RINA AFFAIRS

SEPTEMBER/OCTOBER 2010

The Newsletter of the Royal Institution of the Naval Architects

CHIEF EXECUTIVE'S COLUMN

Members should now have received their copy of the Commemorative Book – *The Royal Institution of Naval Architects 1860* – 2010. In it, individuals give their personal views on the development of the naval architecture profession and of the maritime industry – not all in existence for the past 150 years. Their views therefore provide a history of the Institution as reflected in the history of the naval architecture profession and the maritime industry over that period.

When the Institution was founded in 1860, its mission statement – although I am not sure the first members would recognise the term – was "to promote and facilitate the exchange and discussion of scientific and technical developments, and thereby to improve the design of ships." In 1860, that was achieved mainly through the publication of papers in the Institution's Transactions. That mission statement remains equally valid today, and is achieved through the Institution's publications and conferences. Since 1860, the Institution has published over 6000 papers, either in the Transactions or conference proceedings. These papers are in themselves a history of ship design and construction, and have exerted considerable influence on its development. Today, the Transactions and conference papers are complemented by the up-to-date reporting of developments in the global maritime industry in the Institution's leading international technical. The Institution's journals are distributed in over 100 countries and even printed in the Chinese language.

The Institution was formed in London, at a time when Britain was at the epi-centre of world shipbuilding. Today, reflecting the global shift in maritime activity, the Institution is a truly international organisation, with members in over 90 countries. This internationalism is reflected in both the membership and the activities of the Institution, with 75% of members from outside the UK, and that proportion continues to grow every year as the Institution extends its international profile.

The Institution's first conference was held in London on 1 March 1860, when 15 papers were read over three days, including papers on new Tonnage laws and fuel economy – no change there! Today, the Institution's conferences are held worldwide. For many members, the opportunity to meet with other maritime professionals at local Branch meetings represents one of the greatest benefits of membership. Over the past 150 years, the number of branches has increased, with 23 Branches now in 17 countries.

In 1860, there were no student members. Today, the Institution has links through the membership of staff and students with over 60 universities worldwide. I am sure the first members of the Institution would applaud the Institution's priority of engaging with those about to enter or newly entered into the maritime industry. Recognising achievement is an important part in that engagement, and today the Institution presents Student Naval Architect Awards in 39 universities. The Institution even has a page on Facebook – something certainly not imagined in 1860!

In 1860, the Institution sought to influence ship design and production from its base in the UK. Today, the Institution still seeks to influence such issues, but on a global scale. It does this through its international membership, through its agreements of co-operation with many national professional societies and through its close links with industry. The Institution contributes its collective expertise in such forums as the International Maritime Organisation, of which it is a Non Governmental Organisation member, the International Standards Organisation and the Confederation of European Maritime.

As I said, the history of the Institution over the last 150 years is reflected in the development of the design and construction of marine vessels and structures, and indeed the maritime industry as a whole. I believe that the Institution can rightly and proudly claim to have made a significant contribution to that development, both collectively as an international organisation and individually through the work of its members.

Chief Executive

IN THIS ISSUE

Fish and propellers

Sir: I hope members may be able to suggest where my company might find information on the potential for propeller blades to cause damage to fish with swim bladders, where such fish have a "near miss" with the actual blade but enter the low-pressure zone over the blade surface.

The context of our inquiry is that we are developing an unusual marine renewable energy technology called the Spectral Marine Energy Converter or "SMEC" for short. SMEC works wherever the water moves, in waves, tidal currents, rivers or streams. SMEC is, in essence, a venturi pump which amplifies the small head drop across a porous barrier through which water is flowing. In Layman's terms, SMEC uses 85% of a low-head flow to suck the other 15% through a turbine at an amplified head drop under which a small high-speed turbine works at high efficiency. It's the fluid analogue of an electrical transformer, turning a useless high-current, low-pressure flow into a useful high-pressure, low-current flow.

