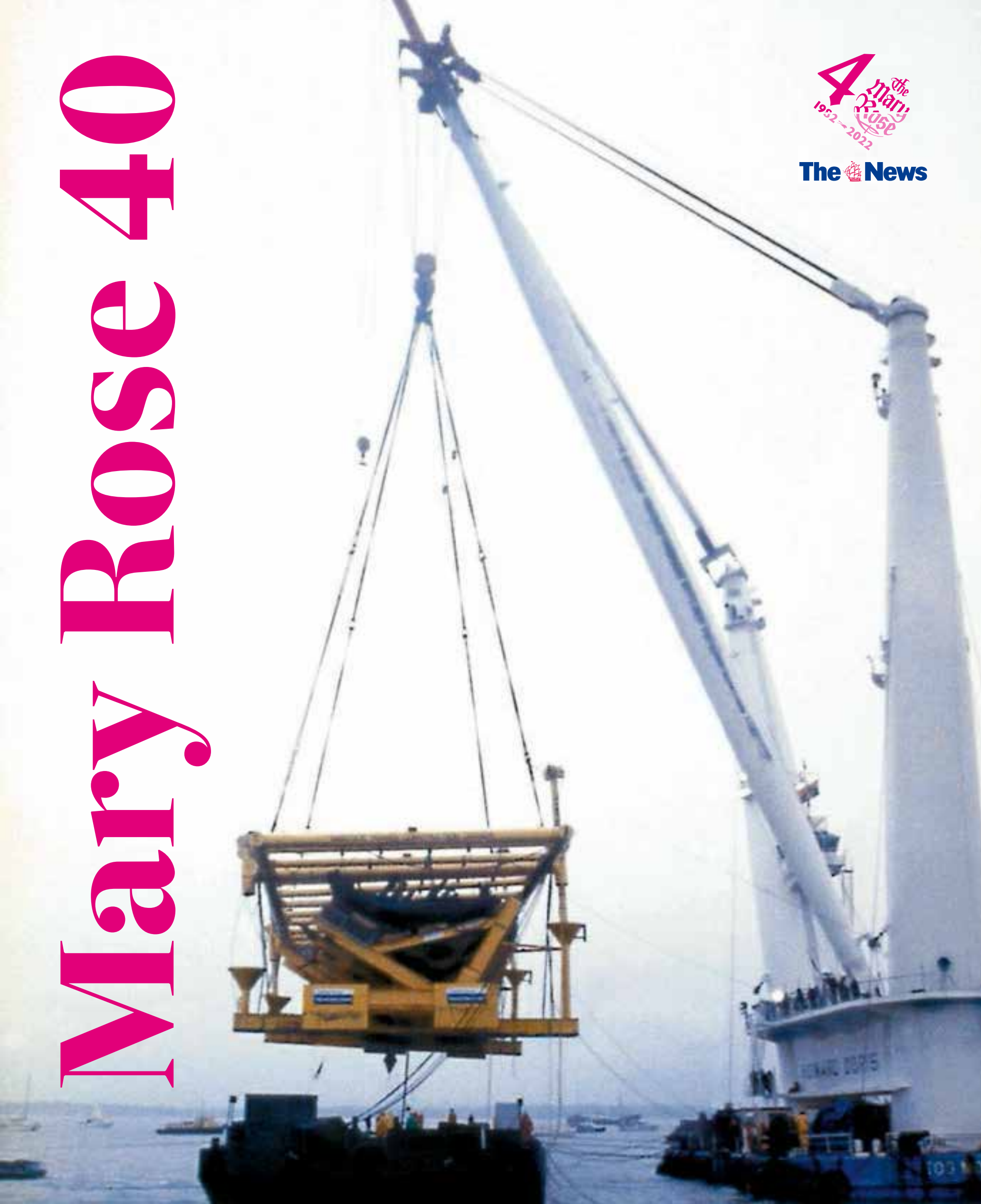


Mary Rose 40



The News



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Credits

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MARY ROSE TRUST CEO LOOKS TO THE PAST AND FUTURE

Is it really 40 years since she was raised?

