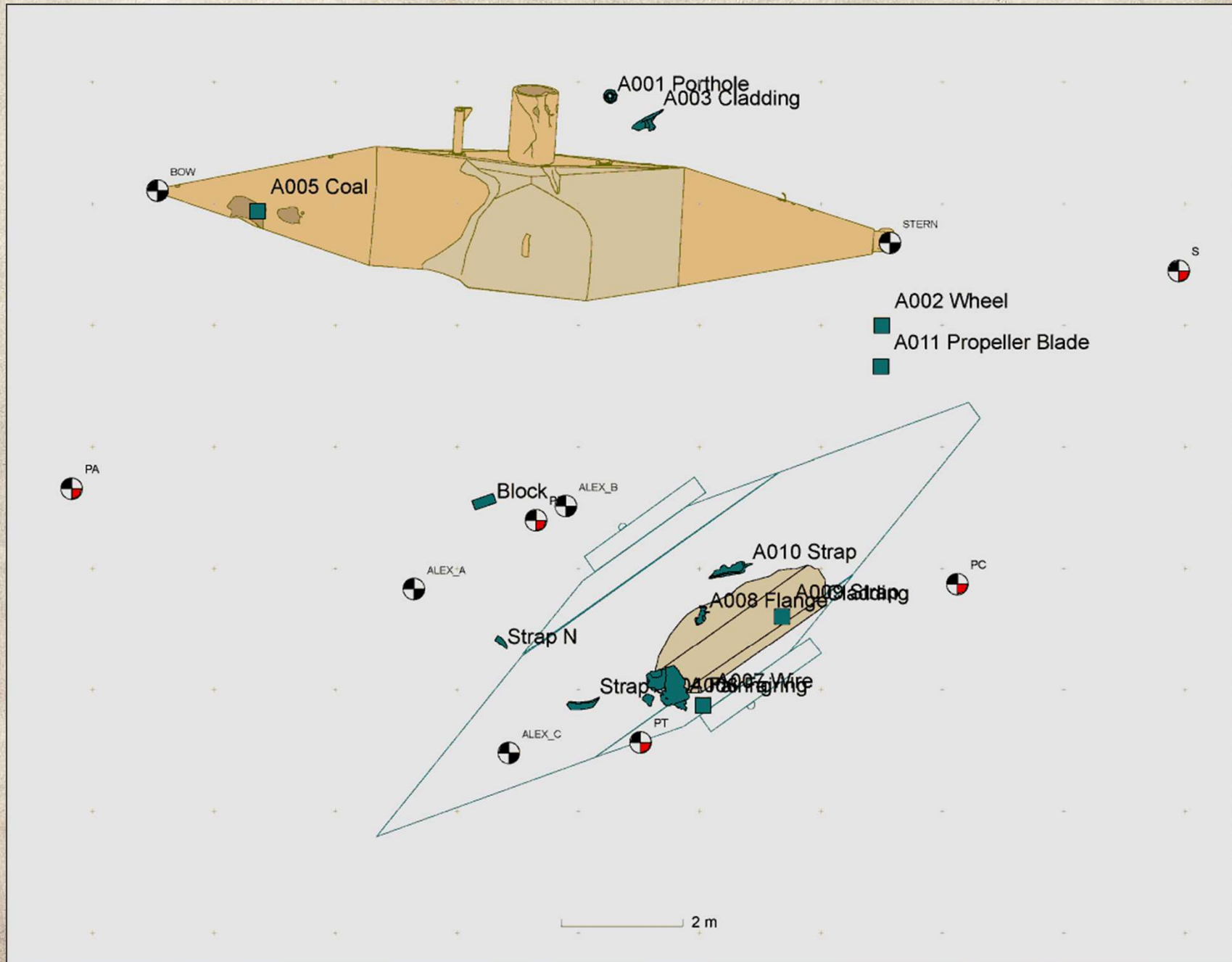
# SubMap Results

Resurgam		SUBMAP	
ARCHAEOLOGICAL RECORD SHEET			
Name <u>William Garscett</u>	Date <u>10.6.97</u>	Number	
Site <u>Resurgam</u>		Continued from	
Survey files		Page 1 of 2	
UW Drawing ref.	Photo ref.	Video ref.	
Time in	Time out	UW vis <u>3-4 M</u>	UW tide <u>0-1 kt.</u>
Diving Equipment <u>Scuba</u>			
Tools/equipment <u>Torch</u>			
Other constraints (✓) <u>62°F</u> tide swell access low light other			
Task/objectives <u>To survey interior of hull via large hole in bow cone</u>			