The issue we seek to better understand concerns what happens to fish with swim bladders when they pass through such a high-speed venturi in the throat of which there could be a sudden short-term pressure drop of, say, up to 8m. This must be similar in many ways to the conditions where a fish with a swim bladder has a "near miss" with the convex side of a marine propeller blade. The premise to this letter is that someone must have looked at this in the past, either by reporting observations of fish mortality (or its surprising absence) in busy shipping lanes, or in propeller/ducted thruster design, or in the interaction of high-powered sonar transmitters with aquatic life.

Any leads you can suggest will be warmly welcomed.

Peter M Roberts MRINA
Managing Director
VerdErg Renewable Energy Ltd
peter.roberts@VerdErg.com

William McC Meek and Co. Ltd.

Sir: I am a professor at the University of Toronto and a former member of the British Antarctic Survey. I am also the author of a history of Antarctic ships which will be published in August, 2011, as "Ordeal by Ice:Ships of the Antarctic". I am making contact to seek your assistance in tracking down a firm of naval architects, William McC Meek and Co. Ltd., or, if the company no longer exists, their successors. Mr Meek drew the plans for the *Penola* which was used by the British Graham Land Expedition, 1934-37, led by John Rymill. Copies of the plans, which I hope to use in my book, are held by the Scott Polar Research Institute at Cambridge, but the copyright on the plans was retained by the firm or possibly by Mr Meek himself.

I would be very grateful for any assistance you can provide.

Rorke Bryan
r.bryan@utoronto.ca

The Tribal Class destroyers

Sir: I would be grateful if any member could point me in the direction where I might find the 'as built' drawings would be found of HMCS *Haida*, one of the Canadian Tribals built by Vickers in Newcastle upon Tyne. Sixteen of the class were built for the RN, eight for the RCN and three for the RAN.

Paul Ridgway
Editor: World Ship Review
pridgway@globalnet.co.uk

HMS *Duke of York* at full speed

The following Letter to the Editor was published in the April 2010 issue of RINA Affairs:

Sir: My late uncle, Lt. Commander Vivian Cox, travelled with Churchill to Washington in December 1941, setting up the travelling map room on HMS *Duke of York*, then a temporary map room for Churchill in the White House. He then stayed on for a couple of months at the request of FDR to establish the first permanent Map Room in the White House.

I am editing my late uncle's war memoirs, and cannot read two important words in the following passage. I would be grateful if you could confirm that the underlined words are "stern" and not "stem".

"At about midday we made our landfall. The Virginia coast seemed strangely like the familiar coastline of faraway Norfolk and Suffolk, with its pleasant seaside bathing resorts and its sandy beaches and low hilly silhouette. By now more aircraft had joined us and we were bustling on in order to get anchored before dark. Mr. Churchill was on the bridge in holiday mood. He told the Captain he would like the *Duke of York* to try a burst at full speed, and was scornful of the objection that the water was shallow and that we would set up a huge wash. So on went the revolutions and the indicator on the log crept up to twenty-eight knots.

We were standing on the quarterdeck and from there the impression of speed and power was quite unforgettable. The thundering stern of the ship seemed to bite deeper and deeper into the smooth sea, which the four whirling screws threw back in a turbulent green and white wake. The most extraordinary effect, caused I was told by the reaction of the huge ship passing at high speed over the shallow bottom, was the towering stern wave which was generated. We stood on the deck with the water piled

up more than head high on either side of us, feeling for all the world like the Children of Israel crossing the Red Sea. But we were destined to a slight taste of the fate of the Egyptians too, for a sentry came rushing up from the Admiral's day cabin, into which Mr. Churchill had now moved, to say that someone had left the scuttles open, that the sea was pouring in and that the whole of the after flat was flooded. Speed was instantly reduced, but we had developed full-power and the P.M. was satisfied. He left the bridge and went aft to inspect the damage and to change and clean up before going ashore.