IF the last few years have taught us anything, life is fragile and time can go quickly. It is hard to believe that the raising of the Mary Rose was 40 years ago. The Mary Rose is one of the biggest maritime salvation operations ever to have taken place in the world. It is hard to think that far back, but 40 years ago this very month she was raised to triumphant applause and watched by over 60 million people on TV - we were even the reason for the world's first live underwater television broadcast. I remember watching it on television at my own school and on Blue Peter. However, what I love most to hear are the memories of our staff, volunteers and guests who witnessed history on October 11 1982.

The Mary Rose was and always will be 'Portsmouth's Mary Rose'. She was built in Portsmouth, crewed by people from Portsmouth, sailed from Portsmouth and on that fateful day in 1545, she protected Portsmouth in the biggest invasion this country has seen - twice the size of the Spanish Armada. She then sank defending Portsmouth and was at the bottom of the Solent, just off Portsmouth's coast, for some time, despite many attempts by Tudor divers, including the legendary Guineaborn Jacque Francois. She was then lost for hundreds of years near Portsmouth until the Dean brothers found her and started to strip and take possessions to sell in Portsmouth. Yet again, the Mary Rose was lost until 1971, when Alexander McKee and his team found her in the Solent - so you could say she was also found in Portsmouth! Then Margaret Rule and her team helped to pull off the impossible, finally excavating and raising the Mary Rose in Portsmouth, bringing the ship to her final resting place at Portsmouth Historic Dockyard - sharing her story for all the world to see, all



'The Mary Rose will always be 'Portsmouth's Mary Rose' - Dominic E Jones, CEO Mary Rose Trust

from in Portsmouth. So, in every way, we are proud to be home to 'Portsmouth's Mary Rose'.

I hope you enjoy this nostalgic look back on the finding, excavation and raising of the Mary Rose.

None of this could have been made possible without the late Alexander McKee and Margaret Rule, as well as the 500+ volunteers and divers, not to mention the Royal Engineers, all of whom we wouldn't have been able to raise the Mary Rose without.

It still gives me goosebumps when I think of the human endeavour they all overcame to bring the Mary Rose to the surface and to share her with the world.

Forty years on we are still at the cutting edge of science, maritime archaeology, conservation and Tudor life. There is nowhere on earth you can get closer to Henry VIII's England than at The Mary Rose Museum. We have the biggest collection

of everyday Tudor objects in the world and continue to learn from it every day. Prior to the pandemic we launched "The Many Faces of Tudor England" exhibition which examined nine of our crew through isotype and DNA analysis. The results showed some of the nine were Anglo Saxon, others Spanish and Venetian and two of North African heritage - both living as free men in the UK. That is a real diversity story from 500 years ago.

We are currently working with the University of Portsmouth's newly created CCIXR department on interpreting the collection and ship in new ways such as virtual reality, holofan and leap motion technology.

We are changing how we carry out learning and education, which has been a rite of passage since 1983, and are starting to build our new 4D attraction which launches in spring 2023.

More than 140 people still volunteer today at the museum

and in the collections team. We still have more than 90 divers involved in our legacy diving group and have an incredible team of trustees, staff and volunteers who, similar to the crew of Henry VIII's warship, work around the clock to ensure we keep delivering our purpose: To care for and research the world's largest Tudor collection. To tell the stories of Tudor life and human endeavour for the inspiration, engagement and benefit of all.

I couldn't be prouder of all our staff, trustees and volunteers past and present.

Please enjoy this special supplement and, if you can, please come and visit us soon at the Mary Rose Museum. As an independent charity, 84% of our income comes from visitors, so you really are making a difference to the ship, the collections and our team when you come and visit

Dominic E Jones
CEO Mary Rose Trust
October 2022



Flashback to 40 years ago and October 1982 – the raising of the Mary Rose

THE DISCOVERY OF THE MARY ROSE

Mad Mac's Marauders find Solent's 'ghost ship'

For me it was a great thrill. A feeling of connection, as it were, with Henry VIII made it even more intriguing.

The words are those of King Charles III, but spoken at a time when he was the Prince of Wales and had just surfaced after diving on the long-submerged wreck of the Mary Rose. The year was 1975 and came four years before he became president of the Mary Rose Trust.

But having the first royal sight of the historic vessel since King Henry VIII watched in horror as she disappeared beneath the Solent in 1545 would not have been possible had it not been for the imagination, tenacity and underwater skills of a military historian from Hayling Island - Alexander McKee.