Outcome/Procedures <u>Found layout of mechanicals generally as in original plan. Observed much sediment on starboard side alongside boiler. See notation in drawing of two rods not in original plan, located opposite large hole which seem to be at top of hull if it were sitting upright.</u> <u>Sitting upright</u> <u>Sketch (or on separate sheet)</u>			
Context description (or go to context sheet)			
Forward cone <small>Structural or finds recording data can be entered on Continuation sheet: survey data, and Continuation sheet: Finds.</small>			

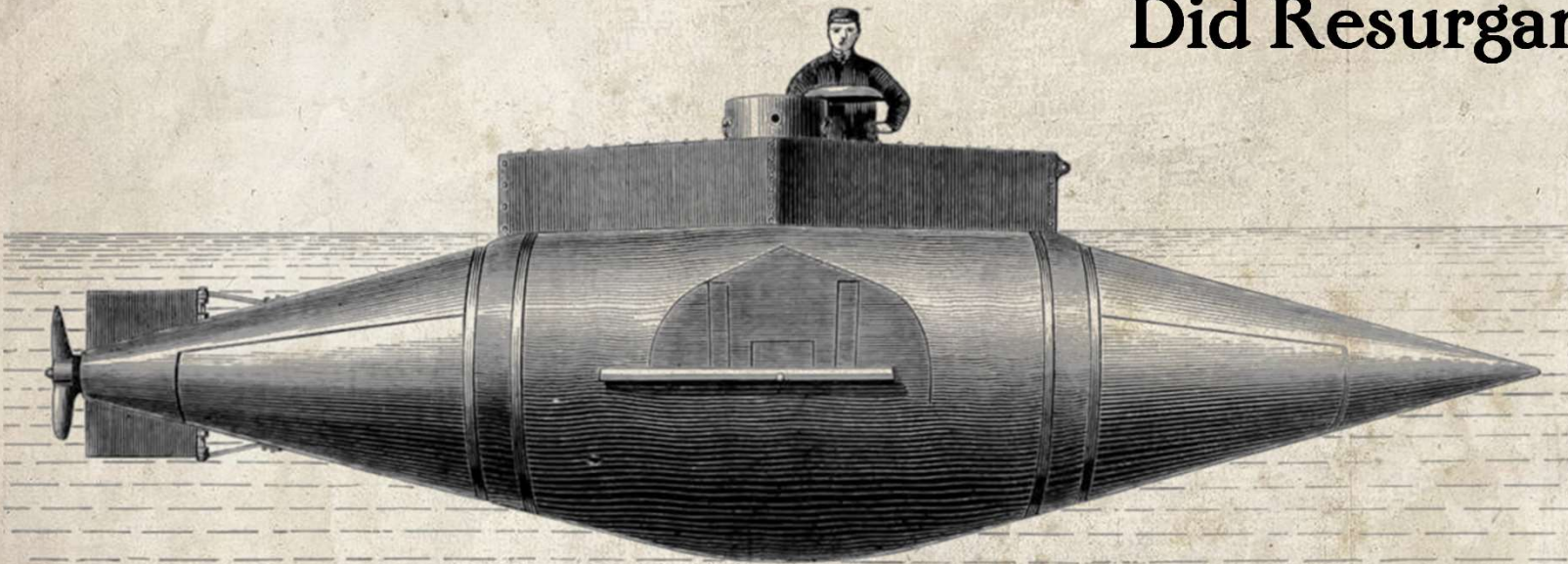


Amateur marine biologists were When inclement weather prevented helped by among others Dylan Evans Janet Witherage Helen

