STEAMSHIP

FRESHSPRING

MAGAZINE

Preserving the past to inspire knowledge for the future

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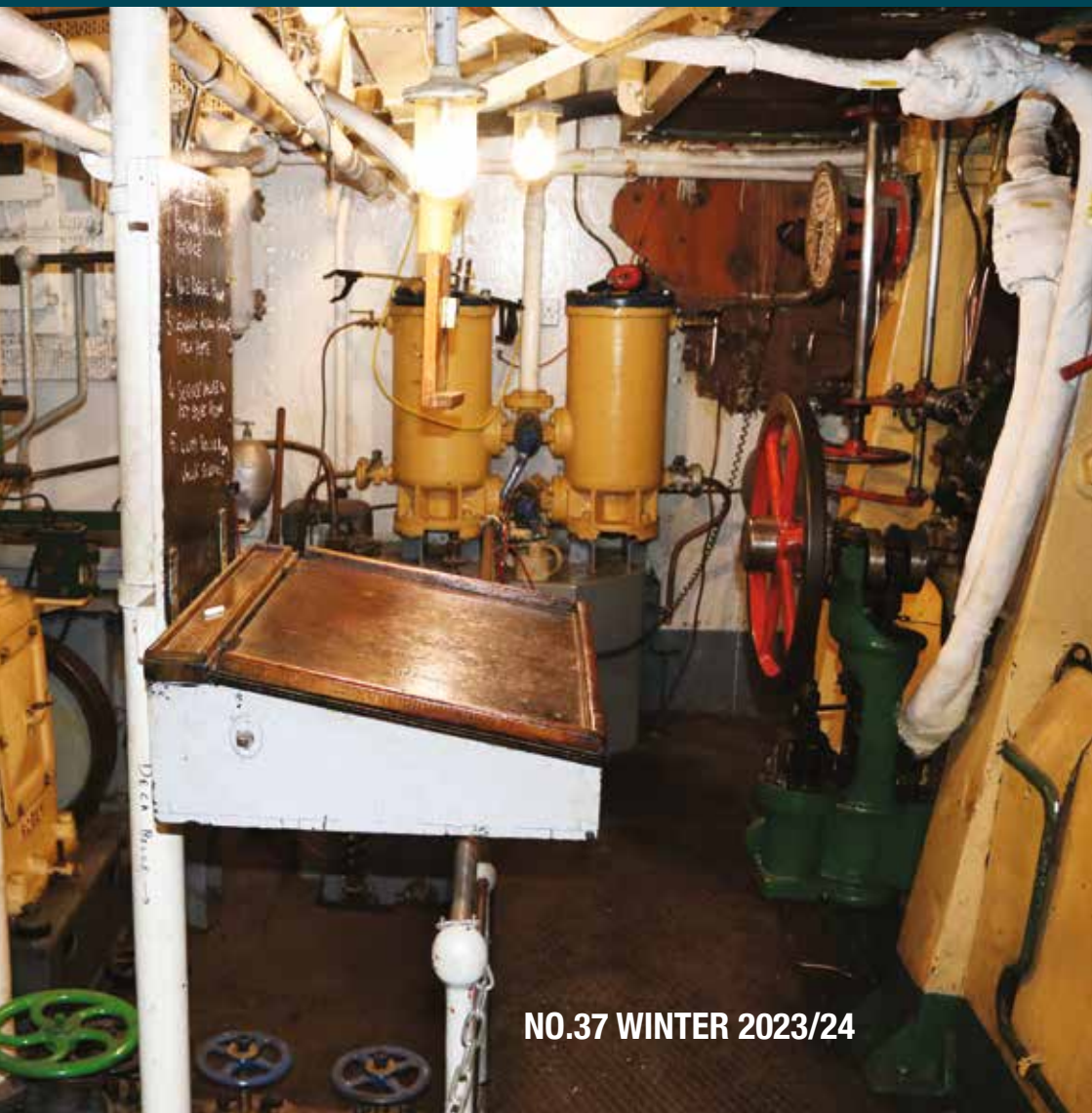

NO.37 WINTER 2023/24

STEAMSHIP FRESHSPRING TRUST

Registered charity, No.1151907.

Objects of the Charity

To advance the education of the public through the preservation and operation of a historic steamship, and the promotion of maritime studies particularly amongst young people for the public benefit.

Key Contacts

Keep up to date with progress/news via the Trust's website or Facebook page:

www.ssfreshspring.co.uk

www.facebook.com/SSFreshspringTrust

Membership Enquiries:
Please send an s.a.e. for a form to: Steamship Freshspring Trust, c/o Little Cleave, Lower Cleave, Northam, Devon, EX39 2RH, or you can join online.

Volunteering on the ship:
The ship is closed for the winter but if you can volunteer, please call Peter Gillett, our Ship Manager, on 01237 237 183 (email: peter.gillett@ssfreshspring.co.uk).

Registered Office:
Little Cleave, Lower Cleave, Northam, Devon, EX39 2RH

Heritage Fund

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FRONT COVER: A shot of part of the engine room for those of you who haven't been able to visit it. Main engine on the right.

From the Chair

All at the Trust have had a remarkably busy period since the Autumn magazine.

We ourselves were fortunate to be able to visit our son in Vancouver. This was a very much a heritage tour of local museums, the Gulf of Georgia canning factory at Richmond and to Hells gates on the Fraser River where, averaging 27km a day, sockeye salmon that elude the nets of fishermen make a 28 day trip to the spawning pools.

While building a railway, careless workers blasted rock to lay track and at first the blasts had little effect and the falling rock easily was washed away or lay out of the reach of the raging river. Initially a small landslide in the summer of 1913 was cause for concern, but several months after the railway crews had left, on 23rd February 1914 some 100,000 cubic yards of loosened rock slid into the Fraser. The water now gushed through a 23 metre channel; the whole character of the river at this point was changed. Restriction of the river was devastating for the Indigenous communities dependent on salmon to survive. Within a year, an estimated 20 percent of the nearby First Nations population would starve or die from malnutrition.

Government restrictions would only make matters worse. Almost immediately, the government banned net fishing in inland waters, targeting Indigenous fisheries. Later, it would outright ban First Nations from fishing between Hope and Lytton, even as non-Indigenous commercial fisheries remained open downriver.

Although work continued to remove debris, the situation spelled the end for canning factories as salmon numbers were a fraction of what they once were, remaining that way for decades.

We were able to see the remarkable work done to provide salmon runs through the rapids and by 1990, the sockeye and pink salmon numbers had largely recovered, reaching more than 80 percent of the numbers before the 1914 rockslide. This success remains tenuous, though. While their numbers are up, the salmon population has yet to rebound fully, and natural landslides remain a threat.