Mr McKee passed away in 1992. He was awarded the OBE in 1983 for discovering the Mary Rose, a deserved accolade for a man who had carried dreams about the ship for almost his entire life. Without his endless and meticulous calculations and undersea endeavours, she could still be lying undetected in the Solent mud to this very day.

Mr McKee had known about this 'mysterious ghost ship' since he was a toddler. But it was not until he acquired the skill



It was a wonderful sensation because I predicted all of this would be under the seabed. It was like predicting a Pompeii at sea.



Salvage divers Paul Chisholm, left, and Simon Jones just after the lift

of diving while serving in the Army after World War Two that he could actually do something more about it.

In 1966 he made two vital discoveries - both in dusty offices on dry land. The first, at the Public Record Office in London, consisted of a long-forgotten file containing correspondence between the authorities and three ancient inventors and pioneers of diving equipment, brothers John and Charles Deane and William Edwards.

That same year Mr McKee married that up with a large-scale chart, kept at the Ministry of Defence in London, showing the position of the ship as recorded by John Deane in 1836. This disproved four other theo-



Alexander McKee is among those onboard on a mission to locate The Mary Rose

ries of where the Mary Rose may have rested.

These discoveries came at a time Mr. McKee was getting "Solent Ships" off the ground. This project was, for all intents and purposes, aimed at locating and investigating historic wrecks off Portsmouth. But he was later to admit that it was merely a "smokescreen". His eye was on the prize of finding the Mary Rose.

By now Mr McKee and a handful of fellow diving enthusiasts - Mad Mac's Marauders - were continuing their research in the water. No wreck was found on the seabed at the spot marked by Deane but the team soon came across a disturbance pattern on the seabed that was definitely created by some sort of wreck.

The real breakthrough came in October 1966, when Mr. McKee was out on a steamer in the Solent with scientists demonstrating two sonar devices.

"We had a very tight schedule," Mr. McKee recalled at the time the ship was raised in 1982. "We were on our way back to South-

ampton Water when I was told I could have ten minutes to have a couple of runs over the site with the sonar. But I managed to spin it out to 20 minutes. The sonar recorded an anomaly in the seabed at the position where the Mary Rose was calculated to be.' That anomaly was 200ft long and 75ft wide and mimicked the shape of the hull of a ship which had disappeared from view after the upper parts had collapsed. For McKee, he was '85 per cent sure' this was the Mary Rose.

What followed was years of dedicated work and courage of around 500 divers working in cold Solent waters and often unable to see as far as a flippered-foot length. That painstaking work below the surface, compiling on-the-spot logs and diagrams of every mission, continued through the late 1960s.

Mr McKee recalled those early diving days when he and the other four aqualung divers had to undress and struggle into skin-fitting rubber suits on a Portsmouth beach before heading out to sea.

They vacuumed away ever-encroaching weed, encountered swarms of black and silver striped whiting pout, big green pollack and a conger eel, plus sewage and crude oil. Digging was done by hand or with garden-type trowels.

During the winter months, gusting winds could reach Force 6 or 7. In their dark silent world, where walls of mud could collapse without warning, a message announcing "Surface immediately, weather worsening" would appear written on a small blackboard.

Despite the conditions many men and a few women gave up their free time to this enterprise which had no guidelines as there were no professional underwater archaeologists.

Mr McKee recalled an experience that he would never forget. "I was diving on her at the time and swam along her gun deck - a genuine gun deck where there was ammunition among the guns and the skeletons of the crew still in their uniforms.

"It was a really wonderful sen-

2

The number of vital discoveries Alexander McKee made in 1966 to help him plot the position of the Mary Rose

