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Gallipoli Veteran M33 Opens to the Public

August 2015 saw the small monitor M33 opened to visitors in Portsmouth, one of only three surviving RN ships from the Great War and the only one open to the public. Built in just seven weeks in Belfast in 1915, M33 was deployed to Gallipoli, where her two 6in guns provided artillery support, and for subsequent operations in the Mediterranean. Virtually restored by Hampshire County Council in partnership with the National Museum of the Royal Navy with the help of a £1.8m HLF grant, M33 sits proudly in Number One Dock close to HMS Victory. She has actually been there since 1997 but is now fully refurbished.

Monitors – What Are They?

A monitor is a helper, usually for a teacher. A monitor warship is designed to give help or support to the forces on shore. They are usually fitted with heavy guns and have good gun-control devices. They are broad-beamed to provide a stable gun platform and have a shallow draught to allow working close inshore. Monitors first entered service with the Royal Navy at the start of the First World War and soon made their presence felt, when three requisitioned vessels began bombarding enemy lines in Belgium. This led to the rapid building of more monitors that were designed to accommodate existing available guns. Monitors M1 to M14 had 12in, 14in or 15in guns and were considered too important to simply be known by a number and were given names. Monitors with smaller guns retained numbers. M33 was built to accommodate two surplus 6in guns. The keel was laid on 1 April 1915 and she entered service on 17 June and was in action within that month. M33’s story is excellently covered by the booklet M33 sold on board and at only £5 per copy is recommended to all.

The most famous monitor of them all was not even a monitor according to the description above, but also was a revolutionary designed warship. This was by the engineer John Ericsson. Born in Sweden in 1803, he was a brilliant designer. He emigrated to England where he invented a ‘flame’ engine that ran on hot air rather than steam, however, it failed to run on British coal. He went on to design a water screw or propeller to provide an alternative to the paddlewheel. In 1837, he had a screw propeller fitted to a tugboat named Francis P Ogden, which achieved the remarkable speed of 10 knots, fast enough to earn itself the epithet the flying devil. This boat failed to impress the British Admiralty and in disgust, Ericsson emigrated to America in 1839. The Americans were far more receptive to screw propulsion and soon there were five screw-driven vessels operating in American waters.

In the American Civil War the Confederates armoured a frigate named Merrimac, and Washington was distraught by the thought of how this vessel could eliminate their wooden vessels. They called on Ericsson for a special ironclad vessel able to counter it. The ship, named Monitor, which Ericsson designed, was of a completely new concept in which most of the vessel would be below water level to protect it from enemy shellfire. The top deck was designed to be only 1ft above the surface. Mounted on the deck was a turret 20ft diameter by 9ft high that carried two 11in muzzle-loaded guns that fired 180lb balls. The turret was constructed of eight layers of 1in plate and even without the guns weighed 120 tons. The hull was 124ft long by 34ft beam and drew only 10ft. Covering the hull was an armoured deck that extended some 3ft over the sides, with a skirt hanging 5ft down into the water. This cover was 172ft long by 41ft wide constructed from oak beams covered by 8in of planking and topped with two 1in layers of steel plate, as they were unable to produce armoured plate. The top of the turret was made from solid iron beams supporting a covering of perforated iron-plate, making it shellproof but allowing light to enter. Two donkey engines powered the turning of the turret.

When the Monitor was sent against the Merrimac it proved to be a stalemate as neither ship could damage the other. Soon after the encounter, Monitor was lost when she encountered rough seas.

Peter Webberley
Message from the Chair

To those awaiting Transactions 10, I can only apologise. The delay in production is my responsibility. Preparing 20th Century Naval Dockyards for publication and overseeing the new NDS website took much more of this year than I anticipated. It meant that while the Bermuda papers were ready, the wait for my elements of Transactions 10 held up its production. They are all with the Editor now, so I hope the wait will not be too long.

I can also announce that 20th Century Naval Dockyards: Devonport and Portsmouth Characterisation Report (2015, NDS, Portsmouth; ISBN 978-0-9929292-0-6; ebook ISBN 978-0-9929292-2-0) is now with the printer. It is case-bound, with 450 pages and 650 illustrations, many in colour. As soon as I have copies to hand I shall be distributing them to all those who ordered pre-publication copies. Please contact me if you wish more details of this publication – anncoats49@gmail.com.

Dr Ann Coats

Dates for your Diary

March 12, 2016: guided tour of Woolwich Arsenal and Dockyard, including access to several buildings not normally open. Local historian Ian Bull is leading the walk. (Spaces may be limited, so register interest with the editor, Richard Holme: richardholme@btinternet.com; 07801947339 or 01892 534825.)

April 16, 2016: Naval air stations and the defence of Dockyards Conference at the National Maritime Museum, Greenwich. The Royal Naval Air Service was formed from the Naval Wing of the joint Royal Flying Corps (1912), but from 1914, when the RFC became the flying branch of the British Army, it was administered by the Admiralty Air Department. It merged with the RFC as the RAF in 1918. Naval air stations guarded dockyards and promoted research and development.


From the Editor

Welcome to Dockyards and hoping you find a few items of interest!

I enjoyed our trip to Scotland in September very much and include reports of particular aspects in this issue as well as an overview from our Chair of the tour.

M33 is featured on our cover and I hope to get down to Portsmouth to see her soon, as well as Boathouse No. 4, which was opening as we went to press. Let me know your impressions if you have visited them. Another historic vessel to be (hopefully) opened as a visitor attraction at Pompey is the landing craft tank Landfall, completed in April 1944. She is one of the few remaining ships from the D-Day landings. With the aid of a £916,000
National Heritage Memorial Fund grant, she was raised and towed to Portsmouth from Birkenhead for restoration.

Great to see the extensive press and local TV coverage given to the Victorian Society’s listing of the Boat Store at Sheerness as one of the ten most endangered buildings in the UK. As Christopher Costelloe, Society Chairman, notes: ‘the Grade I listed boat store has worldwide importance – it is an architectural pioneer. It deserves better than its current anonymity.’


David Eveson reports from Gibraltar of potentially worrying news that the government are inviting proposals for the development of the ex-HMS Rooke site. Watch this space.

After thirty-six years Mike Critchley has sold his Maritime Books business (www.navybooks.com) to Ian Whitehouse, a former submarine commander. Ian will also take over the Warship World and Warships Pictorial magazines, to both of which I have subscribed for as long as I can remember – excellent publications, always read cover to cover!

In September many of us will have taken advantage of Heritage Open Days. At the lovely riverside town of Maldon in Essex, we heard talks on board the sailing barge Dawn (1897) and on the Harbour Board in the town. The Harbour Commissioners in 1865 borrowed £10,000 from the Public Works Commission to develop facilities. At first all went well but revenues from gravel dredging slumped from 1891 and the Commissioners were unable to repay the debt, an unhappy scenario. We also visited the TID tug Brent, built 1945 and a bit rusty, but with ambitious and yet well-organised plans for preservation and commercial use – see http://www.steamtug-brent.org/.

More recently I visited Monaco and besides the harbour crammed with yachts, there is the small Musée Navale, with an extremely varied collection of ship models.

Richard Holme

Naval Dockyards Society AGM and Nineteenth Annual Conference Report
Saturday 25 April 2015
Royal Dockyards and the Pressures of Global War, 1793–1815

A total of thirty-three NDS members attended the AGM and forty-three delegates attended the Conference.

Dr Roger Morriss kicked off the ‘home’ programme with ‘Innovation and Adaptation to Global War. Royal Dockyard Management and the Industrial Revolution 1793–1815’. He connected the relatively slow pace of change in the pre-war dockyards with resistance to innovation after war began. He suggested that the dockyards suffered from conservatism caused by tradition, insularity and centralised authority. By contrast, the industrial revolution gathering pace in other parts of Britain and Europe benefitted from industrialists being open to external impulses, to geographical interaction and to the questioning of traditional practices. A difference in function between the armed forces and private industry partly explained this contrast. So too did their social networks and their capacity for spreading scientific knowledge, thinking and analysis. Roger concluded that the dockyards coped with the pressures of global war after 1793 by tapping into the social networks and experience of the private economy. This was achieved by contracting, by consultation and by broadening its own ground-level knowledge base. Reports of commissions of inquiry generated awareness at the Admiralty of the necessity for policy decisions and these inevitably encompassed and shaped dockyard management. Global war demanded expansion and large-scale innovation which simply squashed traditional conservatism.

Roger was followed by UCL and NMM PhD candidate Catherine Beck and ‘The Patronage of Dockyard Artificers, 1793–1815’. She defined patronage as the system of reciprocal exchange that led to appointment, promotion and discharge in the eighteenth and early nineteenth-century Royal Navy, but also found great similarities within dockyard communities. Her study of superannuation payments and un-bonded apprentices revealed the strength of familial networks within individual dockyards. Succession books and registers of workers show a movement of artificers between dockyards that in some cases appears to have been organised through a system other than the Navy Board. The reactions of certain artificer groups to the pressures of war, peace and reform,
for example the caulkers discharged in 1802 from Chatham for ‘refusing to go to the Merchant Yard’, revealed the perceived strength and importance of these familial and service networks. By tracing artificer networks, Catherine’s paper assessed whether reforms affected the patronage of artificers by removing the power of the exchange to the Navy Board; or whether soliciting and petitioning the Admiralty exposed the power of networks that exceeded the bounds of the dockyards.