During the trip we viewed a steam tug, the SS *Master*. She was wooden hulled and a very rare survivor. Her sister ship was scrapped only last year. SS *Master* is 85ft long and built in 1922. Her triple expansion steam engine is Scottish built. Unfortunately, the ship last steamed in 2014 and, due to lack of funding, she only survives as a result of a dedicated team of volunteers.

We also visited the ST *Roch*, a 104 ft wooden ship, which in 1940-1942 became the first vessel to complete a voyage through the Northwest Passage in a west to east direction, and in 1944 became the first vessel to make a return trip through the more northerly route considered the true Northwest Passage.

She was also the first to navigate the passage in a single season. On 29th May 1950, she became the first vessel to circumnavigate North America, travelling from Halifax, Nova Scotia, to Vancouver via the Panama Canal. In all she made three arctic voyages. Her original 150hp diesel engine is still fitted and, quite remarkably she is exhibited inside the museum. Her Master of 20 years until 1948 was Henry Larsen.

Our Trust has now been going since 2013 and so, out of interest, I have been looking back at Chair reports and found the first one October 2013. Here is an extract:

The ship herself is, for the short term, safe where she is but her current berth is not suitable for long term restoration or for visits by the public. We are therefore very actively seeking a permanent base for the ship where we can apply for funds from the Heritage Lottery. This is the only fund which is likely to provide the support required to bring the ship back into working condition.

The long term sustainability plan for the ship is to use her for commercial passenger cruising with up to 12 paying passengers in six cabins and for educational purposes for all people. There will be a particular emphasis on inspiring young school aged children to engage in an engineering career or a career at sea. There will be courses on board ranging from engineering, navigation, boat handling and catering, with participating schools being provided with lesson plans for use in the classroom. In addition, we will work with those between 18 and 25 years old who are vulnerable and have no future prospects. Sustainability is the most important element of the project as without it we would have a ship with no purpose.

The ship was then laying in a breakers yard at Newnham on Severn. We were working to find a long term berth for her, which could have been anywhere. We did make some progress with Bristol, and I joined the Bristol Harbour Board to add some weight to our intentions. The Harbour Master was very supportive, as was the Lord Mayor. We even got to heads of terms for a lease and were discussing docking the ship at Albion Dry dock in the city. However, the Harbour Master retired and the docks were taken over by the property department, who were not interested in ships and so SS *Freshspring* was refused.

Our finding a berth was the only way to save the ship and to gain essential funding. In the 9th hour, we secured a berth in Bideford and thus were able to apply for funds to save the ship.

Our only real change of direction is that we have scaled down the potential ship activity as a result of a viability study. This showed that coastal cruising was not a viable option with only twelve people. The ship can be viable on short trips in sheltered waters.

Our education aspirations have not changed and we have achieved most of our aims and are planning more ambitious activity in the future.

I feel quite heartened that, in 2013 we set out our goals in education and, as a trust, we remain exactly on track.

We have been very active at many events this year; we had a very major Festival of Transport in August and both our stand at the event and steam engine rides were very popular. *Freshspring* was open and she was also busy. In September we had the Appledore Book Festival where we provided steam engine rides, our Virtual Reality experience, Morse Code training, trinket making, and we had a team building a small skiff. This is an ongoing project, and we hope to have the boat complete for the Spring. In September, we attended the Lynton & Barnstaple Railway Autumn Gala. Our steam engine rides were again popular and our stand was very well attended. It is good to be supporting other heritage events as collaboration is a key element of what we do.

On the ship we have had interesting times, an art day in September with a group spending time on board painting and drawing fine parts of the ship. Rob Reed, the leader of the group, has produced a beautiful painting of SS *Freshspring* leaving Bideford quay. Hopefully, we can get some signed prints of this and maybe even create some postcards.

Our AGM on the 30th September was quite an event, with excellent food provided by our own chef and music provided by our own band. The event was very well attended, and it was a day of sunshine. We kept the AGM short so people could enjoy the time on board just relaxing.

I continue to provide talks around the area and now, also on board the ship. It is always a good way of spreading the word and gaining new members. I have several more coming up over the winter. Sometimes I even get food!

Our team has been active locally in the setting up of a Torridge Heritage Group. This is led by Mike Teare, who is a *Freshspring* Trustee and Chair of another local charity, Way of The Wharves. The aims of the group are to bring local organisations together who have an interest in heritage along the River Torridge. Also, to be supportive of our local authority in proposing opportunities for grant funding such as Levelling up Funds. So far, we have some 20 organisations who are engaging, plus three local Councillors. It is really heartening that local people want to see change and are so supportive of arts culture and heritage, all three being integral to our area.

I'm afraid we have lost Kelly, our Community Engagement Officer. She now has a full time career with our local shipyard, Harland & Wolff. Our parting is positive as we now get Kelly and her two amazing daughters as volunteers, plus a link with the yard. As I write, we are almost there with employing someone to fill the job and we are very fortunate in a time when staff are

difficult to find, that we have had some very good applications. This role is funded by Heritage Lottery as is the Feasibility study which is now almost completed. The study is hugely important as it will determine the future of the ship as a potential passenger carrying vessel. So far all is looking good as her configuration as a tanker lends itself to being compliant with passenger ship regulations.

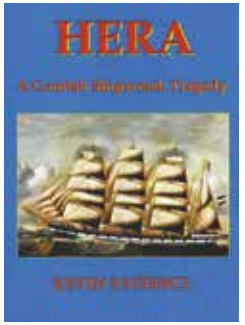
You will have been hearing from Ros, who is our administrator. She is doing an excellent job in smoothing out many areas of charity management plus restructuring membership. You, as our members, are the lifeblood of this charity and so I thank you again for being with us on this journey.

John

Book Review

Hera

by Kevin Patience



Kevin Patience is a regular contributor to our magazine with his enthralling tales of salvage and I am very pleased to be able to review his excellent publication.

This book focuses on the wreck of the *Hera* off the Cornish coast in February 1914. However, it delves much deeper into the history of the ship and the final years of sail.

There is information about the final trading routes and the cargoes carried as the demise of the sailing ships was inevitable as a result of the onset of steam power.

It is a very sad fact that many ships sailed thousands of miles across tempestuous seas only to be wrecked on their home shores. *Hera* foundered when she collided with Gull Rock just yards from the coast after a passage of 9,000 miles.

The book is a fascinating read and is very well illustrated. The author has conducted considerable research to ensure that as much information as possible is included in the book.

John Puddy

'Hera – A Cornish Shipwreck Tragedy' is available from Kevin Patience at £10 inc. UK postage via saburi@hotmail.com (overseas postage on request).