85

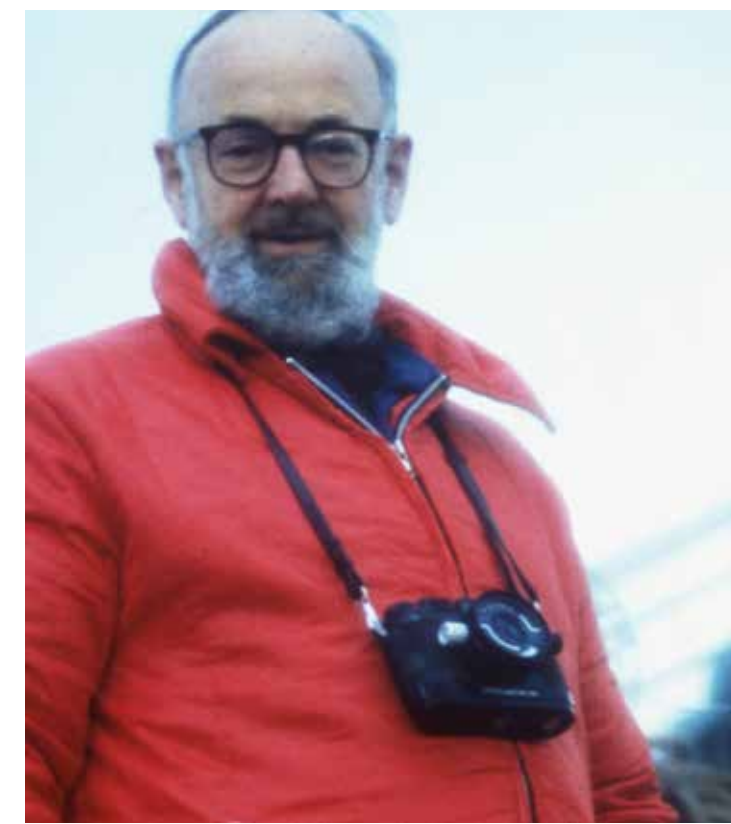
Scientists using sonar devices in the Solent recorded an anomaly in the seabed which was 200ft long and 75ft wide and mimicked the shape of the hull of a ship. McKee was 85 per cent sure this was the Mary Rose.

sation, because I predicted all of this would be there under the seabed. It was like predicting a Pompeii at sea. Marvellous."

In 1970 the discovery of a gun, unexpectedly cast in one piece instead of being built-up of thin strips, began to convince even the most sceptical of outsiders that this underwater probe was on the right site. But it was another nine years before the exciting discovery of a culverin - a cannon with a long barrel - decorated with a Tudor rose and with the first Tudor shipboard gun carriage ever seen that the proof was conclusive.

Mr McKee forecast it would cost millions of pounds and take years of work to raise and restore the ship. And he also predicted that if Mary Rose could be placed on public exhibition it would become a showpiece for Portsmouth, a magnet for tourists and prove as great an attraction as HMS Victory.

It showed that his hunches were not confined to his underwater work in the cold, murky depths of the Solent.



Alexander McKee

FROM THE SEABED TO A NEW MUSEUM

Tudor ship's figurehead left a legacy to the nation

It is by a quirk of fate that the person whose name is most synonymous with the remarkable excavation of the Mary Rose shares the same initials as Henry VIII's doomed flagship.

Margaret Rule was the archaeological director for the project which many thought impossible: "to find, excavate and preserve for all time such remains of the ship Mary Rose as may be of historical or archaeological interest".

Rooting around in the mud and the silt for remains of such historical significance was not new to her. Doing so in the perishing cold of the Solent was but, wanting to lead from the very front, she not only learnt to dive but then took part in 800 of her own underwater explorations over a period of 12 years.

For Margaret had made her name just 19 miles east of where the Mary Rose Museum now sits.

Having started a degree course in chemistry at London University she later switched to a field course in archaeology, helping to excavate bomb sites in London after World War Two. In 1949 she married and moved to Sussex and by 1960 was on a local archaeological committee at Chichester.

Following the discovery of Ro-



It was a horrid job in very murky, cold water. But the sheer joy of finding and excavating the structure far outweighed the despair.



Peter Ewens and Margaret Rule with the Mary Rose's watch bell

man remains in a field at nearby Fishbourne, Margaret and archaeologist Barry Cunliffe met the landowner in January 1961. He agreed to a trial excavation, which led to the discovery of Fishbourne Roman Palace. When the Sussex Archaeological Society built a new museum there in 1968, Margaret became its first curator.

By this time she had been approached by historian Alexander McKee, who told her of his passion to find the wreck of the Mary Rose and his need for archaeological help. It was outside her experience but started a relationship with the ship which continued until her death in 2015 at the age of 86.

Margaret realised that she

had to learn to dive and she was soon searching the seabed with Mr McKee as part of Mad Mac's Marauders. She supervised the work being undertaken and set new standards of maritime archaeology, being central to the oversight of a close team that fought against the odds to recover the ship.