Last before lunch, Dr J. D. Davies gave us ‘The Strange Life and Stranger Death of Milford Dockyard’. Using a fascinating series of maps, paintings and photographs, he challenged the common perception of Milford Dockyard as an insignificant affair overshadowed by the later Pembroke Dock. He traced the history of the yard from its beginnings as a small private building yard in the 1790s through to its abandonment in 1814. Analysing the personalities and reasons for that abandonment, he focused primarily on the size and design of the dockyard, which by 1808–10 was clearly intended to be a full-scale, fully equipped royal dockyard, a very different beast from the pure building yard at Pembroke that succeeded it. From cartographic and other evidence David suggested that surprisingly large amounts of the new yard were actually built, and its remains were visible for decades after its closure.

After lunch Dr John F. Day led the ‘overseas’ talks with ‘Securing an Ocean for an Empire: British Naval Bases and the Eastern Seas (1784–1815).’ He recalled that in 1793 the British Admiralty had four overseas naval yards or bases, with none supporting an eastern squadron. By 1815 strategy and operations had led to another ten bases being established in the Mediterranean, North and South Atlantic, on the Great Lakes and around the Indian Ocean. Following Britain’s defeat in the American War of Independence, dockyards and overseas bases were subject to considerable cultural and organisational changes which matured the naval bureaucracy. However, in the East Indies the relationship between the Admiralty and the East India Company dominated the delivery of shore support services. Using maps and tables of activities at the Cape of Good Hope, Bombay, Madras, Penang, Trincomalee and the commercial dry docks in Calcutta, John provided a rationale for the overseas naval yards and assessed the benefits and pitfalls of contracting services or partnership with the East India Company. John concluded that by 1815 Britain had secured the best anchorages and an Eastern Empire. The Eastern Sea remained a British lake for the rest of the century.

John Harris followed with the exotic ‘Naval Dockyard at English Harbour: Heroism or Logistics?’. Utilising maps and ravishing photographs, John traced the development of the dockyard at English Harbour, Antigua between 1729 and 1889. Small and sheltered, it was first identified as a natural careenage. It became an important naval base from the start of the Seven Years’ War in 1756, was a significant haven during the American War and reached an apogee of activity during the French Revolutionary and Napoleonic Wars to 1815. Nelson served there between March 1784 and November 1787, a notably controversial senior naval officer. This led to its later name of Nelson’s Dockyard, bestowing wishful associations with valorous deeds. John’s research indicated that English Harbour was too small or sometimes in the wrong place to have made direct contributions to great fleet victories or successful amphibious assaults on enemy islands. Nor did it always deliver adequate facilities for ships’ crews, its hospital failures being especially lamentable. John suggested that English Harbour’s capability was in repair, maintenance and logistics, providing an invaluable and often responsive fleet support to the expanding and unpredictable needs of the important Leeward Islands Squadron.

Nives Lokošek closed the programme with ‘Did the Arsenal in Hvar experience its own Waterloo?’. Nives traced the importance of the island of Hvar in policing the Adriatic Sea from the first century BCE, among a myriad of other Roman, Hungarian-Croatian and Venetian arsenals. She saw the organisation of operations in the exterior and interior of the arsenal building as evidence for superbly well-planned shipbuilding activities for the construction, repair and equipping of military and police oared ships. When Napoleon’s army entered Hvar, the interior of the Arsenal building contained two ships pulled up onto the slipways for repairs. The French abolished the Venetian naval arsenal, destroyed its slipways, ransacked the interior and levelled the floors of the building, turning it into a warehouse. Despite this destruction, continuity of the shipbuilding activities of Hvar arsenal can be found throughout the eastern Adriatic coast. By comparing Hvar arsenal with the Austrian naval arsenal in Pula, Nives suggested that the former was a model for the new naval arsenal in Pula. Hvar Arsenal ceased to function as such during the war, but continued the development of shipbuilding and seafaring on the eastern Adriatic coast – the building still exists.

There was some exciting synergy between the ‘home’ papers, particularly on personnel. The ‘overseas’ papers provoked reflection of the changes driven by the centre, but also those prompted by distance and periphery. The Hvar paper highlighted commonalities of dockyard functions and structures, whenever and wherever they
exist, and was refreshing as a non-British case study. The papers will be published in Transactions 13.

My thanks to the Chair of the morning session, Brian Vale, and to the National Maritime Museum for sponsorship and for staff support. Lizelle de Jager oversaw all the arrangements and registration on the day, John Brown was the technician in the Lecture Theatre, and Lorraine Robbins and Sam from Elior managed the catering in the Propeller area.

Dr Ann Coats

Ship Figureheads – Aspects and Examples

At one time every major port had a ship’s carver to provide the decorative work that, up to the end of the 1600s, constituted a considerable proportion of a ship’s building costs. The styles and motifs closely followed decorative fashions ashore, with some very prominent sculptors such as Grinling Gibbons employed to work on the greater ships.

The figureheads were huge pieces of sculpture from ten to eighteen feet high, with decorative work continuing along the bow, often depicting figures from Greek and Roman mythology symbolising the strength of a nation, demoralising an opposing navy or showing pride in its economic achievements. The galleried sterns of these ships were thirty to forty feet wide and two or three decks high, giving an artist of the exuberant Baroque age a massive area to exhibit his skill on a ship that would be seen around the world as a symbol of the nation’s wealth and power.

By the 1700s the efficiency of ships became paramount and the navy set out orders to reduce the quantity of cumbersome decorations. In 1704 it standardised all figureheads, except those of First Rates, to a lion, in an effort to reduce costs. By 1800, with the exception of a few merchant ship owners and naval flagships, decoration was limited to a modest figure and some ornamentation to enhance the ship’s name. Ship carvers became journeymen to keep in work, taking other commissions such as animals for the fairground rides and theatre decoration, or pattern makers for the industrial age. The railway saw an end to the ships which distributed goods to every portside town, and to the yards that built them.

Over the years I have sailed in many old sailing ships and have been fascinated by the relationship of the beautiful forms that have evolved to meet practical necessity. A figure has to withstand the ravages of the sea, enhancing the beauty of a ship without hindering the practicality of sailing it. My work as a woodcarver became increasingly centred around the restoration of carvings for old yachts, with the result that in 1990 I set up Maritime Woodcarving (www.maritimawoodcarving.co.uk) in an effort to retain the skills and services of a ship's carver. In many ways I have picked up from where the last journeying craftsmen came to an end. No single port can sustain a full time carver, so a central location is essential. I set up on the Thames at Bourne End in my home county of Buckinghamshire, but have moved to Oxfordshire, which provides easy access to London and airports for my increasing volume of overseas work, where amongst others, I have researched and carved the decorative work for the Swedish East India replica ship Gotheborg, and the figurehead for the French replica frigate Hermione.

Back home I have carved the figurehead for the sail-training ship Pelican and carried out numerous restorations of historical figureheads including two from the old naval dockyard of Sheerness, HMS Poictiers and HMS Chesapeake.

With the outbreak of the Napoleonic Wars in 1803, naval yards came under increasing pressure to not only build new ships, but repair those returning from battle. Many orders for new ships were therefore tendered to private yards, particularly those close to the naval dockyards where they could be made ready for sea. John King was awarded the contract to build the 74-gun Third Rate Poictiers. In order to fulfil this, he opened a new yard at Upnor, on the River Medway opposite Chatham Royal Dockyard. The keel for the ship was laid in August 1807, and she was launched in December 1809.

She was initially stationed off the French coast, before crossing the Atlantic in 1812 to join Sir John Warren’s fleet at Halifax. Cruising along the coast down as far as Bermuda, she successfully captured a number of American ships, including USS Wasp, and recapturing HMS Frolic. She returned to Chatham in 1814, and was fitted out there as a guard ship until 1837, when she was moved to Sheerness; she was converted to a depot ship in 1848 and finally broken up in 1857. (Editor: for more information on the service history of Poictiers including one amusing episode, see Dockyards, May 2015, pp. 5–6.)
The figurehead was removed and remained at Sheerness as a shore exhibit. By the 1990s it had rotted beyond repair; all that remained was most of the head and a few fragments of the body, and Maritima was commissioned to carve a replica. With the aid of old photographs of the original figure, a new one was created, using the same techniques of laminating sections of wood to build up the carving block. Only traditional hand tools are used, in order to maintain the same degree of detail and ‘feel’ of the original figure. Fragments of paint left on the surviving parts were analysed, in order to return the figure to its original colours. The completed figure now stands in the museum at Blue Town, close to the old navy dockyard at Sheerness.