Aim Higher

Earlier in the year I had the privilege to spend a week at Harland & Wolff shipyard in Appledore, for my work experience. When I chose Harland & Wolff, it was because I have always had an interest in ships, with a keen interest in marine engineering. I was keen to get a valuable experience from an amazing opportunity.

I spent each day in a different department experiencing how each of the different specialities works and what responsibilities it contains.

I spent a day doing hot work processes such as oxy-propane cutting and welding, a day in maintenance completing PAT (Portable Appliance Testing) and HAV (Hand Arm Vibration) tests, and a day doing fire safety and hot work safety courses. I also spent a day in stores seeing the different aspects and how they store parts of the ships, a day in health and safety highlighting how important it is and a day doing CAD (Computer Aided Design) work. Each day it was interesting to see how each job played a part in the ship building process.

I thoroughly enjoyed my time there and I am incredibly grateful to have had such a phenomenal opportunity to experience what the ship building industry is like. At Appledore they have a brilliant team who were all incredibly welcoming and very friendly. I learnt so much throughout the week and I look forward to doing ship building related things in the future as I have benefited a lot from this experience and it has instilled in me that a future working with ships is something I want to do.

The message I would like anyone reading this to take away is to be brave, use work experience as the amazing opportunity that it is rather than treating it as a chore that must be done. The work experience programme at Harland & Wolff shipyard in Appledore is a new initiative; I am privileged and honoured to have been accepted on it. I have taken away so much from just one week, thanks to the passion and enthusiasm of such a great training team. I am sure that there are many other industries, much like this one, with similar work experience programmes so do some research in YOUR interests and passions to aim higher.

Natasha Routley (15)
Budehaven Community School

Britannia – back in the water at Exeter

Mike Teare

For the last five years, *Britannia* has been undergoing restoration in a tent, behind a garage in Winkleigh, North Devon, probably as far as she has ever been from the sea during her 108 year life.

Built in 1914 in Kings Lynn, Norfolk, by a well-known shipwrights, the Worfolk brothers, she is a Gaff Cutter; 58ft long on the deck, with a 13ft 6in. beam and drawing 8ft. She has a beautiful hollow bow, making her a very fast vessel and giving her beautiful lines.

Her singled-framed construction is immensely strong. All grown oak crooks were especially chosen by the boat builders from oak trees in Sandringham Forest and 100 years on they are all still intact and original. She was planked with 2in. Archangel Redwood, fastened with 5in. galvanised spikes. Total cost in 1915 was £290, exclusive of sails and rigging. Her mainsail cost £99.

Britannia worked for many years as a whelker but as the industry declined, she was eventually sold and in the 1930s she had an engine fitted and was used for trawling. In 1968 she ran aground on a spit off Boston, capsized and sank. She was pumped out and sold but her new owner ran out of money and/or enthusiasm and she was put up for sale once more.

First Restoration

In 1973, *Britannia* was purchased by Sam and Vicki Samuels. They lived on board in Lowestoft docks and after the birth of their first son, Vicki returned to work, while Sam made *Britannia* seaworthy. There were no sails, but Sam was able to rescue blocks and sails from the Lowestoft fishing fleet which was being destroyed at the time, to make way for the boom in North Sea oil exploration.

In the spring of 1974, *Britannia* was seaworthy enough to make the trip from Lowestoft to Bristol, where Vicki was living with Haydn, a pretty epic and scary maiden voyage. After two years clandestine living aboard in Bristol (the port authorities frowned on live-aboards), *Britannia* was ready to move on and during the hot summer of ’76, en route to Mylor Bridge, she stopped off in Padstow and Bideford.

1979 was a turning point as *Britannia* got a part as an excise cutter in the Smuggler TV series, with Oliver Tobias and Lesley Dunlop. Sam and a motley crew spent two weeks filming off Ilfracombe in difficult conditions. But the money earned meant at last a proper haul out for work on the hull, fitting water and diesel tanks, galley and new rigging. Next stop was the west coast of Scotland where *Britannia* became a charter boat taking out visitors learning how to sail a traditional boat. She also visited many festivals and won the won the Concours d’ Elegance in Falmouth.

Eventually, in 1996, Sam and Vicki stood on Clifton suspension bridge in Bristol and watched *Britannia* sail down river without them. For 25 years they had been her custodians, but she had had to be sold, not out of choice, but necessity.

Second Restoration

That could have been the end but this is a love story that just keeps getting better.

Sam and Vicki have been married for 54 years; but at the same time, they have been married to *Britannia* for 30! They restored her once and raised their family on board, while sailing far and wide. Now, after many years of neglect, *Britannia* had been let fall into disrepair. So, Sam and Vicki brought the love of their lives to Winkleigh where they have been restoring her once more.

After five years, hundreds of hours of volunteer time, new planking, re-decked, caulked and painted, on 19th September *Britannia* was craned onto a truck and transported 23 miles overland from Winkleigh to Exeter harbour, where she was lifted off the transport lorry. It was a tense moment as all 24 tonnes of her dangled in slings above the hard concrete.

Once lowered into the dock, she immediately began to take on water. This was to be expected as the bone-dry planks, both old and new, still needed to take up (swell with water) in order for the hull to become properly watertight. The pump did its job, the ship was lifted out again and tingles (lead patches) were fixed on the hull to help stop the worst of the influx. When *Britannia* was lowered

***Britannia* suspended above the water as she is launched.**

back into the dock, the leaking had been slowed and she was ready to float. Over the next few days, the hull took up beautifully in time for her relaunch celebration.

Relaunch Celebration Exeter Heritage Harbour Festival 24 August 2023

Britannia was the centre of attention at the festival organised by Exeter Canal & Quay Trust and the Heritage Harbour Group. Cannons were fired by the Trafalgar Gun Company as the TS Exeter Sea Scouts warped her along the quay. Mariners Away shanty group stood on the stern, singing rousing traditional songs, with the finale of "Rise up Again Britannia" a shanty written specially in her honour.

It was very special to be part of this day, talking to visitors on the quay, handing out flyers about *Britannia* and encouraging the citizens of Exeter to look after her in the same way Winkleigh had taken her to their hearts. *Britannia* will now be based in Exeter Heritage Harbour for the foreseeable future, and work will soon begin on re-rigging, fitting out down below and more. Already they have had local volunteer joiners offering their help and Exeter Brewery supported the launch by creating a special beer, Gangplank. In addition to being delicious, proceeds from the sales were donated to the Britannia Sailing Trust to support continued restoration. It's good to have neighbours like that!

An additional piece added by John Puddy:

I first saw Britannia in Gweek boatyard. She was out of the water and looked as though she would never float again. I remember Haydn's son Gareth asking me if I knew of anyone who would take her on. Shortly after, she was at Winkleigh beginning her new life.