The consequences of finding the ship were enormous, for at that time the law did not recognise the existence of historic shipwrecks. But it was a far from glamorous task.

Recalling her time underwater in the days before the Mary Rose was lifted from the seabed in October 1982, she said: "There was no glamour in diving on the Mary Rose. It was a pretty horrid job in very murky cold water.

"But the sheer joy of finding and excavating the structure has, for me, far outweighed the despair. The thrill of swimming underneath her gave one a first-man-on-the-moon type of feeling and that outweighed any of the traumas.

"Now that the beginning of

the end has been reached, it is a tremendous thing for all those people who gave hundreds of hours, their effort and work for nothing in the early days. It will give a whole new meaning to their lives and they will be able to tell their children and grandchildren: 'I did part of that'."

As excavation of the site began in earnest, Margaret gave up her job at Fishbourne and, with the creation of the Mary Rose Trust in 1979, became archaeological director, project spokeswoman and chief cheerleader in persuading sponsors to back their endeavours.

She also established a skilled team to train around 500 volunteers to dive and many more to help manage the huge number of antiquities that were being recovered. Within the trust's decision to excavate the entire wreck, Margaret was a member of the committee set up to decide on the method of bringing it to the surface.

As Margaret watched with immense pride as the Mary Rose was brought by barge into



'The thrill of swimming underneath her gave one a first-man-on-the-moon type of

feeling' - Margaret Rule in front of the Mary Rose

Portsmouth, she knew that this simply marked a new chapter in the story of the ship's history. A new museum was needed for the ship and an archive created of the historic artefacts recovered.

Her own favourite objects were the musical instruments, which gave a new insight into recreational life on board. She said: "I'm not musical myself, but would love to hear Tudor music played on modern replicas of these instruments. There is a little pipe which was played by one man as he also beat a small drum, just like a busker of today."

But she was also thrilled when the ship's bell was discovered, happily preserved in a silt blanket. It bore the figure 1510 in Roman numerals, confirming the date the Mary Rose was built in Portsmouth dockyard. "To find a ship's bell like this is so very rare," she said.

The timing of the iconic discovery was apt. For just three days later, the many years of diving by volunteers ended, and the professional team took over to

prepare for the ship's big lift.

At the time of her death, Rear Admiral John Lippiett, the then Chief Executive of the Trust, said Mary Rose was Margaret's 'legacy to the nation'.

"Resolute, professional, full of drive and determination to fulfil the mission against the odds, she oversaw what is recognised to be the world's largest maritime excavation, and one which set the benchmarks for future projects. She was the front figure for the Trust in those first, vital stages of the project and successfully managed to get the vital backing and funding," he added. "Her sheer drive and will power had much to do with the eventual success. Margaret was an inspiration to the countless staff and volunteers involved both then and ever since. I have had the privilege of getting to know her well, and was able to keep her closely informed of all the continuous progress. She was so very pleased to see the newly finished museum, and loved it - a dream she had had all those years ago."



Margaret Rule pictured with the Mary Rose in 1992

COUP OF THE CENTURY FOR MARY ROSE

Weather & gremlins can't stop historic lift

WE HAVE LIFT-UP. And in those words, *The News* announced the 'coup of the century' on Monday, October 11, 1982, as the wreck of the Mary Rose was safely hauled clear of her Solent grave.

It marked the first time her timbers had seen daylight for 437 years and the climax of a 16-year operation to find and raise her.

It would be hoped that she would not have taken offence as reporters spoke of her 'black, smelly hulk' emerging from the water at 9.03am.

The occasion marked a dream come true for Hayling Island historian Alexander McKee whose imagination had led to the discovery of the wrecked Tudor warship and his tenacity had seen through to the end the mission to raise her.

But as much as that journey from discovery to recovery had been filled with tension-filled twists and turns, there was enough drama packed into those final days leading up to the historic events of October 11 to make you wonder whether the Mary Rose felt happier staying where she was.