The second Sheerness figure I restored was that of HMS Chesapeake. The Fourth Rate steam frigate HMS Chesapeake was built at Chatham in 1855 to replace the earlier Chesapeake, captured from the Americans at Boston Bay on 1 June 1813, when she met with HMS Shannon. In the engagement which lasted just fifteen minutes, Chesapeake received severe damage. With her sails shot away she was boarded, amidst her dying captain’s famous words ‘Don’t give up the ship!’ She was brought to Halifax, where she was repaired and taken into the Royal Navy. She sailed for England and later served at Cape Town, before returning to England, where she was broken up at Portsmouth in 1820. Parts of her timbers survive in the flour mill at Wickham, Hampshire.

The replacement Chesapeake, from which this figurehead was taken, was ordered in 1834, but put on hold as the navy sought to embrace the age of steam, and was finally launched in September 1855. The figurehead is a representation of Pocahontas and originally carved by the famous Hellyer family, based at Portsmouth. The ship was broken up in 1867 at Sheerness, and the figure mounted by the main gate to the yard. By 1990 the main body had suffered severely from rot, which was held at bay by repairs using fibreglass. In 2008 the figure was removed to the workshop of Maritima Woodcarving, for a complete restoration, using traditional materials.

Andy Peters
(Editor – Andy has an excellent book, Ship Decoration 1630–1780 (Seafort: 356pp, 300 ills, 9781848321762).)
From the Navy Board – Copper’d Ships!

ADM BP 4, 5th March 1783

Sir,

In answer to your Letter of the 28th Past, relative to the Stores proposed to be kept on board Ships in Ordinary and the alterations that are become necessary from the circumstance of their being Copper’d, We desire you will please to acquaint the Rt Honble the Lords Commisr. of the Admiralty that the practice of the Board since its first institution has been to correspond with the Officers on the subject of professional Duty of the Dock Yard and all Warrants are directed to them accordingly, but open to the Commissioner’s Inspection, as are their Answers.

That on every Occasion when Information is wanted, We call upon the Officers where the Subject relates to their Departments and correspond with the Commissioner only on the general Business of the Yard.

The information receiv’d in this manner which cannot be expected always to agree together, We carefully weigh and make our conclusion what We (from our professional knowledge and experience in Business) judge on the whole will be best for the King’s Service This Mode We apprehend to be the proper province of a Public Board, and to be consistent with the Trust reposed and the Authority invested in it.

Where the practice of Coppering was extended, We, according to this our Mode of doing Business, took the opinion of the professional Officers, whose inspection it came immediately under, and with respect to the Stores proposed to be kept on board Ships in Ordinary, We had the Opinion of the Masters Attendant., in whose Department they particularly lay.

In compliance however with their Lordships present directions, the Commissioners have been wrote to on both Subjects and the Answers shall be transmitted as soon as they are receiv’d.

The Opinion of this Board on the subject of Coppering Ships, has been form’d not only on their own Observations on the River Yards, but on Reports made on every Ship that had been Dock’d since the first introduction of Copper, signed by the Builders and their Assistants, and the whole have agreed in recommending the practice without a single exception, but more particularly since the Plates have been Cover’d with the Metallic Composition now in use, and placed on Paper prepared in the same way.

From these Opinions and the Experience gain’d by every Stage of the process of Coppering having gone through our own inspection, and having been managed by our directions, and from our possessing more Materials than could have been collected any where else, We should have justly desrv’d Censure if our Judgement had not been fully competent on this Subject, and had We not exerted it as We have for the public Advantage.

With this View, and a self-evident certainty of its security deduced from repeated Trials, the Fleet of England was Copper’d and We flatter ourselves (without laying any Stress on the advantages derived from it) that no consequence have followed to induce their Lordships to repent of the confidence they placed in Us on that occasion.

Every alteration, Improvement and Experiment concerning Copper has originated at this Board, not altogether from our own Opinions, but from the variety of propositions and Experiments that have been laid before Us in the progress of it, and which has forced Us to press it forward with such confidence.

If laid aside now on the prospect of Peace, it will oblige Us to return to the old Practice of Sheathing with Wood, which was universal in the last Peace, for as the Worm is known to bite considerably at some of the Ports, the Ship’s Bottoms cannot be safe while they continue Single, and more particularly in the River Medway and Portsmouth. This will occasion an Enormous Additional Expense both of Sheathing and frequent Docking, which even in the former confined State of the Navy was found impracticable, but in its present enlarg’d state will be impossible, and there insufficient to guard the Bolts against the corrosive Quality of the Salt Water.

The Coppering over Bolts that have been Corroded from length of time, and on Bottoms injured with Sheathing nails, was unavoidable on the first introduction of Copper, and the Iron Work of every Ship of that description must of consequence appear in a defective State, whilst that of the New Ships Copper’d. at the same time will be found in a state of preservation, or no otherways affected than must unavoidably happen from Green Timber. We flatter ourselves therefore that there will be no necessity to recur to matters of Opinion when the Opposite facts may be so easily proved.

The Alexander was a new ship Copper’d in December 1779 and may if approved be Dock’d, and as many of the Bolts in her Bottom drove out as will be judged sufficient to ascertain the fact. Try the like Experiment on an old Ship Copper’d at the same time. If both are in a good state the Copper has had no bad Effect. If the New Ship
be found in the better state the Iron Work of the other must have suffer’d from the Salt Water before she was Copper’d.

So confident are the Master Shipwrights on this Subject that it has been proposed to Us by the Officers of Plymouth Yard to cover the intended Hulk with Copper in preference to Wood fitted with Iron for the preservation, and which We of Ourselves had before resolved to practice at other Yards.

We must however observe to their Lordships that notwithstanding our decision in favour of Copper for Sheathing Ships in Ordinary, as well as for Service, We would not propose any ship that had been long Copper’d to proceed to Sea (unless wanted for sudden service) without having her Bottom first inspected, and which is practicable with the proportion of stores intended to be kept on board.

This practice has been observ’d during the War as often the Defects of Ships on Service have brought them into a Harbour, and time would admit of looking at their Bottom. Not that We Apprehended any danger from omitting it but wish’d to refrain any partial Injury the Copper might have had received Afloat, and which were generally the Work of a Tide only, as was the case of the Alexander when order’d to the East Indies after being three Year’s Copper’d without being in a dock.

The inclosed reports relative to Stores from such of the Yards as have no Commissioner resident at them, We send for their Lordships inspection. Some of the Articles may certainly be more subject to Embezzlement on board than in the Storehouses on Shore. Others not so much so, as in the Yards, they being in general Out Door Stores.

But taken on the whole they have the same security as Stores lodged on board of Ships in Service, and more so, as there is no conversion.

It is to be consider’d also whether the readiness of Ships for Services not more than equivalent to the risk of the Stores: And to lessen as much as possible this objection, We have Confin’d them to Two Deck’d Ships only, because their Wings are enclosed with lattice, Bulkheads and under Locks.

Upon the whole, We have with the best intentions towards forwarding the King’s Service very maturely consider’d the Subject and on that ground it was proposed to their Lordships. The Effect of Lacquer’d Copper on prepared Paper has been so well ascertain’d and its superiority and security beyond every other kind of Sheathing has been so fully Establish’d on Experiment, that We did not think it required any new discussion on our part, and therefore only mentioned it as a matter of course.

The conclusion of the War and the Fleet being Copper’d, made it necessary to form without loss of time, some Plan for the reparation and Management of it while in Ordinary. We therefore suggested to their Lordships what appeared to us Best adapted to the present circumstances. If it can be improved upon, It will be still more to our satisfaction. We are Your very humble Servants.

Ps Since writing the above We have recollected the Endymion to have been refitted at Chatham after two years Copper’d and exposed to a hurricane in the West Indies where she lost her masts. One of the lower bolts of the Hanging Knees was drove out at that time for inspection and found perfectly unimPAIR’d. The Copper on her Bottom was found undisturbed but where the Mats had rubb’d it. She was sent abroad without shifting any part of the Copper, where she now continues.

received from Sue Lumas

Editor: This very interesting note refers to the process of coppering ships’ bottoms which was gradually achieved in the late eighteenth century to great effect in terms of lesser dockyard maintenance, resistance to worm, greater speed etc. Initial success was consolidated when it was realised that inter alia copper and zinc bolts needed to be deployed to prevent harmful chemical reaction with the copper sheathing. The story of how copper sheathing became a vital aspect of ship design is explained thoroughly and very well in ‘The Introduction of Copper Sheathing into the Royal Navy 1779–1786’ by NDS member Roger Knight (Mariner’s Mirror LIX 1973 pp209–309, helpfully reproduced on his excellent website, at http://www.rogerknight.org/pdf/The%20Introduction%20of%20Copper%20Sheathing.pdf). A detailed analysis of earlier copper sheathing experiments is contained in Randolph Cock’s articles ‘ ‘The Finest Invention in the World’: The Royal Navy’s Early Trials of Copper Sheathing, 1708–1770’ (Mariner’s Mirror, LXXXVII (2001) pp.446–59) and ‘At war with the worm: the Royal Navy’s fight against the shipworm and barnacle 1708–1793’, Transactions of the Naval Dockyards Society, 3 (2007), pp. 9–30.
This was my first visit to Scotland and it did feel like a different country. Edinburgh’s architecture is beautiful: predominantly simple and functional neoclassical. Street frontages often lead through an archway to a courtyard of workshops. Everyone was friendly and helpful; several times people saw me with a map and offered to help. On one occasion the person did not know the building itself, but recognised the postcode and accurately directed us. There is a wealth of good restaurants, but as we found, you need to book on a Saturday night.