***Britannia* settles in the water at Exeter.**

I was fortunate to see *Britannia* leave her repair yard in Winkleigh and then to watch her launch in Exeter. This was a simple and quiet affair as it was expected that there would be a few leaks, and so the boat was dipped into the harbour to determine where she leaked and then lifted out again.

With the Mariners Away shanty group on board, *Britannia* arrives at the quay on the Exeter Ship Canal.

Once out, the shipwrights set to work caulking and dealing with the known leaks. Haydn, who mastered the restoration, was calm and cool as ever as he joined the team of caulkers. After all, he knew *Britannia* better than any person alive. She was then relaunched to enable her to plym up as any wooden vessel would. The next phase is the fitting out and rigging the boat so she can return to sea.

I am so full of admiration for Haydn and Vicky, as, against all odds, they persevered and did the impossible. They are a true inspiration to all of us who attempt to preserve heritage vessels.

Long may *Britannia* continue to be loved and cared for as she starts on this new phase of her long life.

- Much more about *Britannia* and the Britannia Sailing Trust at: https://britanniasailingtrust.org

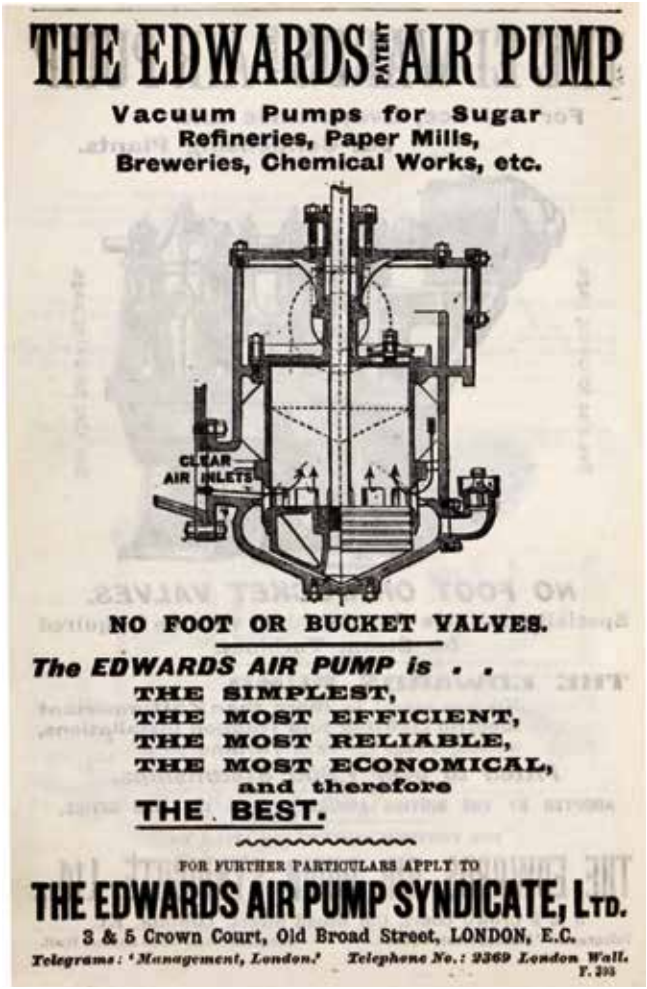
Master of all he surveys: Haydn 'Sam' Samuels looks ahead to a bright future for *Britannia* after her launch in Exeter.

Who Needs an Edwards Air Bucket Pump?

Richard Slack CEng FIMechE

Well, the SS *Freshspring* steam engine needs an Edwards Air Bucket Pump. You are probably wondering what on earth one of these is: is it for the toilet, is it for washing down the deck? Well no, it's actually a major component of the steam engine system.

The *Freshspring* steam engine is a three stage reciprocating engine. That is, it has three pistons operating at different pressures on a single crankshaft. Saturated steam from the boiler enters the first cylinder at 180 psig for the traditionalists, 12.41 barg for the youngsters or just over 12 times atmospheric pressure for the non-engineers. The exhaust steam from this stage then goes into the second cylinder at a lower pressure then on to the third cylinder at an even lower pressure. The exhaust steam from the last stage goes into a seawater cooled condenser where any remaining steam is condensed to water. As the steam condenses, a partial vacuum is formed. You can see something similar to this by putting some hot water in a plastic bottle and sealing it. As the air cools, the bottle will collapse with a partial vacuum inside



Upper chamber and valve cover plate before cleaning.

Valve plate after cleaning (lovely machined brass plate and valves).

and air pressure pressing on the outside. The *Freshspring* condenser is a thick steel vessel and hopefully won't collapse when it operates at a partial vacuum.

Without the condenser and the vacuum the engine power would be significantly reduced so it is a critical item.

So now we have water, some air (that has leaked in) and oil (from the lubrication) in a vessel under a vacuum; how do we get the water out? Just opening the drain tap would let air in and no water out and we would lose the vacuum which is not what is wanted. The answer is the Edwards Air Bucket Pump.

The bucket pump is a reciprocating piston pump located alongside the main engine and powered by a rocking beam connected to the main engine. One revolution of the engine gives one stroke of the bucket pump piston. See the advert (opposite page) for one of the pumps in the previous page, a Great British design.

Water and air from the condenser enters the pump through a port shown on the bottom left and flows on to the top of the piston. As the piston rises, it forces the air and water through plate

valves into an upper chamber. As the piston goes down, the plate valves close and a partial vacuum is formed which pulls more fluid in through the inlet or that which has collected underneath the piston via ports around the bottom of the cylinder, ready for the next stroke. This is a clever pump design which only uses one set of simple top plate valves.

As part of the renovation of *Freshspring*, we have recently dismantled the pump. Apart from it still having some water, oil and sludge in from the last engine operation many years ago, it was in remarkably good condition. Here is a view looking into the top chamber and the valves.

Here is a view looking into the cylinder with the piston still in place where you can see the inlet ports at the bottom. The cylinder walls are lovely and shiny.

The water (with some oil in) and air goes from this pump into a separator where air is removed and through an oil separator (which we understand originally used coconut husk fibre) and onto the main high pressure condensate pump which puts the water back into the boiler. The amount of water lost in the system is minimal, unlike a locomotive engine which loses its steam and water as it runs.

So we will now try and preserve this pump as the next time it will see water is when the engine is steamed; let's hope this isn't too long. You can also find some video of this pump on our YouTube channel https://www.youtube.com/@steamshipfreshspringtrust1714.

By the way, the same engine beam operating this pump also operates bilge pumps mounted alongside this pump. They are next on the list for inspection. More oil and sludge to look forward to.