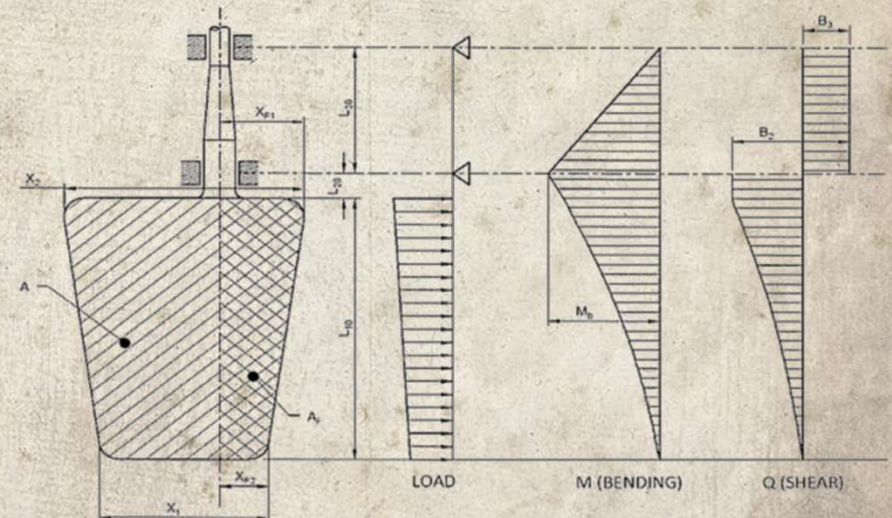
# Post-Excavation Research



# Did Resurgam Work?