I arrived a day early in the hope of visiting Trinity House; it was not possible, but the visit to Leith was useful to reconnoitre for Day 4, and the decorated gothic St Mary’s, South Leith Parish Church was an added bonus. In 1656 Cromwell’s troops occupied the church, before Leith Citadel was built. It was restored 1847–48, and it lost many earlier features, but there is a glorious hammerbeam roof and many plaques commemorate trade guilds such as the hammermen, carters, maltmen, cordwainers and masons. Outside, merchants had enclosed graves, and shipmasters and trade masters were buried in their allotted areas, the churchyard surrounded by their impressive houses. Leith architecture has an even more stunning impact than that of Edinburgh because it is a smaller and more concentrated location and has not yet had much development.

Brooks Hotel near Haymarket station was well placed and priced for the needs of the group: near enough to walk to the centre or catch a bus, and very good quality and service. A good refurbishment of an early twentieth-century building, it was quiet and spacious. The staff were extremely helpful and the breakfasts (included in the price) were outstanding: lots of choice, with cheerful kitchen staff.

The tour, designed to place Edinburgh and Rosyth within their maritime landscape, was bookended on Days 1 and 5 by tours of the Camera Obscura, very close to the Castle and Nelson’s Monument on Calton Hill. They were fascinating for their own history and for giving the views of the city, surrounding hills and the Firth of Forth. The Monument’s timeball and the Edinburgh Castle gun perform at one o’clock on every day except Sunday. At the foot of Calton Hill was the interesting Old Calton Burial Ground, its elaborate graves including philosopher David Hume, publisher David Blackwood, radical Thomas Muir and many shipmasters.

On our first full day we visited Rosyth Dockyard, the main attraction. Our local guides, Martin Rogers and Sandy Masterton, had liaised with Babcock personnel, who gave us a first-class tour. Not only did we see the Queen Elizabeth aircraft carrier project exhibition, but were able to drive past the dock where the Prince of Wales is being assembled and round to the basin where Queen Elizabeth is being fitted out. We had time to get out and look across the basin and have our pictures taken with Queen Elizabeth behind us. The coach passed the listed power station and pumping station, although we could not get a close look at them.

Rosyth Dockyard listing descriptions
Power Station http://www.britishlistedbuildings.co.uk/sc-50783-rosyth-dockyard-power-station-building-no
Pumping Station http://www.britishlistedbuildings.co.uk/sc-50784-rosyth-dockyard-pumping-station-building-
Barham Road Signal Box http://www.britishlistedbuildings.co.uk/sc-50785-rosyth-dockyard-barham-road-signal-box-at/photos#.VhLJIzZOeM8

From there we drove through Rosyth Garden City (inspired by Sir Ebenezer Howard) which succeeded Tin Town, the prefabricated huts housing Rosyth Dockyard workers from c. 1913–20.**
We then had a satisfying lunch at Keavil House, Crossford. An attractive mansion, the estate dating back to the fifteenth century; in the First World War it housed high-ranking officers, including the First Sea Lord Prince Louis of Battenburg, who received news of his name change to Mountbatten while staying there in 1917. We spent the afternoon at Lathalmond/Scottish Vintage Bus Museum. A Second World War Royal Naval Stores Depot, the bus museum occupies forty-nine acres of the ninety-acre site, many of the original buildings remaining. One of the large store sheds is set out as an exhibition area and there are 190 vehicles in total: buses, trams and a dockyard bicycle, which can be viewed in various stages of repair. We even had a ride in one of the buses and our coach driver sat in its cab. A now dismantled railway ran through site and there are a couple of refurbished locos on display. Eddie Taylor showed us around and answered our questions.

On Day 3 we took the train to Dalmeny and walked down the hill beneath the Forth Rail Bridge (1883–90) to board a sightseeing cruise boat trip to Inchcolm Island on the Maid of the Firth (three hours total) to explore Inchcolm Abbey, ‘Iona of the East’, Fortress Forth, the 1916 Royal Engineers’ ammunition tunnel and the island.Sadly the puffins had migrated, but we had also missed the seagull breeding season which can be fearsome, and we did see grey seals. The hour and a half ashore was just the right time to walk around the figure-of-eight-shaped island and see the many gun emplacements and the Abbey. The sun came out while we were there, so it was very pleasant, but it must have been a hard billet during wartime in winter. On the return voyage we were taken close to the new Forth Bridge supports.

Forth Rail Bridge listing description
http://portal.historic-scotland.gov.uk/designation/LB40370,Forth%20Bridge

We then had a very welcome lunch at the Hawes Inn and met Martin and Sandy who took us by car and foot to Port Edgar, South Queensferry, bought by the Admiralty in 1916 for a naval base. The wounded from the Battle of Jutland were landed here for Butlaw Royal Naval Hospital at South Queensferry, and the dead buried in Queensferry cemetery (see page 18). In 1917 it became HMS Columbine, a Torpedo Boat Destroyers depot, and in 1939 was commissioned as HMS Lochinvar with a Royal Naval Patrol Service training establishment. In 1943 HMS Lochinvar moved to Granton Harbour in Edinburgh and Port Edgar housed HMS Hopetoun, a Combined Operations Training centre for British and Allied navies training for the D-Day landings. In 1958–75 the Royal Navy Fishery Protection Squadron was stationed there. In 1960 it became the navy’s only minesweeping training establishment until it closed in 1975. This was a fascinating site because many of its buildings remain empty or as workshops, with few subsequent changes, although some had been razed to ground level.

* www.keavilhouse.co.uk
† http://www.svbm.org.uk/
‡ http://www.maidoftheforth.co.uk/
Clockwise from top left:
1. Inchcolm Abbey, established 1235.
2 Inchcolm – defence installations.
3. Our group enjoying Inchcolm.

The c. 1918 barracks and boiler house could be seen, mostly unused, and we were able to go inside the annexe, home to the Sea Cadets, next to the listed 1917–18 Power Station (below right).
Martin’s pictures show the base in 1974, when it was still operational. In the view along the coast you can see the barrack buildings in the distance. In the view across the Forth you can see Rosyth opposite.

Port Edgar listing descriptions
Shore Road, Port Edgar, Former Barracks / Naval Hospital Including Officers Ward, Ward Blocks, Admin http://www.britishlistedbuildings.co.uk/sc-50988-shore-road-port-edgar-former-barracks-nav#.VgedgW5Il4I
Shore Road, Port Edgar, West Pier http://www.britishlistedbuildings.co.uk/sc-50857-shore-road-port-edgar-west-pier#.Vged_G5Il4I
Shore Road, Port Edgar, Power Station http://www.britishlistedbuildings.co.uk/sc-50856-shore-road-port-edgar-power-station#.VgeeU25Il4I
Shore Road, Port Edgar, Capstan http://www.britishlistedbuildings.co.uk/sc-50854-shore-road-port-edgar-capstan#.VgeeS5Il4I

On Day 4 we travelled through the North Berwick scenery, to East Fortune Airfield (see more detail on p.19), home to the National Museum of Flight. Commissioned in August 1916 as a Naval Air Station, three airship sheds were constructed to house rigid airships. These carried out coastal anti-submarine patrols and escorted convoys from Methil on the Firth of Forth. The Sopwith Cuckoo, the first aircraft-carrier-based torpedo-dropping plane, also operated from East Fortune. When the surrendered German Fleet sailed into the Firth of Forth in 1918, the airfield’s aircraft photographed and filmed the event. This museum is well laid out; especially interesting were the films and oral history recordings of those who served there during the world wars, and the story of how Concorde arrived.

Leith was the port of Edinburgh and the centre of many industries (grain, glass, lead, soap, whisky), manufacturing imported products, such as Rose’s lime juice. Whaling off Iceland and in the Atlantic was a major activity, along with shipbuilding. Originally centred on the Water of Leith and limited in scale due to its shallow water, Leith’s shipbuilding declined as vessels increased in size. After a tasty lunch in The Shore, facing the Water of Leith, some of us saw the remnants of Leith Citadel (1656), and the warehouses of Leith Docks, near the new Scottish Office. There are many beautiful merchants’ houses, such as the sixteenth-century house of Andrew Lamb, where Mary Queen of Scots stayed when she arrived from France in 1561.†‡

In the afternoon Royal Yacht Britannia was the only mainstream tourist site that we visited. This tour focused on less accessible or well-known sites, but it fitted the maritime theme. It was a very well-presented visit; my only criticism was that if you did not take the lift, you had to pass through stretches of Debenhams store. Britannia, moored at Ocean Terminal, gave good views of Leith Docks and associated industrial buildings, such as the Grain Elevator. Its site was once the shipyard of Henry Robb Ltd., which built naval ships and commercial vessels from 1918 to 1983, and was close to Henry Robb’s paint store, the only remnant of the shipyard.