Letters from Australia

John Pook

On the trail of the Democracy Sausage

Sydney 24th September

I've been here before. Our first visit was 25 years ago. The Aussies do things differently. The Democracy Sausage is a perfect example.

I've been disappointed before. There have been two general elections during our visits. I've only managed one sausage.

In the UK we vote on Thursdays – no school – an untidy gaggle of party reps outside the polling station – parking wardens circling. The Aussies do things differently – Saturdays and on offer, a tasty Democracy Sausage. In 2016, the BBC reported that one-third of the 1,992 polling booths across Australia had a sausage stand by the count of the *Election Sausage Sizzles* website.

The vote this time is different. Where a General Election is a matter of waving the divining rod to work out who's fibbing the least, 'the Voice' referendum is more nuanced.

The Voice? A potted history (*apologies*). 1770, James Cook, commissioned by the Admiralty, makes landfall in the south-east of Terra Australis. He was instructed 'do not take it by conquest' abiding with international law at that time. However, on his only visit, two Aboriginal Australians were wounded.

In 1776 America gains Independence from Britain. On 26th January 1788 Britain returns to Australia. Not to be the loser again, the (First) Fleet was of 11 ships, 250 Marines and over 700 convicts. As they began to establish themselves, fatal encounters with the indigenous people grew.

John Pook on Manly beach with Miski and Affi.

In 1788 there were an estimated 750,000 Aboriginal people in 400 tribes. Since then – through disease (smallpox was 75-90% fatal), the 'Frontier Wars' (60,000 killed in Queensland), the 'Stolen Generations' (a state policy that removed between one in ten and one in three Indigenous Australian children from their families and communities between 1910 and 1970) – their lives changed. Remarkably, Indigenous Australians were only included in the national census in 1967 and allowed full voting rights in 1984.

Today Indigenous Australians are 3% of the population, speak over 150 individual languages, have both lower life expectancy and school attainment and are 28% of the adult prison population. The 2022 parliament has eight indigenous representatives.

15 years ago, Prime Minister Kevin Rudd delivered the National Apology to the Stolen Generations and established a process called Closing the Gap.

Lack of progress has now pushed Indigenous Australians to ask for a 'Voice' to Parliament. Better, more effective influence. To quote to blurb – *On Saturday, 14th October 2023, Australians will have their say in a referendum about whether to change the Constitution to recognise the First Peoples of Australia by establishing a body called the Aboriginal and Torres Strait Islander Voice*.'

For Australians, where voting is compulsory, two dilemmas. The Voice – yes? or no? (Sadly, the No vote is predicted to win). The Sausage – bun or sliced bread? Tomato, mustard or barbecue? Onion or no onion?

'Sliced bread, mustard, no onion please' – Despite no vote, I'm closing in.

Water Management

31st October

Water. A precious commodity. Abundant, apparently, in the UK just now. The reservoirs of our friends at SW Water are at or above 60% capacity and the hosepipe ban is over. Rainfall in the South West is between 1,000mm and 2,000mm (on the moors) per year.

Australia is sometimes and in some places, hot – and with 3 people per km^2 – one of the least populated countries on the planet. Rainfall varies. Average rainfall is 165mm/year – meaningless really – as it maxes at 12,500mm in North Queensland and is driest at 'Lake' Eyre in South Australia at 120mm. The Lake Eyre Yacht Club is more a tourist photo opportunity than anywhere to grasp the tiller and catch the breeze. The lake last filled completely in 1974 and before that 1950.

Careful water management is a reality if you live almost anywhere in Australia. We're in the village of Cobargo (population 766) which is five hours drive south of Sydney. Hilly cattle country. Lush Devon it's not. Here the pastures are more yellow than green. Small lakes (dams) are scattered around and big water tanks partner every building.

Here water is a big issue. If you live in the village, mains water is piped from two fairly reliable supplies both 10km away. But even in this little centre of civilisation, everyone captures rainwater against a non-rainy day.

Our daughter lives a kilometre out of town. No mains water. They have two tanks, one a whopping 110,000 litres (half the capacity of *Freshspring*?) – the other 30,000 exclusively reserved for fighting bush fires. There are eight dams over the property, several empty. Every raindrop falling on their roofs is channelled into the tanks. Google: 'Cobargo water supply' and the first page is exclusively suppliers trucking 13,000 litres at £180 per load.

A different mindset. Next to the sink in her kitchen stands a row of big empty bottles. No running the tap waiting for the hot water to arrive from the system; the bottles are to catch this waste for the house plants and the dogs. Post-It notes in the bathroom forbid baths and recommend three minute showers. A rainy forecast is an excuse for excitement (and a bath).

Floods, droughts and fires. Australia's geography and location places it towards the top of the list of Climate Change affected countries. Thankfully it is waking up to the need to change. There's quite a lot of domestic solar; no sign yet of much industrial wind or solar generation.

Back in the UK. Who's this? Fly-fishing; The Undertones; 'Poo-Sticks'; solo single "A Good Heart"; an OBE; days with Bob and Paul; and beach swimming Down Under.

Correct: Seán Feargal Sharkey – Yer Man on the case of the water companies, the regulator and the government, Southwest Water among them. While local hosepipe bans may have been lifted, 'Putting a toe in the water' now has quite another purpose. As a country we have abundant water and yet some of the most polluted rivers and seas in the developed world. We share the mucky corner of Europe with Albania.

While in Australia: Beautiful beaches and crystal blue water. But Sharkey.

“Freshspring leaving Bideford on the Morning Tide”

The artist is Rob Reed, a well known local artist, who has created the painting as a gift to the Trust. John says: “in real life it’s amazing”.

Fun Palace

Sam Roberts

What a wonderful weekend we had for the Fun Palace this year! A last minute burst of sunshine greeted our willing volunteers on Sunday 8th October for the second Fun Palace on board the ship.

Fun Palaces are run nationwide by Libraries Unlimited as a free service to the community. They take place over three days in October each year and are completely run by volunteers.

Soundwave radio DJ Mark got the day started with lively chat and infectious energy, encouraging passers by to visit the ship and carrying out several interviews with organisers and visitors (Pic.1). Our very own John Puddy was also there to provide information on progress with the ship to listeners and several young people were able to explain what brought them to the ship for the day and talk about their plans for the future.

The activities on offer catered for all ages and abilities. Thanks to the glorious weather, we were very fortunate to be able to use the boat deck as well as the aft and main decks for our activities, which this year included an art activity run by two members of Littleham Art group, a jewellery maker and artist and glass painting, along with our usual Sunday activities – paracord bracelet making and Morse code signalling. Our VR film was also very popular on the main deck (Pic.2).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100 people of all ages attended – the youngest was just three weeks old – we didn't ask the age of the oldest, although it may well be 92… We also had a selection of doggy visitors on the day.