Some time later, as we were nearing harbour, I had occasion to take a message to him in his cabin. He was shaving. He was standing, with his trousers rolled up above his knees, in several inches of water, which some half dozen Royal Marines were mopping up into buckets, while in the flat outside suitcases were being salvaged and taken away to be dried. But the cause of all the trouble was blissfully happy, and, like Winnie-the-Pooh, was humming a little tune to himself. He knew that he had really been rather naughty."

Nick Thorne

A copy of Lt Cdr Cox's war memoires "Seven Chistmases" has been presented to the Denny Library by Mr Thorne.

"NAVAL WAR HORSES"

"Naval War Horses" is a documentary on Naval submarines which can be viewed on Web TV on by logging on to www.video.marinebiztv.com

Web TV has a rich collection of information (Archive Programs), which may be accessed with the username: **biztv** and password: **aries**

RINA AFFAIRS IS THE NEWSLETTER OF THE ROYAL INSTITUTION OF NAVAL ARCHITECTS

The Institution is not, as a body, responsible for opinions expressed in RINA Affairs unless expressly stated that these are Council's views.

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HEADQUARTERS FACILITIES

The Headquarters of The Royal Institution of Naval Architects at 10 Upper Belgrave Street, London, offer a high-quality, low-cost venue for conferences, meetings, examinations and exhibitions for any number up to 80, within 5 minutes walking distance of Victoria tube, rail and bus station. AV facilities are available and catering can be provided. Members enjoy a 10% discount on booking rates.

The Weir Lecture Hall will seat up to 80, and can be set out in conference, classroom or seminar style.

Weir Lecture Hall

The Denny Library will accommodate up to 50 in lecture room style, or seat 30 at the conference table.

Denny Library

The Members' Room will sit up to 30 in lecture room style, or seat 14 at the table.

Members' Room

For further information or to book the Headquarters' facilities, contact Sally Charity, Tel: +44 (0)20 7235 4622; Email: scharity@rina.org.uk

Malaysian Joint Branch

The first Underwater Remotely Operated Vehicle Competition (UROVeC) 2010 was held on the 19 July 2010 at Maritime Centre, Putrajaya. The competition was co-organised by National Oceanographic Directorate (NOD) and Malaysia Joint Branch of RINA and IMAREST with support from Universiti Sains Malaysia and Universiti Malaysia Terengganu. 14 schools participated in the competition, in 3 categories; poster presentation, obstacle course and search and rescue.

The final entries showed that pupils at the schools had a strong understanding of basic principles of engineering design and . The summary of the results were 1. Sekolah Menengah Kebangsaan Taman Tun Dr. Ismail from Kuala Lumpur 2. Sekolah Menengah Kebangsaan Seksyen 9 from Shah Alam 3. Sekolah Menengah Kebangsaan Taman Sea from Petaling Jaya.

Throughout the competition, all of the schools showed the enthusiasm and creativity required to become successful engineers, especially as Naval Architects and Marine Engineers, which bodes well for the future of maritime industry in Malaysia.

Othman Abdul Kadir

Bangladesh Branch

The Council of the Institution has approved the formation of the Bangladesh Branch and has appointed Dr. Abdullahel Bari, Chairman, Ananda Group as the Chairman, Professor Dr. M. Rafiqul Islam, Department of Naval Architecture and Marine Engineering, BUET as Vice Chairman and Lt Cdr (retd) ABM Mahbubar Rashid, Chief Naval Architect, Western Marine Shipyard as Honorary Secretary The Committee held its first meeting on 2 September, in Dhaka.

The Bangladesh Branch Committee

Korean Branch

RINA members in Korea attended a seminar on Risk-based design of offshore installations under hydrocarbon explosion and fire, organised by the Lloyd's Register Educational Trust Research Centre of Excellence at Pusan National University.

The speaker was Dr. J Czujko, President, Nowatec AS, Norway, currently, HSE Design Coordinator for further development of Statoil TROLL A Platform.