In another example of NDS synergy, on the morning of Day 4 Alan Mitchell, an Australian NDS member, forwarded a report from a Sydney Heritage Fleet member, retired naval architect Mori Flapan,§ who had just visited Leith. Flapan recounted that Robb’s built many steamships and motor ships for Australia and New Zealand, including MV Pateena and MV Poolta, and the former Manly ferry South Steyne which is berthed near Pyrmont Bridge in Darling Harbour Sydney.

He also corresponded with Ron the Loftsman, from Leith Ship Yards website:** ‘Ron told me that the only

† http://www.nms.ac.uk/national-museum-of-flight/
‡ http://www.grovesrainesarchitects.com/projects/project/108
§ http://canmore.org.uk/site/51956/edinburgh-leith-19-water-street-lambs-house
** http://www.leithshipyards.com/home.html
remnant from the shipyard was a paint store. After searching around I found it on the NE corner of the site. And what a paint store it is! It stands about two storeys high, a riveted structure with lapped end joints, joggled plating on the edge joints and marine portlights. ‘I could see the store from Britannia, and located it by walking along the front and side of Debenhams.

Leith listing descriptions
Leith Docks, Paint Shed at Shipbuilding Yard http://portal.historic-scotland.gov.uk/designation/LB27071

This was one of our more ambitious tours to organise, and its success was entirely due to our local contacts, Martin Rogers and Sandy Masterton, who both worked at Rosyth Dockyard and are knowledgeable local historians with a wealth of contacts. Martin’s father transferred from Portsmouth Dockyard during the Second World War. Sandy’s father had been a tailor in nearby Charlestown, but during the Depression went into the dockyard as a stevedore and worked his way up as an inland shipper for SNSO (Superintending Naval Stores Officer). We first met them at our 2014 First World War Conference, when Martin gave a paper on ‘Rosyth Dockyard 1903–1925: Its conception, birth, growth and demise’. It shows how initial contacts can develop; the NDS Navy Board Project assisted him with some documents on a German POW camp on the outskirts of Rosyth, and he now has more than repaid that help. It would have been a much less rewarding trip without them. They also gave us a booklet on Rosyth and Port Edgar and a CD-ROM of Rosyth: Garden City & Royal Dockyard. Especial thanks are also due to Andy Forbes, Bob Grant and Steve Mackenzie of Babcock International for permitting and enabling us to visit Rosyth Dockyard; to Eddie Taylor at Lathalmond for his tour; and to Port Edgar Marina Ltd for allowing us to visit. It was a fascinating introduction to the region and showed how the naval and dockyard sites have contributed to the landscape and economy. We also gained many views of the Forth Bridges. From Day 2 even the weather became sunny and warm.

Dr Ann Coats

Further reading

Volume 20, Number 2
Behind the Scenes at Rosyth Dockyard

Society members on our recent Scotland trip were privileged to enjoy a comprehensive tour of the former naval dockyard, courtesy of Babcock (who acquired the yard in 1997) and the kind arrangements made for us by local historians Martin Rogers and Sandy Masterton. The dockyard is of course not normally open to the public.

On the way in, we had noticed the demolition in progress of massive oil tanks housed in what was once the world’s largest reinforced concrete structure. On a site of 9.5 acres, the tanks were built inter alia of 1m tonnes of reinforced concrete and 5,000km of reinforced steel bars. Built to be totally bomb proof, the Castlekeys Fuel Bunker’s demolition is unsurprisingly taking several years and leading to complaints from local residents due to substantial noise and vibration!

We entered the secure area of the dockyard and although understandably not permitted to take photos, we were made most welcome by our Babcock guide and photographer. (He took some pictures of us a group.) We noted some of the original dockyard buildings (e.g. the generating station) from the original construction a hundred years ago or so.

The main ships to be seen were the two carriers *Queen Elizabeth* (out in the basin) and *Prince of Wales* (in the early stages of construction in Number 1 Dock). These are massive ships (unusually with two islands on the flight deck) and the latest estimate of their overall cost is a staggering £6.2bn. *Queen Elizabeth* had been floated out into the basin in July 2014 and is now being fitted out. There was talk of her arriving in Portsmouth in December 2017. Assembly work had begun on *Prince of Wales* in September 2014. Scattered around the western sides of the basin were various pieces of *Prince of Wales* waiting to be added, a bit like parts of a giant Lego kit. Some had recently arrived on *Boabarge 34*, a massive semi-submersible barge which was still moored in the Basin. Assembly and ‘block integration’ are performed at Rosyth with construction taking place at seven other shipyards around the UK.

Two pictures taken from the Goliath Crane, looking up the Firth of Forth (left) and down towards Basin and *Queen Elizabeth* (courtesy of Babcocks).
In March 2011, a massive Goliath crane arrived from Shanghai. It took four months to erect over Number 1 Dock. It is the largest crane in Europe and cost £12.2m; it has been pre-sold back to its manufacturer in China once its work is finished at Rosyth.

First of all we stretched our legs on the east side of the main basin and the two entrances from the Firth. We looked across at the two carriers before going to the interesting Visitor Centre and inter alia watching two excellent promotional films about the carrier programme. Of great interest to me were the modifications to Number 1 Dock to accommodate the size and shape of the carriers. This cost upwards of £35m. Their slablike sides are as much an issue as the size and weight. Number 1 dock is long enough for them, but the entrance needed widening.

Our coach then took us round to the other side of the basin where Queen Elizabeth was being fitted out, a hive of activity. We were told 1,500 workers were working on the ship and that the ship could be evacuated in just twelve minutes. There are 6,500 workers altogether in the dockyard.

Tantalisingly we could see some distance away the seven laid-up nuclear submarines which are in long-term storage. One of these, Britain’s first nuclear sub, HMS Dreadnought, was withdrawn from service as long ago as 1980, and their maintenance has cost £13m over the last five years alone. They have all now been defuelled and occasionally there is talk of one or more of them being fully dismantled. Moored close by were the tugs Deerhound and Elkhound, designed to move nuclear submarines.

In a corner of the dockyard HMS Blyth, a mine counter-measures vessel based at Faslane, was under refit, hidden in the massive shed in the synchro lift facility (opened 1980). Not far away is the half-completed new container ship terminal. Originally started at a staggering cost of £120m as a Trident refit facility, a project abandoned in 1993, Babcocks announced in 2010 that it was to be finished as a container port. Still in progress, this will give the dockyard some life and sense of purpose once the carriers have been completed.

The dockyard was virtually completed in May 1916, when the facilities were vital to receive damaged ships from the Jutland battle. Much of it was built on reclaimed land. There were and still are three docks, each 850 feet long. Number 1 Dock could be divided into two by a floating caisson and Number 2 unusually has a recess at its end into which very long ships like HMS Hood could be accommodated. We were reminded the Hood was under refit in number two when she was called away for her ill-fated encounter with the Bismarck in May 1941. Between March 1916 and the end of the war in November 1918, seventy-eight capital ships were docked, a very busy time. In 1925, the dockyard was placed on a care and maintenance basis and shipbreaking became the main activity for a few years. Reopened in 1938 as war approached, Rosyth saw three thousand ships docked in the 1939–45 conflict. In 1995 the naval base closed and Babcocks purchased the dockyard in 1997.
Dockyards, November 2015

Extracts from the 1914 Dock Book for Rosyth, which was uncompleted at that time. The layout is similar today, Docks Numbers 1 to 3 are marked red and Number 1 houses Prince of Wales today.

Richard Holme

Queensferry Cemetery – Naval Casualties

I was glad to visit this peaceful and beautifully maintained cemetery high up above the Firth of Forth in South Queensferry and study in particular the graves of around 188 men who died in the 1914–18 War, nearly all from the Royal Navy. Much of the British fleet was then based at nearby Rosyth and Port Edgar. The war dead from the great Battle of Jutland (31 May 1916) are to be found in cemeteries all around the North Sea and many of course were buried at sea or their bodies never recovered. Of 110,000 or so who fought at Jutland, over 6,000 British sailors died, more than 3,000 of them on three battle cruisers, HMS Indefatigable, HMS Invincible and HMS Queen Mary, which all tragically blew up.

Following an anonymous donation, a massive expansion of an existing small local facility, the Queen Mary and Princess Christian Naval Hospital was built on a site adjacent to Port Edgar and opened in May 1916. It was specifically designed to provide emergency medical facilities for naval casualties. It comprised four sixteen-bed wards, an operating theatre and supporting facilities. Many hundreds of war wounded were treated there and at nearby Craigleith Military Hospital. The dead at Queensferry included many from these hospitals.