Mari and Rob facilitated an Art activity, using pigments which they sourced themselves from the river banks in the area. These included Bideford Black and various pigments from Fremington, a village along the Taw. Having these local materials to use and the expertise of the talented artists was a fantastic opportunity for people of all ages to try out a new skill (Pic.3).

Sue and Karen were in the wheelhouse making earrings and necklaces from pompoms and crochet – a very clever design – certainly the first time I have seen pompoms made using a fork, and very popular with our visitors!

Also in the wheelhouse was Bill, providing instruction on how to communicate if all modern communication fails! (Pic.4)

(Other activities – Morse, VR, bracelets and glass painting – are shown in Pics. 5 & 6.)


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Heritage Day

SS *Freshspring* once again welcomed visitors as part of the Heritage Open Day on 10th September. This is a nationwide event, with historic vessels being open to visitors free of charge. The day was a great success for the ship, with 91 visitors coming on board.

Lynton and Lynmouth Steam Railway

A trusty band of volunteers accompanied John to Lynmouth for the annual Lynbarn Railway Open Day on 23rd September. John Puddy worked tirelessly to give steam rides to eager participants and staff manned a gazebo providing information on the Trust and details on membership and volunteering. (Pic.7)

Appledore Book Festival

The festival kicked off with the Family Fun Day on 16th September. *Freshspring* staff and volunteers were there with our gazebo and information for new members and anyone interested in the work of the Trust. A trusty boat building team were there to start building the tender – an on going project planned for the closed season. This is a project which will be built on the boat deck of the ship. Followers will be able to see progress online via YouTube and local schools and community groups are very excited to follow what is going on, so the book festival seemed like an ideal opportunity to kick start this project.

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In addition to the tender build, volunteers gave demonstrations of knot tying, paracord bracelet making, steam engine rides and the ever popular VR experience. 102 people watched the VR and 128 had rides, so a fantastically successful day all round!

We also attended the Maritime Day in the Community Hall. This was an all day event where different speakers presented aspects of the maritime history of Appledore and the area, along with an informative update on current developments at the Harland & Wolff shipyard and council plans for regenerating part of the old fish dock. Our two Petes continued with their tender build, but due to a lack of space (a much larger audience than anticipated by the organisers), they adapted their plans and shaped an oar to demonstrate their considerable carpentry skills instead.

New members

We welcome the following new members of the Trust:

Ms Helen Ratcliff	*Partney, Lincs*
Mr & Mrs Joelle Ness	*Appledore, Devon*
Mr Martin Kemp	*Barnstaple, Devon*
Mr Geoff Matthews	*Walsall, West Midlands*
Mr John Tall	*St Martin, Guernsey*

The Barcelona

Saudi Arabia – 1981

Kevin Patience

One morning in June 1981, over a cup of coffee in the office in Bahrain, the VHF radio burst into life on Channel 16 with the words, '*Mayday - Mayday - Mayday. This is the tanker Barcelona outbound from Ras Tanura in Saudi Arabia and we are sinking by the bow*'. This dramatic statement had myself and two partners out of our seats and over to the radio to listen to what happened next. Simultaneously we opened our Lloyds Ship Register and looked up the ship details. She was a 122,700 ton tanker, 1,000 feet long, built in 1973 by Astilleros Espanoles, Cadiz, Spain and just happened to be the sister ship of the *Amoco Cadiz* that broke up off the French coast in 1978.

***Barcelona* and *Oriental Majesty* during discharge.**

Barcelona was under the command of the pilot at the time of the call and he noticed the bow slowly sinking and hurriedly steered the ship out of the main channel and over to one side where the bow came to rest on the seabed in sixty-five feet leaving eighteen inches of free board to the deck. She was laden with 122,000 tons of Arabian crude which would present a massive pollution problem if the hull was damaged. Smit International were awarded the salvage contract, having sent their representative to the owner's office in Spain, and mobilised a team with twenty tons of equipment flown out from Holland to Dammam port. Later that day I received a call from Smit's office in Bahrain to assemble divers and equipment to be loaded on the floating crane *Magnus III* alongside in Bahrain. In the meantime, a lightering tanker, the *Oriental Majesty*, had been chartered by Smit and arrived alongside *Barcelona* to take off the contaminated sea water and oil cargo while a second tanker, *Safina Swift*, was on standby to take the remaining uncontaminated cargo. We arrived alongside the *Barcelona* the following morning and stepped down from the *Magnus* onto the deck of the *Barcelona* she was so low in the water.

Deck view of the *Barcelona* and *Magnus III* alongside.

Hydraulic power packs driving the pumps.

***Barcelona* and *Safina Swift* on completion of the salvage.**

Hydraulic pumps were set up and the sea water/ oil mix cargo was discharged into the *Oriental Majesty*. A diving inspection around the hull showed no external damage; however, an inspection of the cargo tanks showed that the centre bulkhead had collapsed in No.1 tank and sea water and oil had flowed from the tanks along a ruptured main ballast line into the fore peak which had been empty and was now full of 4,000 tons of sea water and oil. This dramatic loss of buoyancy had been the cause of the sinking bow.

Over the next few days, the contaminated cargo was emptied and the *Oriental Majesty* sailed to be replaced by the *Safina Swift* which a few days later sailed, leaving the *Barcelona* afloat once more. My diving inspection under the hull showed a small triangular piece of hull plate around two feet long had been broken inwards by the collapse of the internal bulkhead and that sea water and oil mixed together had filled all the empty tanks and forepeak. We secured a small steel patch over the hole and the ship sailed for Bahrain for a final check and clearance to proceed to Singapore for repair. During the salvage operation, the salvage master and I toured the ship and discovered that navigation and electronic equipment on the ship's bridge was very basic and the standard of welding around the vessel was poor. It was concluded the cause of the bulkhead collapse was probably due to a combination of poor quality steel, welding and corrosion.

The *Barcelona* returned to service and on 15th May 1988, the Iranian oil terminal at Larak Island in the Straits of Hormuz at the entrance to the Arabian Gulf was bombed by Iraqi warplanes setting fire to five tankers of which the *Barcelona* was one and had around 120,000 tons of crude aboard. The ship was beached but suffered two more explosions, broke in half and sank. The strike operation had required in-flight refuelling in view of the distance from Iraq. We, however, declined to get involved with the salvage on this occasion. The ship was eventually salvaged and the two halves were scrapped at Alang and Gadani beach two years later.

***Barcelona* on fire after the bombing – 15th May 1988.**

Lighthouses and the end of sweeping looms

Mike Teare

Remember the first time you saw the sweeping light from a lighthouse moving across the dark sky? Whether you were on land or at sea, lighthouses are quite magical places. It's something about their nature: solitary, strong, stormbound and stories of maintaining the light and the heroic rescues.