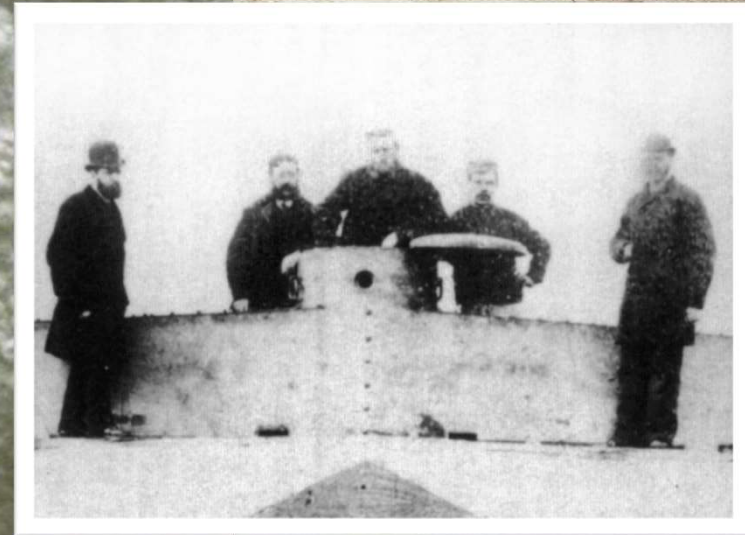
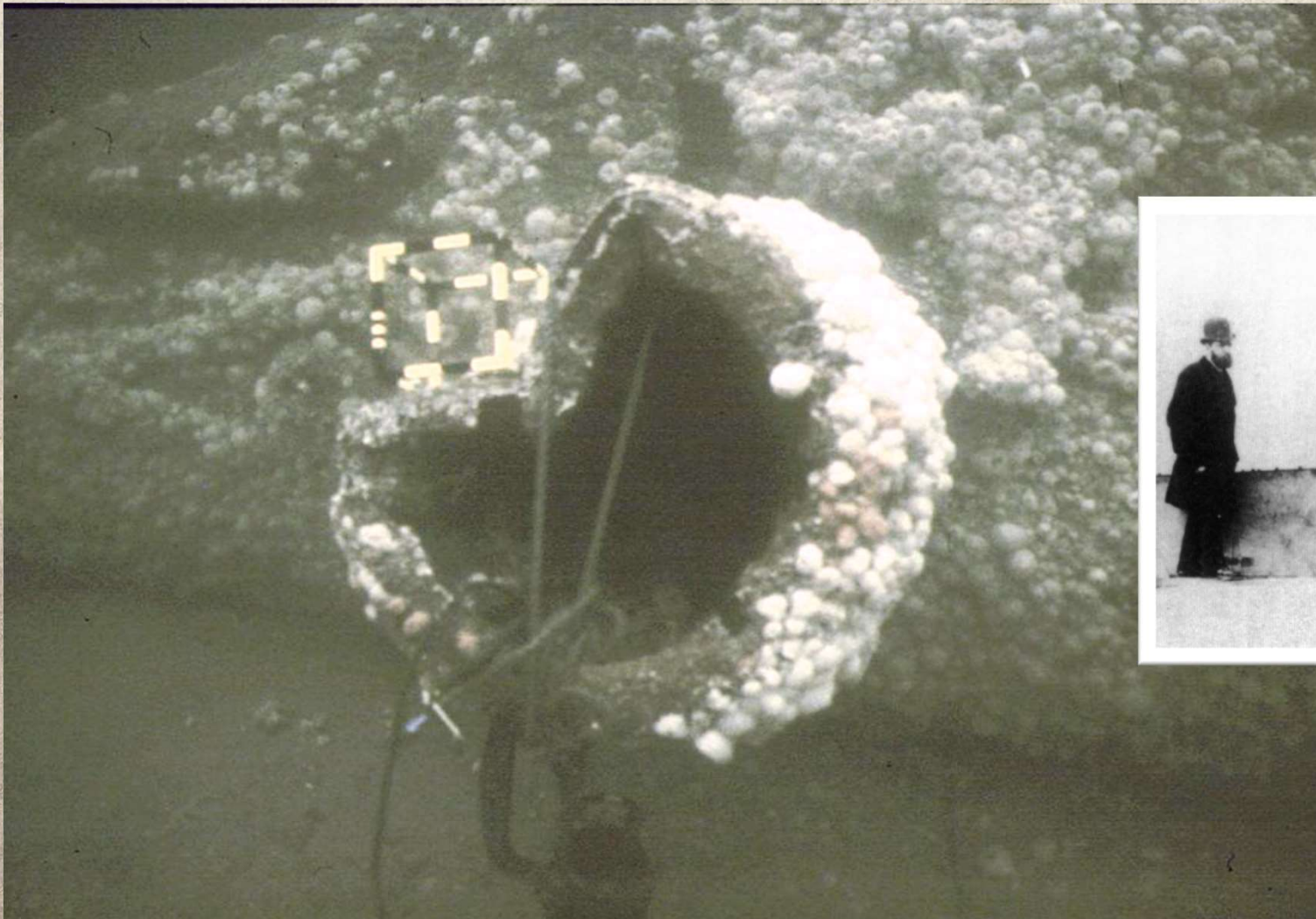