Most of the dead from Jutland were buried at sea but some ships, like the destroyer HMS Petard, which had nine casualties, landed their dead and they are commemorated in the cemetery. There are forty or so war dead from Jutland at Queensferry, twenty-six were dead on arrival and the rest died on shore of their wounds. HMS Petard and HMS Warspite have memorials sponsored by their ship’s companies to their ships’ Jutland dead. A curious feature is triple graves, a tombstone commemorating three Jutland dead.

Some graves commemorate those who died in other battles: there is a memorial for example to the nine who died on the battle cruiser HMS Tiger at the Battle of Dogger Bank in January 1915. Sadly some died in accidents or in the influenza epidemic of 1918–19. Quite moving are some large memorials in pink granite erected to several dead of the battle cruiser HMAS Australia, all state ‘erected by his shipmates as a token of respect’.
The names, family connections, and dates of death of the 188 dead are meticulously recorded on the Commonwealth War Graves Commission website. Useful information also received with thanks from Frank Hay of the Queensferry History Group.

http://www.cwgc.org/find-war-dead.aspx?cpage=1&sort=name&order=asc
http://queensferry-at-war.org.uk/memorial.php

Richard Holme

East Fortune Airfield: Some Observations

The airfield at East Fortune in East Lothian was created as a defence of the RN Dockyard at Rosyth and to protect Allied shipping. It was operated by the Admiralty from 1915 to 1918 as a base for the Royal Naval Air Service (RNAS), with airships and land aeroplanes stationed there. The paper is not a narrative of the station in the Great War but principally looks at some matters arising on the establishment and use of the air station at East Fortune.

As a consequence of the construction of Rosyth Dockyard and naval base, the Firth of Forth became a heavily fortified area. Shore-based artillery was positioned on several of the islands in the estuary, including Incholm, and on adjacent shores. The Admiralty, which had control over homeland defence in this respect, also operated a number of airfields. These were at Crail, Dundee, Donibristle, East Fortune and the seaplane base at Rosyth. Although it was beyond the Firth, Montrose was also considered part of the Forth’s defences. (However, naval aeroplanes were removed from Montrose station, after the designation of East Fortune was made, as the ‘Military’ required it for their use.1) Turnhouse (just west of Edinburgh) was established in 1916 early on, coming under Royal Flying Corps (RFC) control, though there are references that RNAS aeroplanes may have used it.

Steps to acquire the site of East Fortune began in August 1915. It was proposed that the site would be acquired under Defence of the Realm Act 1914 (DORA) and the ‘hedges clipped’. The site had been reconnoitred by Flight Commander Nanson, Commanding Officer, Royal Navy Air Station Dundee, who recommended it.2 He further advised that the same ground could be used for both aeroplanes and airships as they could cooperate more easily in any action and also that the joint use would be more economical. He noted that the grass was short, and the site level on the south side but that the position of high trees on the western side was disadvantageous. ‘But’, he added, ‘the field is sufficiently large to allow of landings being made with ordinary aeroplanes with the wind in any direction; and in any case a portion of these trees could be easily removed.’3 Describing it (in his 7 August communication) as ‘near Dunbar’ may have given the wrong impression as to its location to Admiral Lowry, the commander of ‘East Coast Scotland’ naval command and HM Dockyard Rosyth, who, nonetheless, said Dunbar was ‘a far better strategical position for Aeroplanes than Montrose for the protection of Edinburgh and the Firth of Forth against Aerial attack.’4 The Director Air Services, Admiral Vaughan-Lee, thought it suitable for airships.5 The purpose of airships would be to carry out sea-lane patrols. Aeroplanes were also stationed at East Fortune, the earliest arriving in September 1916: ‘two Sopwith two-seat Scouts and a Maurice Fairman from the air station in Montrose. Over the following months more types arrived, Avro 504s and B.E.2c and the first airships, midway through 1916, for which two large hangars were erected.’6

At first East Fortune was a sub-station of Montrose, but very soon after East Fortune’s establishment, Admiral Hamilton (Chief of Naval Personnel) in appointing a new station commander for the two stations argued that
East Fortune had outgrown the Dundee station in size and importance and that the two stations might be split.⁷

East Fortune ceased to be a substation of Dundee Royal Navy air station in 1916, after SNO Dundee had written to C-in-C Rosyth that he should consider the splitting of the two airfields with an SNO in each.⁸ Director of Air Services concurred on 28 July 1916. Admiral Hamilton said that East Fortune had outgrown Dundee Air Station in size and importance but that the Commanding Officer at East Fortune was the junior of the two. It was therefore proposed that the two Air Stations should be regarded as separate Commands:⁹

In view of the fact that the East Fortune will be an important rigid airship Station as well as an aeroplane station, and as the airship complement will far exceed that of the ‘heavier than air’ complement, the officer appointed in general command of the station will be an Airship Officer. He should, however, in consultation with the senior Aeroplane Officer, give due consideration to all matters affecting heavier than aircraft and all operations carried out with them.¹⁰

Admiral Hamilton, now C-in-C Rosyth, advised that they should remain separate commands in view of the distance between them.¹¹ Admiral Vaughan-Lee concurred the following day.¹² The decision to split the command of the two airfields was taken, the Lords Commissioners’ decision being formally communicated to the Commander at Rosyth on 27 August 1916.¹³ The involvement of the Admiral Commanding East Coast Scotland at Rosyth derives from Admiralty Weekly Order No 1204/15, which provided (inter alia):

The Royal Naval Air Service is to be regarded in all respects as an integral part of the Royal Navy, and in future the various Air Stations will be under the general orders of the Commander-in-Chief or Senior Naval Officer in whose district they are situated.

By the same Order, stations at Fort George, Strath Bay, Aberdeen, Dundee and East Fortune (therein described as ‘North Berwick’) were grouped under Admiral Commanding East Coast Scotland.

The presence of airships at East Fortune made it one of the first twelve RNAS airship stations in Great Britain during the war. There were twenty airship stations on Armistice Day.¹⁴ As already indicated, East Fortune also flew aeroplanes. By way of explanation of the use of the two aircraft types, the authorised use of the aeroplanes and airships can be taken from a report ‘Employment of RNAS Units and Approximate Strengths on 1st February 1917’. Airships at East Fortune were deployed for ‘antisubmarine patrol of local areas’ and aeroplanes for ‘local antisubmarine and reconnaissance patrols [and] defence against hostile aircraft’.¹⁵

In January 1916 the station’s Commanding Officer had asked for a further officer to be detailed to the station because one of his officers was at the time unfit for flying duties owing to ‘strained eyes’. The Admiral Commanding East Coast reported that the station had two Sopwith land tractors in a dismantled condition. (The reference to ‘tractor’ was probably to the positioning of the propeller at the front of the machine pulling rather than pushing.) The Commanding Officer said that the two machines were of no use for patrols, having no climbing margin at all. One of them had had an accident and no repairs could be done. It would be possible to make up one complete machine out of the two, the remaining parts being used as spares in the event of minor accidents. The air station had five Avro tractors, all new machines, and the CO suggested that the Sopwiths might be returned to store or deleted in order to make room for more useful machines. The report said that a permanent shed was urgently needed, the present shed being unsafe in high winds. As a result two machines (aeroplanes) had been removed and were being housed in a dismantled state in the house occupied by the officers.¹⁶

The Director of Air Services, Charles Vaughan Lee, approved an additional officer being transferred from Dundee. He found that there were six Avro machines at East Fortune which he considered were suitable for patrol purposes but not for night flying. He had ordered a survey of the defective machines. Only one Lewis gun had been sent to the station. A new aeroplane shed was on order and a Bessonau tent had recently been sent.¹⁷ None of this indicates a highly efficient unit.

From the beginning the airfield was equipped with aeroplanes and airships. The airships were especially assigned for sea patrolling. Some aircraft were reserved for defence. The following table is compiled from the weekly station reports. Complete accuracy cannot be found in these figures, as, for instance, the number of aircraft which are serviceable and those which are not is not constant. This could of course indicate that aircraft were not permanently stationed on the field. Mention of airships is intermittent. But it seems that once the airships arrived, aeroplanes were no longer sent on patrols. The number of patrols each week seems remarkably
Aeroplanes continued to make multiple ‘practice flights’ each week but did not appear to have been engaged in actual military operations. The airships were seen as a permanent allocation to the field, as no less than three hangars were built for them.