Lighthouses in Bideford Bay.

It is astonishing that many of these lighthouses exist at all. Building towers up to 50 metres high is difficult enough but building them on exposed rugged cliffs and in surging seas is as difficult as architecture and building engineering can get. Early attempts usually quickly fell over, burnt down or were simply washed away.

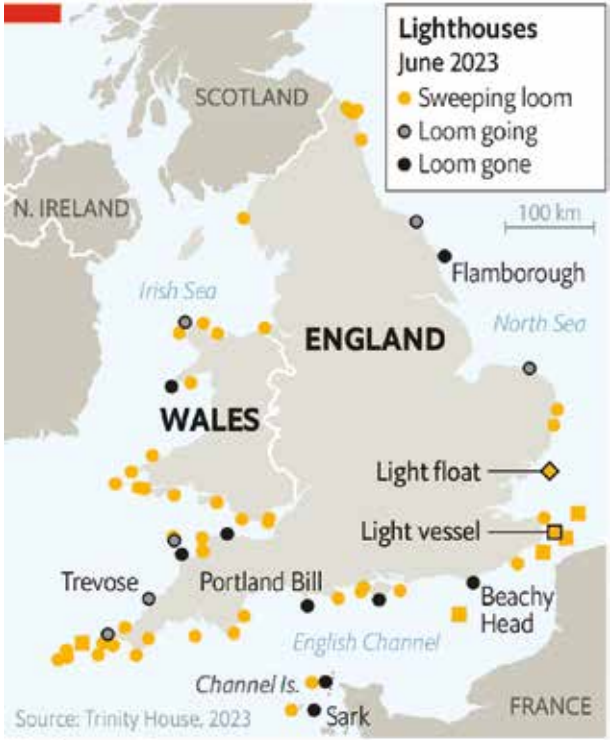
Difficult also to understand today is the weight of opposition there was initially to their construction: flying in the face of religious beliefs about the purpose of God and fate of men that mere mortals should not attempt to obstruct. And then of course there were local communities who felt a light might reduce the wrecks onto their shore and the consequent benefits that came to them from the sea.

It was John Smeaton, a Royal Society engineer who, in 1756, decided to do something different. Using the oak tree as his inspiration, he created the tall, tapering, curved structure that withstood winds and storms. There are 66 lighthouses around the English and Wales coasts today, some so slender that, like an oak tree, they sway in the wind. The lighthouses may be the grandest but they are just some of the thousands of lights that gird the coastline and entries to ports. It's a coastal Christmas display of red, green, white, some flashing, others turning or still. Each one is precisely positioned, a trigonometry grid that allows sailors to navigate. Veer off course too much in one direction

and lights no longer line up or a green light turns red and you're running the risk of leaving the safe channel and heading into danger.

Dark-light-dark-light, for over a hundred years, as the sun goes down, the lights have been revolving, the beams sweeping across the sky, the sea and the land. But now that is changing.

For all their grandeur it is not the power of the light source that is important. The light for Trevose lighthouse in Cornwall comes from a 35 watt bulb, small enough that it would fit in the palm of your hand. It is the Fresnel lenses that give the lights their brilliance.



The Fresnel lens is a type of composite compact lens which reduces the amount of material required compared to a conventional lens by dividing the lens into a set of concentric annular sections. The simpler dioptric and purely refractive form of the lens was first proposed by Georges Louis Leclerc, Compte de Buffon, and then independently reinvented by the French physicist Augustin Jean Fresnel (1788-1827) for use in lighthouses.

The way it works is that light is bounced back and forward within the lens until it becomes a beam that can travel up to 40km out to sea. The big advantage of Fresnel lens design is the substantial reduction in thickness and thus mass and volume of material required. A Fresnel lens can be made much thinner than a comparable conventional lens, in some cases taking the form of a flat sheet. It does reduce the imaging quality of the lens, which is why precise imaging applications such as photography usually still use larger conventional lenses. In the first and largest Fresnel lenses, each section was actually a separate prism. 'Single-piece' Fresnel lenses were later produced, being used for headlamps, brake, parking, and indicators on vehicles.

But back to lighthouses, the lamp and the lens can send the light out to sea but how to get it to flash? Each lighthouse has its own unique code of flashes. Trevose flashes twice every seven and half seconds, Beachy Head twice every 20 seconds. To do this lamp and lens unit revolves, creating both the flash out to sea but also the sweep of light over the coast. The lens and lamp unit is vast, up to three tons weight, but by resting it delicately on a bed of mercury, it can be turned with the push of a finger. A timing mechanism turns the lamp/lens unit at the required revolution and the effect is of a lamp flashing.

This is something that can be achieved much easier and more cheaply with modern LED lights. Mercury is highly poisonous and so doing away with the mercury bearings will be safer and mechanical turning has more parts to wear out and go wrong so overall this technology will be cheaper to run. There was never any need for the sweep of light, it was a side effect of the technology used to create the flash.

In future the mariner will still see the unique code that helps confirm their position but there will be no more sweep of light over the coast. Trinity House, the organisation that looks after lighthouses in England and Wales (Scottish lights are managed by the Northern Lighthouse Board), is converting all lighthouses to LED lights. Trevose Head lighthouse is due to lose its sweep in November. Closer to Bideford an assessment of the requirements for navigation off Hartland Point determined that the light at this location could be reduced to a nominal range of eight nautical miles. Consequently, the old light was decommissioned in 2012 and replaced by a more economical LED beacon in front of the original lighthouse.

So, if you are lucky enough to watch the sweep of a light from a lighthouse on the shore or at sea look carefully it may be your last opportunity.

https://www.trinityhouse.co.uk/lighthouses-and-lightvessels

Point of Ayre lighthouse on the Isle of Man, red and white striped for easier identification in daylight.

The sweeping beam of a lighthouse is soon to disappear...

Little and Large – a tale of models and vessels somewhat bigger

David Hunter

At the age of seventeen and straight from school, I was fortunate enough to obtain a five year operational apprenticeship with the then major oil company Shell Mex & BP. The purpose of these apprenticeships was to teach young people the skills and knowledge required to safely run oil distribution locations in the future.

At the time I lived in south-west London and was able for the first four years to move around various locations on that side of London. Two of these locations were alongside the River Thames and it was there that I first became involved with deliveries of stock in by water.

Some of these deliveries came by dumb barge, towed upriver by tugs from refineries at the mouth of the Thames, or by self-propelled estuarial craft. Not large scale by any means but you have to start somewhere!