2010/11 EVENTS PROGRAMME

Presidents Invitation Lecture
30 November 2010, London, UK
http://www.rina.org.uk/presidentsinvitation2010

ICSOT Indonesia 2010: Developments In Ship Design and Construction
11-12 November 2010, Surabaya, Indonesia
http://www.rina.org.uk/icsot2010

The William Froude Conference
24-25 November 2010, Portsmouth, UK
http://www.rina.org.uk/Williamfroude

The Damaged Ship
26-27 January 2011, London, UK
http://www.rina.org.uk/damageship2011

Design And Operation Of Passenger Ships
23-24 February 2011, London, UK
http://www.rina.org.uk/passengerships

International Conference On Innovation In High Speed Marine Vessels
2-3 March 2011, Fremantle, Australia
http://www.rina.org.uk/highspeedmarinevessels2011

Developments In Marine CFD
22-23 March 2011, London, UK
http://www.rina.org.uk/marinecfd2010

Institution renews Agreement of Co-operation with Singapore Society

On 3 August 2010, the Agreement of Co-operation between The Royal Institution of Naval Architects and Society of Naval Architects & Marine Engineers Singapore was renewed for a further 5 years. Dr Arun Kr Dev FRINA FSNAMES CEng, Council Member of RINA and Mr Kenneth Kee Ah Bah FIMarEST FSNAMES CEng, President of SNAMES signed the renewed Agreement. By this Agreement, both organizations will seek to maintain their on-going cooperative relationship in the areas of mutual interest like jointly organizing technical events, accepting by each organization of other's members, etc. The signing event was also attended by some senior members of both RINA and SNAMES in Singapore.

Dr Dev and Mr Kee Ah Bah sign the Agreement of Co-operation.

Institution accredits Belgrade University Course

The Master in Mechanical Engineering course, specialising in Naval Architecture, at the University of Belgrade has been accredited by the Institution as meeting the requirements for Corporate membership.

The Certificate of Accreditation was presented by the Chief Executive, Mr Trevor Blakeley, to the Rector of the University, Professor Branko Kovacevic, at a ceremony in Belgrade, attended by members of the Serbian government and the Faculty of Engineering.

Whilst in Belgrade, Mr Blakeley gave a presentation to the Society of Naval Architects of Serbia " The Royal Institution of Naval Architects and the Maritime Industry 1860 – 2010".

Members of the Department of Shipbuilding of the Faculty of Engineering at the University of Belgrade.

William Froude
1810 – 1879

2010 marks the 200th anniversary of the birth of William Froude on 28 Nov 1810 As all naval architects will be aware, Froude 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 used a series of 3, 6 and 12 foot scale models – the *Swan* and the *Raven* 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.

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 died while on holiday (as an official guest of the Royal Navy) in Simonstown, South Africa and was buried there with full naval honours. He was the brother of James Anthony Froude, a historian, and Hurrell Froude, writer and priest. William was married to the former Catherine Henrietta Elizabeth Holdsworth, daughter of Dartmouth Governor, mercantile magnate and member of Parliament Arthur Howe Holdsworth.

The Institution will commemorate the birth of William Froude by the William Froude Conference on Theoretical and Applied Hydrodynamics, in Portsmouth, UK from 24-25 November, details at www.rina.org.uk/Froude.

William Froude

Royal Institution of Naval Architects Design Award 2010

The Royal Institution of Naval Architects Design Award for 2010 was presented to Richard Burrows, Juan Del Pino, Paul Heerama,Toby Mumford, Lawrence Walters and Douglas Callan Zangre of Team "Zephyr" for the overall best project during the Ship Science Induction Week at Southampton University. The projects were judged by Chief Executive Trevor Blakeley and Professor P A Wilson.

Chief Executive, Trevor Blakeley and Team "Zephyr"

RINA – PT DPS Student Naval Architect Awards

The following students at Institut Teknologi Sepuluh Nopember (ITS) have been awarded the RINA – PT Dok dan Perkapalan Surabaya Student Naval Architect Awards for the best final year projects:

Department of Naval Architecture and Shipbuilding Engineering
Mr Fajar Adik Wibowo

Department of Marine Engineering
Mr Syafiuddin

Department of Ocean Engineering
Mr Ricky Gamayoga

RINA - Malaysia Marine and Heavy Engineering Award

The 2010 RINA – MMHE Student Naval Architect Award at the Technical University of Malaysia has been presented to MOHD Afiq Bin Mohammad Samian for his project "Long Term Ocean Wave Modelling using Satellite Data".