The side rudders for submerging the vessel were worked from the conning tower, but their action was not fully experimented upon.

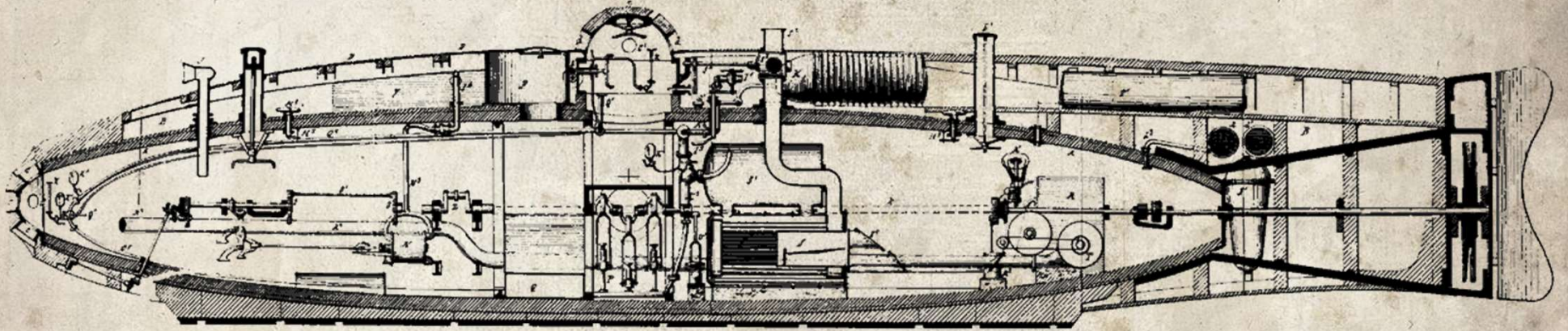


# What Happened to Resurgam ?

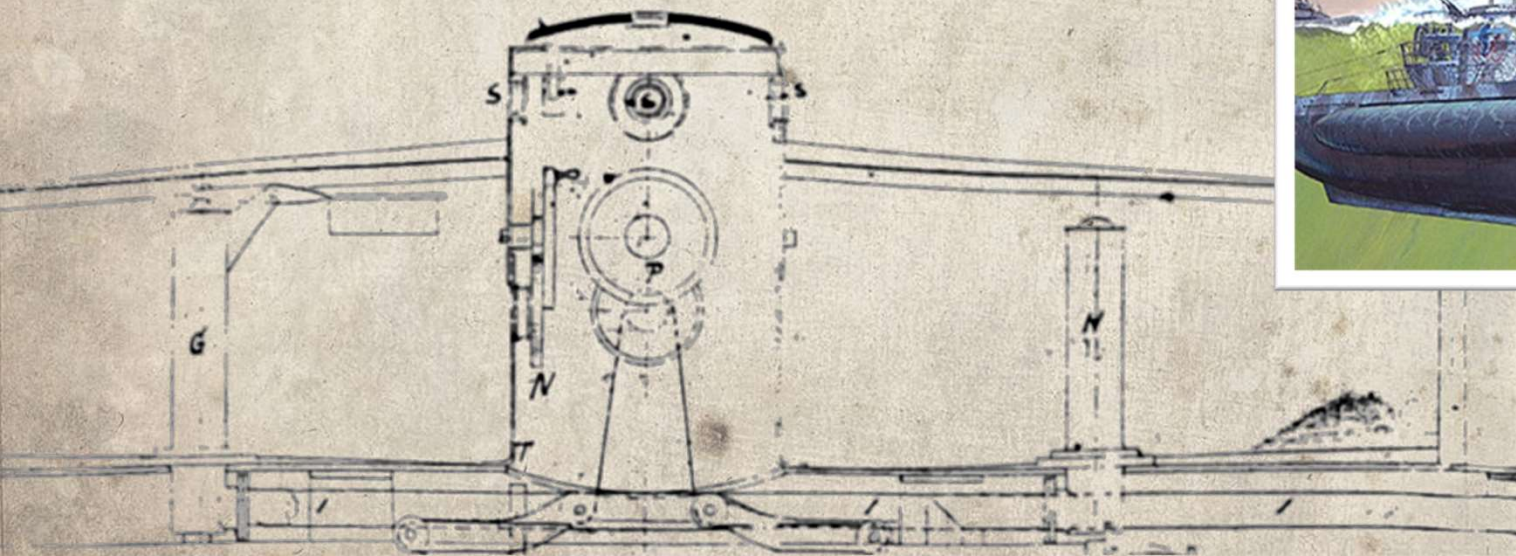
Courtesy tower fitted with  
1 Manhole screw inside Port



# The First Powered Submarine?



*Ictineo II*



First snorkel?



12 HOME NEWS

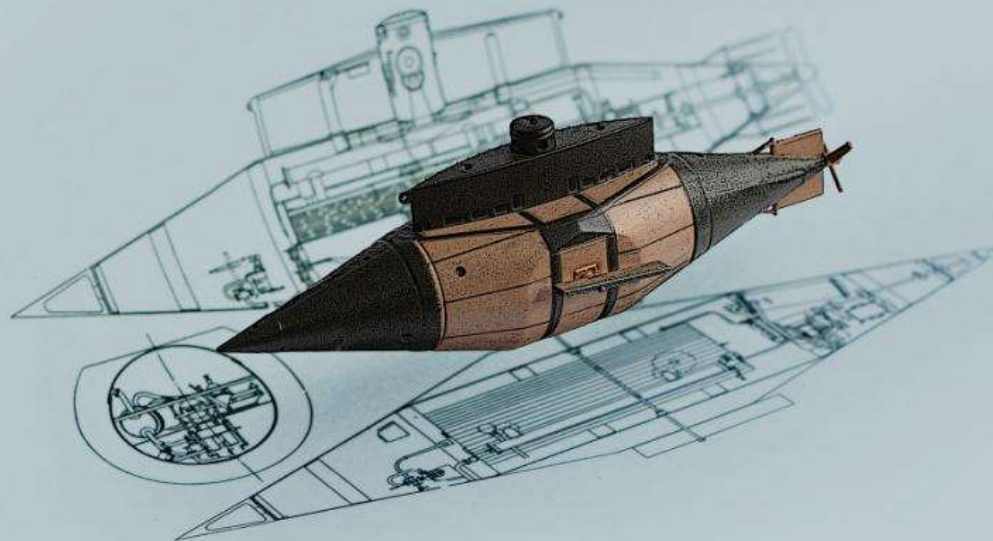
# Prototype sub faces new threat from sea

Russell Jenkins on the maritime  
treasure in danger of breaking up  
before it can be brought to surface

*The*  
***Resurgam***

*Submarine*

*'A Project for Annoying the Enemy'*



Peter Holt