### Compiled from weekly station returns on flying (TNA, AIR 1/434/15/267/1)

<table>
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<th>w/e</th>
<th>Planes operable</th>
<th>Airships operable</th>
<th>Planes u/s</th>
<th>Airships u/s</th>
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<th>PatROLS airship</th>
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<td>3</td>
<td>0</td>
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<td>9</td>
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<td>1</td>
<td>2</td>
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<tr>
<td>24/09/16</td>
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<tr>
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<td>3</td>
<td>1 (ret winds)</td>
<td>1 (3hrs 20)</td>
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<tr>
<td>15/10/16</td>
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<td>4</td>
<td>3</td>
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<td>05/11/16</td>
<td>8</td>
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<td>19/11/16</td>
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<td>24/11/16</td>
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<td>10/12/16</td>
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<tr>
<td>17/12/16</td>
<td>12</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>1 (5hrs 16)</td>
<td>1 (5hrs 55)</td>
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<td>6</td>
<td>2</td>
<td>1 (3hrs 45)</td>
<td>1 (1hrs 55)</td>
</tr>
</tbody>
</table>

The data available in the station reports for much of 1917 indicate a similar use of machines. Reports for both 1916 and 1917 show a considerable amount of training and little operational flying. Some on this information might disguise the fact that during 1917 East Fortune was also used as a training base for ship-based aeroplanes and for those pilots attached to the fleet squadron at Rosyth.

Full data does not seem to be available for the station’s response to the raid on 2 April 1916 by Zeppelins L14 and L22, which may have been heading for Rosyth but they dropped their bombs on Leith. However, The Museum of Flight relates:

> The air defences at East Fortune were put to the test on the night of 2 April 1916, when two German Navy Zeppelins attacked Edinburgh. One of them was spotted over the coast near St Abbs and East Fortune was notified. At 21.40 hours Flight Sub-Lieutenant Cox took off in an Avro 504C single-seat fighter to intercept the raider but was unable to find it. He returned to East Fortune only to crash his machine on landing and he was badly injured.\(^\text{18}\)

> The next airfield to be developed in response to the raid was Turnhouse, which from the beginning was operated not as might have been expected by the RNAS but by the RFC, although there are references to the RNAS keeping land aeroplanes at Turnhouse.

By 1917 the station at East Fortune was not as complete as might have been expected. The station suffered problems with adjacent telephone lines, sludge disposal and ventilation of dope sheds; all of which make a mention in reports.\(^\text{19}\) By February 1917 the establishment for the airfield was nineteen aeroplanes and four airships.\(^\text{20}\)
Naval airships continued to operate from East Fortune after the creation of the RAF in April 1918. However, the airship patrols do not seem to have been very efficient. The airships used at East Fortune included the NS class for longer range and C class for coastal patrols:

Frequently the airships returned early due to adverse weather conditions like Airship, CX7 on 25th June. Engine problems were also evidenced. On the same day C25 returned early due to ‘engine trouble’. CX1 patrolled successfully the next day for 8 hours 15 minutes, covering 170 miles over sea. But on the same day the second ship returned with engine trouble after only 1.15 hrs in the air. On 28th June four airships were launched. C25 stayed aloft for 10 hours 15 minutes on a patrol and escort duty covering 270 miles over sea. On 29th three patrols were launched all of which were successful, the longest being 9hrs 20 mins.

Significantly, most patrols set off early on most days. On this occasion CX1 took off at 0300 hrs and CX7 at 0815 hrs. Longer patrols were successful on July 2nd with three airships escorting convoy H2 or Z [transpositions perhaps confused] off Berie Head.

Convoy HZ comprised forty merchant vessels, seven ‘TBDz’ and eight armed trawlers. HZ was given a night escort on 3 July by airship CX3 which flew for 360 miles over water. Convoy OZ was given escort of two airships on the same day. At 1800 hrs on 3 July CX7 sighted a ‘suspicious submerged object approaching last ship of Convoy, about 4 cables on ships beam’ and dropped a bomb with delay action. A large whale was brought to surface badly wounded. Another bomb dropped to ‘shatter carcase’. On 26 July dedicated hostile submarine patrols were launched with 2 airships. CX1 escorted 36 ships northbound on 28 July. Similar operations with typically two airships airborne, but occasionally up to four, continued throughout July and August on escorting and anti-submarine patrols. On 1 October airship NS8, flying 280 miles (along with C925), escorted the Grand Fleet into the Firth of Forth. General patrols continued throughout October. East Fortune did not stand down immediately at the armistice. On 12 November NS7 escorted a southbound convoy for 5 hrs 15 mins; NS8 patrolled from the Tyne to the Isle of May and NS7 patrolled the Firth of Forth. An intelligence report of August 1918 asserted that a table which the relevant officer had prepared showed, by rough correlation, that enemy submarine presence was reduced during airship patrols.

With the establishment of the RAF on 1 April 1918, the Royal Navy’s interest in East Fortune ended: but the airfield continued to be used in 1919 and 1920 for airship movements, including those of R34. In the Second World War East Fortune was an operational RAF Base. Unlike Rosyth seaplane base, in the First World War East Fortune was not assigned to duties with the Grand Fleet. However, it may be said that its origins owe much to the creation of, and the need to defend, the naval dockyard and base at Rosyth (not forgetting the Kaiser!).
From flying reports from TNA Air 1/720/43/1: designation ‘TBDz’ not decoded in original

Appendix 1: Site of field acquired for airfield

Appendix 2: Officers mentioned

Admiral Sir Robert Lowry was Commander of Rosyth from 1913 till 1916. Admiral Sir Frederick Hamilton was Second Sea Lord for Personnel at the start of the war but in 1916 was translated as Commander in Chief Rosyth and on his death in 1917 the post was occupied by Sir Cecil Burney. As Flag Officer Scotland, these Rosyth posts were also held as Commander East Coast Scotland. This paper replicates the term used on each communication. The post of the Director of Air Services (or Air Department) was held from 1912 till 1915 by Rear Admiral Sir Murray Sueter: he was succeeded by Rear Admiral Sir Charles Vaughan-Lee until 1917. The Director reported to the First, Second and Third Sea Lords regarding their particular responsibilities.

Notes
1 TNA, AIR 1/634/17/122/104/. CO RNAS Dundee Flt. Cmndr Nanson to Admiral Lowry, 26 August 1915
2 TNA, AIR 1/634/17/122/104 Flt. Cmndr Nanson, 7 August 1915
3 TNA, AIR 1/634/17/122/104/. Flt. Cmndr Nanson to Admiral Lowry, 26 August 1915
4 TNA, AIR 1/634/17/122/104/. Admiral Lowry to the Secretary of the Admiralty, 10 August 1915
5 TNA AIR 1/634/17/122/104, minute Director Air Services, 21 September 1915
7 TNA AIR 1/672/17/134/19, Admiral Hamilton to the Secretary of the Admiralty, 9 August 1916
8 TNA, AIR 1/672/17/134 20 July 1916
During both World Wars, the principal anchorage for the British fleet was at Scapa Flow in Orkney (never, ever, ‘in the Orkneys’). The islands contain a significant amount of extant heritage from these times, and, indeed, from other eras of naval history too; and a visit should be considered a must on the ‘bucket lists’ of all serious naval historians and NDS members.

**Scapa Flow**

Actually pronounced by the locals to rhyme with ‘happy plough’, the vast anchorage of the Flow was first identified as a potential naval base for operations against Germany in 1905, when a survey (employing HMS *Triton*) was undertaken at the instigation of ‘Jacky’ Fisher. Good views of it can be obtained from a number of locations around Mainland (the name of the principal island of Orkney; ‘mainland’ Scotland is just Scotland, and Orcadians are quite ambivalent about whether they’re really a part of it or not). One of the best viewpoints is Wideford Hill, to the west of Kirkwall, but others include Howequoy Head on Mainland and the hill above Lyness on Hoy, mentioned below. It’s possible to hire local boats for trips round the Flow in summer, but a cheaper way of getting an idea of the sheer scale of the anchorage is to buy a foot-passenger ticket for the ferry that links Houton on Mainland with Lyness on Hoy and the island of Flotta, which is dominated by a large oil refinery. The departure from Flotta passes very close to the buoy marking the wreck of HMS *Vanguard*, which blew up accidentally on 9 July 1917 with the loss of all but three of her 845 men. Further to the west lie the remaining wrecks of the German High Seas Fleet, i.e. those that were scuttled along with the others on 21 June 1919 but, unlike the others, were not subsequently raised and broken up. The principal wrecks are the Dreadnoughts *König*, *Markgraf* and *Kronprinz Wilhelm*: also still on the bottom of the Flow are the cruisers *Cöln*, *Karlsruhe*, *Brummer* and *Dresden*, together with four gun turrets from the Superdreadnought *Bayern* that came away during salvage. These are all very popular destinations for divers.

**Lyness and Hoy**

During World War Two, the hamlet of Lyness on Hoy was developed into the principal shore base supporting the fleet anchored in the Flow. Although most of the temporary huts, oil tanks, etc. were swept away after the war, and especially after the naval base closed in 1958, it’s possible to still see a significant amount of built heritage, and to walk around most of it comfortably in a couple of hours. Several of the original piers survive, as do the former NAAFI and the ‘Golden Wharf’, part of which is now the ferry terminal – so named because it was so expensive (and took an inordinate time to build, not being completed until 1944). On the hill above Lyness is the large control building for the Flow, built in the middle of war. It’s also possible to access the site at Rinigill, about two miles from Lyness, which housed the likes of the balloon hydrogen production plant, the naval radar centre, and various training installations.
World War Two command centre, Hoy.