Appointments

Graig Plc strengthens board

Philip Atkinson FRINA has been appointed Technical Director of Cardiff-based Graig Plc.

Science, Engineering & Technology Awards

The 2010 Science, Engineering & Technology Award in the Maritime Technology category was won by Helen Boffey for her final-year thesis Modern Materials: Solutions for the Inclined Plane Boat Lift at Foxton Locks. The Award in this category is sponsored by Lloyd's Register Educational Trust, and judged by the Royal Institution of Naval Architects and the Institute of Marine Engineering, Science & Technology.

THOUGHT FOR THE MONTH

No man will be a sailor who has contrivance enough to get himself into jail; for being in a ship is being in a jail, with the chance of being drowned ... A man in jail has more room, better food, and commonly better company.

Samuel Johnson, 1759

2010 President's Invitation Lecture

The annual President's Invitation Lecture is a major event in the Institution's calendar, which aims to present important and topical maritime themes and issues by leading individuals in their sector and brings together key members of the maritime industry.

The 2010 President's Invitation Lecture will be presented by Graham Westgarth, President of Teekay Marine Services. Graham is responsible for the day-to-day operations of the Teekay fleet that is in excess of 150 vessels, and approximately 5000 multi-disciplined sea and shore staff. Graham is also Chairman of Intertanko.

In the 2010 President's Invitation Lecture, Graham will provide a brief overview of Teekay's $3.5billion newbuild programme over the last decade outlining the types of vessels built , the shipyards used and experiences during the process. He will then focus on the operational performance once in service including the impact and consequences of design decisions using real case studies as illustrative examples.

The emphasis of his presentation will then move to what's really important to the owner and customers and how we use certain tools/technology to monitor and improve performance with the aim of demonstrating that as the industry comes under greater scrutiny then we need to be continually refining our approach to how risk is managed.

Finally, Graham will describe a number of innovative design ideas which Teekay has developed in-house.

The lecture will then be followed by dinner. Individual tickets and corporate tables may be reserved.

See http://www.rina.org.uk/presidentsinvitation2010 for further information.

Workplace Safety and Performance Conference in aid of the RNLI

Lloyd's Register and the Institution are supporting an exclusive one-day safety and performance conference to benefit the Royal National Lifeboat Institution, a charity dedicated to saving lives at sea off the coasts of United Kingdom and Ireland. All income will be donated to the RNLI and go towards purchasing and maintaining a new lifeboat which will be stationed on the River Thames. The Conference will be held on 15 November in General Committee room at Lloyd's Register headquarters.

The conference, which will feature senior safety experts from the air, rail and maritime transport industries, is expected to provide best practice safety strategies from across the transport sector.

For further information contact Latifat Ajala at info@safetyandperformance.org or visit www.safetyandperformance.org

2011 Conference programme

The Institution's 2011 Conference Programme includes events in the UK, Italy, Greece, Norway, India and Australia.

Full details of all RINA conferences and training courses can be seen at www.rina.org.uk/events

William Froude 1810 – 1879

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CHANGE OF ADDRESS

Each year, the Institution sends out over 170,000 copies of the journals and RINA Affairs, a total paper weight of over 35 tons. Unfortunately, a number of those are returned "not known at this address", usually because members have forgotten to inform the Institution of their change of address. In addition to the waste of postage, the Institution is charged for those returned from other than the UK. Additional cost is then incurred when members ask for the missing copies.

Members are requested to let the Institution know of a change of address as soon as possible, preferably before they actually change their address. Changes may be sent online from the Members' Only section of the RINA website at www.rina.org.uk/members, by email to membership@rina.org.uk, by fax to +44 (0)20 7259 5912, or by letter to RINA Headquarters.