Once my apprenticeship was over, I was posted to various locations over the years, three of which were sea-fed by coastal tankers from UK refineries. These vessels were mostly company owned, the largest carrying some 2,500 tonnes of finished petroleum products for storage and then onward distribution by road vehicles to customers.

In 1974 Shell Mex & BP was dissolved, with personnel and assets rebranded to either of the parent companies, Shell or BP. I was assigned to BP Oil UK where I remained until early retirement in 1993.

I should emphasise that all my dealings with shipping were land based, apart from the odd meal onboard, involved with the receipt of their cargoes. Operation of the ships was always left to the crew.

As an added involvement at one location I also acted as a ship's agent. Not onerous but interesting nevertheless.

My last posting to a sea-fed location was to the then BP Terminal at Yelland, between Bideford and Barnstaple in North Devon. On retiring, I moved back to the Bideford area, hence my subsequent involvement with *Freshspring*.

More of that later.

Having moved home several times during my career and sometimes working seven days a week and on shifts did not allow time for hobbies. The only spare time I did have seems to have been spent on DIY – improving houses for other people to move into.

Once retired, sport, growing flowers and vegetables and more DIY took up my time. One day a penny dropped and thoughts of a different way to spend time kicked in.

As a teenager I used to build and fly large wingspan sailplanes; no radio control in those days. I discovered that people do build and fly this type of model locally, now with radio control, but launch them from cliff tops to fly out to sea. Not my idea of possibly losing an expensive model.

An article in a local newspaper in 2006 advertised an open day run by Kenwith Castle Model Boat Club near Bideford. Not knowing anything about model boats, I went along and was impressed by not only the variety of model boats of all shapes and sizes but also the beautiful lake on which they sailed.

As I thought that losing models was unlikely as they are all radio controlled and the club has a rescue dinghy in which to retrieve any breakdowns, I decided to join the club and reaquaint myself with water.

I am still in the club today and this is where the "little" in the title of this piece comes from.

Over the years I have built and sailed eight radio controlled models ranging in both size and scale. All but two of these models were built from kits with the other two scratchbuilt using bought in fibreglass hulls and plans. The scale of

the models range from 1:16 to 1:50 (one quarter inch to the foot).

As the lake at Kenwith is nearly two hundred yards long, most of my models are one metre plus long and brightly painted. Much smaller, and more than thirty yards from shore they become difficult to see. The largest of my models is a five foot long tug which, when sailed towing a four foot long barge together with tow rope, gives a model nearly eleven feet long.

Most models take at least a year to build but my latest model was started in February 2021 and it is still not finished. It is a four foot long model of a former cross-Channel car ferry, built to a scale of 1:96 (one eighth of an inch to the foot). The larger the original vessel, the scale increases, otherwise the models become too large and heavy.

With the passing of time, radio control of the models has become more sophisticated with the use of mobile phone technology.

In days of yore radio frequencies could clash and if two people were using the same transmitter and receiver frequencies, they could end up controlling each other's models. Today frequencies are specific to a model and as each model's receiver is separately linked to the transmitter, interference does not happen. Another benefit of this modern technology is that transmitters can be linked to multiple models, with eight or more channels to control different functions. Control of the different functions of my models is by minature computer modules and servos.

Aside from rudder and speed control, models can be fitted with a wide range of working parts including bow thrusters, lights, sounds, radar scanners, anchor winches and water cannons. Plenty more parts can be made to operate if space allows.

Power for all my models is by different size rechargeable batteries which also provide some of the ballast weight required to stabilise models to the correct water line. Electric motors also vary in size according to model length and weight and I always use custom fit propellers. Models can also be powered by live steam engines and also of course, wind.

In addition to the models I have built, I also have two large yachts which I bought. As our lake contains numerous large carp fish and the keels on the yachts are fairly deep, any sudden halt to sailing means that fish and keel have met one another. To date no fish have been seen to float to the surface so no harm seems to have been done.

Building models requires experience – you don't start with submarines – dexterity, in some cases plenty of brain power and not least, endless patience. There is, however, immense satisfaction when a model is finished, sailed for the first time and most importantly returns to shore.

For some years now my club has supported the Appledore Lifeboat Guild & Crew funds by holding exhibitions of our models at local supermarkets and other local venues. Local people have always been generous and to date we have raised over £6,300. Models not only provide club members with a great hobby but also help to raise money for a very worthwhile cause. You never know when you'll need a lifeboat!

Since about 2010 I have been Secretary of my club and in this role I was contacted by the then administrator of the *Freshspring* society. She was seeking volunteers to become stewards and look after visitors to the ship when it is open at weekends and other times. A few of the club members expressed an interest and joined up.

This was before Covid shut everything down so I decided to join with them. In the early days we used to take visitors around the various parts of the ship that were open. After Covid it was decided just to only meet and greet and tell visitors about the ship and which way to move around the ship to get the most from their visit.

I am still volunteering but unfortunately visitor numbers have dropped significantly. Hopefully 2024 will see an upturn.

So Little and fairly Large still play an important part in my life.
Long may it continue!

This detailed pastel painting by Rob Reed focuses on an essential part of any steam engine. The crosshead joint, which is shown, eliminates sideways forces on the piston caused by the rotation of the crank. Forces are taken by the crosshead guide or slide, which can be seen behind the joint. The engine on SS *Freshspring* is inverted, which means the cylinders are above the crankshaft and so, in the painting the piston rod is at the top and the connecting rod is shown below. From the painting we can even determine that this is the high pressure piston, which has the rocking lever drive to the air pump as described by Richard Slack in his excellent article.

Leaving a legacy to the SS Freshspring Trust

The Steamship Freshspring Trust has benefitted greatly from the generosity of its members and friends who have left or given money to the Trust.
Legacies provide very necessary financial support in helping the Trust to meet its stated objectives of preserving the past and inspiring knowledge for the future.
If you would like to think of giving the SS Freshspring Trust a legacy, it could not be easier: The following codicil can be completed by you, witnessed, and kept with your Will.

CODICIL
I (full name).....

of (full address).....,.....

.....,.....
declare this to be the (1st/2nd/other.....) codicil to my Will dated.....

I give, free of Inheritance Tax, the sum of

£..... (.....pounds)
to the SS Freshspring Trust of Little Cleave, Lower Cleave, Northam, Devon EX39 2RH (Registered Charity Number 1151907), absolutely for its general charitable purposes.
In all other respects I confirm my said Will.

Testator's signature:.....Date.....

Signed in the presence of:

First witness	Second Witness
Signature	Signature
.....	.....
Full name	Full name
.....	.....
Address	Address
.....	.....
.....	.....
Occupation	Occupation
.....	.....

Note: The witnesses must not be your executor, your executor's spouse or a beneficiary of your Will.

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