Display case of exhibits from the German High Seas Fleet, Stromness museum.


Interior of the pumping station / heritage centre, Lyness.

The joint ‘must see’ destination for NDS members is undoubtedly the Scapa heritage centre at Lyness. Housed in the former oil pumping building, this contains a tremendous amount of naval memorabilia, including entire gun turrets salvaged from some of the German ships, as well as much of the original pumping equipment. The other ‘must’ is the naval cemetery, to the east of the village. Immaculately maintained and deeply poignant, it contains row upon row of graves, many of them from the Battle of Jutland, others from tragedies such as the losses of the Vanguard and Royal Oak. There are a number of German graves, too. The cemetery will be the scene of one of the principal events commemorating the centenary of Jutland, the other being a service at St Magnus Cathedral, Kirkwall.

However, Hoy also contains reminders that these islands were of naval importance long before the world wars. At Hackness, a battery and Martello Tower protected Longhope Sound, where convoys for the Baltic formed up during the Napoleonic Wars. These are very well preserved and are open to the public during the summer months. (A second Martello, on the opposite shore, is not open to the public.)
Coastal defence

The Flow was ringed by defensive batteries during both world wars, and several of these are accessible. Probably the easiest to get to, and the one best geared up for visitors (proper guided tours can be arranged), is Ness Battery to the west of Stromness, which guarded the western entrance to the Flow. Another battery stands opposite it, on the island of Graemsay. The other principal entrance to the Flow was guarded by an impressive array of batteries at Hoxa Head on South Ronaldsay (one of the islands now permanently linked to Mainland by the Churchill Barriers), and these can be reached via a cliff walk which provides spectacular views. Other batteries and defences can be found elsewhere in the islands, for instance to the north of Kirkwall and to the east of St Mary’s, at Graemeshall, and several of these are easily accessible.

The Churchill Barriers

During World War One, the channels between the small islands on the eastern side of the Flow were sealed by blockships, but these defences were neglected between the wars. This permitted U47 to slip through Kirk Sound, between Lamb Holm and Mainland, on 14 October 1939, leading to the sinking of HMS Royal Oak, which was moored in Scapa Bay to provide anti-aircraft gunfire cover for Kirkwall. The First Lord of the Admiralty, Winston Churchill, visited Scapa in the following spring and ordered the construction of a series of barriers to permanently seal the channels. Work proceeded slowly until there was an influx of Italian prisoners of war from the North African campaigns. Although compelling PoWs to work on military projects was forbidden under the Geneva Convention, the British authorities got round it by persuading the Italians that the barriers would provide better civilian infrastructure for the South Isles – and any PoWs volunteering for work were given guarantees of better conditions. The barriers remain a very impressive piece of engineering, and a number of very informative display boards at the ends of each of them tell their story. Just across Number 1 Barrier, on the small island of Lambholm, is one of Orkney’s most famous attractions, the lovely Italian Chapel built by some of the prisoners of war employed on building the barriers.
Wrecks and memorials

There is an excellent website that contains details, and many photographs, of all the wrecks of Scapa Flow (www.scapaflowwrecks.com). The remains of several of the blockships that preceded the Churchill Barriers are still clearly visible, notably those of SS Numidian of 1891 by Number 2 Barrier and of the 1878-built Reginald, the Empire Seaman (1922) and Martis (1894) by Number 3. Inganess Bay, immediately adjacent to Kirkwall airport, is dominated by the wreck of the Sprucol, a WW1 RFA tanker employed as a blockship in WW2, then taken to Inganess for scrapping – which, for some reason, was never carried out. (For her history, see www.historicalrfa.org/rfa-sprucol.) Further afield, the remains of the First World War German destroyer B98 can be seen at the Bay of Lopness on Sunday, while there is a small memorial at Windwick Bay on South Ronaldsay to the 188 men killed aboard the destroyers Opal and Narborough. The most poignant memorial is that on the seafront in Scapa bay: a garden, monument, and commemorative exhibition remembering the 833 men who perished when HMS Royal Oak was torpedoed and sunk on 14 October 1939. The buoy marking the spot where the ship sank is clearly visible from the shore. However, the most structurally impressive naval memorial on Orkney is the tower at Marwick Head which commemorates the loss of HMS Hampshire and Field Marshal Lord Kitchener. This is currently being restored with the addition of a new memorial wall to mark the centenary of the sinking.

Kirkwall and Stromness

The Orkney Museum in Kirkwall has virtually nothing of naval interest, explicitly delegating that to the museums at Stromness and Lyness, but it has some fascinating Neolithic and Viking material. The glorious St Magnus Cathedral is well worth a visit, though, both in its own right and because it contains another poignant memorial to HMS Royal Oak, including a book of remembrance and the ship’s bell. Stromness, a picture postcard maritime town, has an excellent, old-fashioned museum which contains a considerable amount of memorabilia relating to the German High Seas Fleet, as well as many displays relating to the town’s history. It is possible to go on tours of the Ness Battery (see above).

Naval air stations

Several of the hangars of the former HMS Sparrowhawk survive in new guises on the Hatston Industrial Estate on the edge of Kirkwall, which covers much of the airfield site. There has been much less development at the former HMS Tern, in the unfortunately named hamlet of Twatt, and it is possible to access much of the site; this was the home of the first operational helicopter squadron, 771, in 1945. HMS Robin, the former RAF Grimsetter, is now Kirkwall airport, although nothing of its wartime incarnation seems to survive.

Further reading

There are a number of good books on the naval history and heritage of the area; the website of the local newspaper, The Orcadian, has an excellent online bookshop that carries the following titles, and many others too.

James Miller, Scapa (Birlinn, Edinburgh, 2000)
Angus Konstam, Scapa Flow (Osprey, 2009)
Tony Booth, Cox’s Navy (Pen and Sword, 2011; the story of the salvage of the High Seas Fleet)
Geoffrey Stell, Orkney at War: Defending Scapa Flow (vol. 1, WW1, published by the Orcadian, 2010; vol. 2, WW2, due Christmas 2015)
Dilip Sarkar, The Sinking of HMS Royal Oak (Amberley, 2012)
Dr David Davies
Tersane Island, Gocek Harbour, southern Turkey

On a wonderful day’s sailing in the extensive Gocek harbour in southern Turkey, my happiness was complete when we anchored in a C-shaped bay of an island which our captain said was called Tersane. This means both shipyard and dockyard in Turkish.

According to the only source I could find the ancient Greek name of the island was Telandria. The ruins of the Greeks’ hundred and forty houses were still visible. They migrated to Rhodes after the Greek/Turk population exchange in 1922, but more exciting to me were what looked like a shallow slope for drawing up vessels and other possible dockyard buildings. The Ottoman fleet used it as a port during WWI and ‘the original dockyard rocks can still be seen lying in the sea’ (http://veryturkey.com/destination-info/fethiye/tersane-island).

Does anyone know any more? Possibly Byzantine?

Dr Celia Clark

Bermuda Dockyard hit by three hurricanes in two years

Hurricanes Fay and Gonzalo hit Bermuda Dockyard within a week in October 2014. Fay, the first since Igor in 2010, caused extensive damage, with Gonzalo, the most severe since Fabian in 2003, striking the island five days later and compounding the damage. Winds reached 123 mph at Commissioner’s Point.

In October 2015 Hurricane Joaquin passed about seventy miles west of Bermuda:

The West End bore the brunt of Joaquin’s passing, with one casualty being Dockyard’s historic Commissioner’s House. A year after its roof suffered extensive damage from Fay and Gonzalo, the last of the building’s old roof was torn away during the storm and a chimney was destroyed.

“It was another big blow to us when we were just getting back on our feet — it looks really bad, but we will rebuild,” said Elena Strong, the curator for the National Museum of Bermuda. There was some water damage to the interior, but no exhibits or artefacts were damaged.

While Elsner and Birol reported in 1999 that Bermuda could expect to be threatened on average with hurricanes every two years (Elsner, J. B. and Birol K. A. 1999, Hurricanes of the North Atlantic: Climate and Society, Oxford University Press, p. 239), it is feared that they are becoming more frequent. The museum therefore needs to strengthen the cast-iron frames and replace the roof of the Grade I listed Commissioner’s House, which was built in the 1820s (see the Raise the Roof appeal).


If you wish to donate go to: https://www.caфонline.org/my-personal-giving/start-giving/donate-now
Enter “Friends of the National Museum of Bermuda” <Search>
One record will be shown, “Friends of the National Museum of Bermuda (UK)”
Select: Donate
Follow the instructions on screen to complete the donation.

Images of damage to the Commissioner’s House courtesy the National Museum of Bermuda.

Dr Ann Coats