The biggest battle faced by those heading the mission was one beyond their control. It was



There was enough drama leading up to October 11 to make you wonder whether the Mary Rose felt happier staying where she was

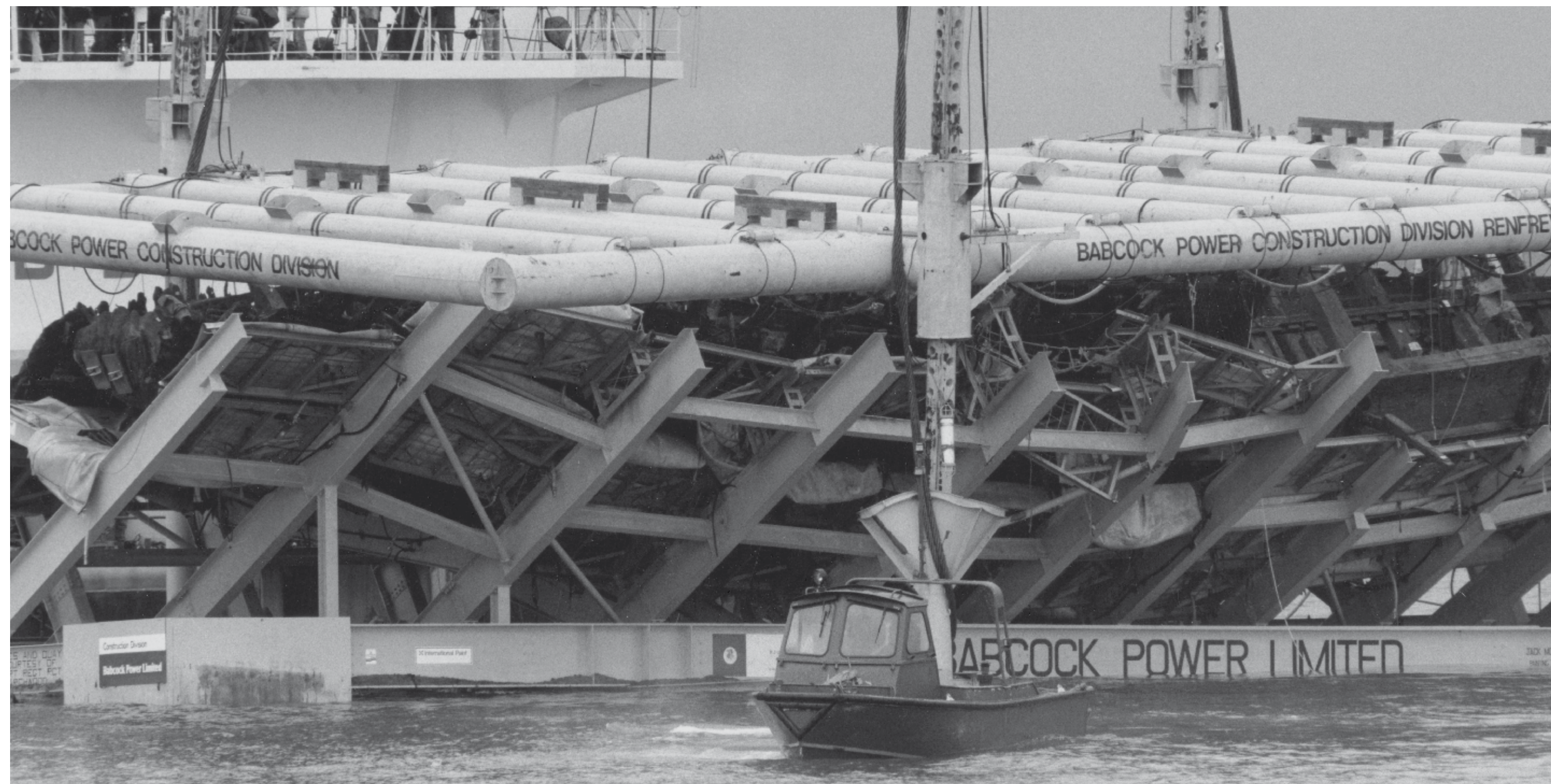


The cradle and barge

a fight against the elements as success was critically dependent on the weather and having to precisely match the right tidal conditions.

The second challenge was the sheer technical scale of the lift - this was, after all, the world's most ambitious underwater archaeological operation.

The lifting operation involved a 90-metre-high crane barge - the Tog Mor - a 113-ton cradle and a giant lift frame. The Tog Mor had to lift the fragile hull onto the frame and then gently lower the frame and ship on to the support cradle. The cradle was packed with air bags to cocoon the Mary Rose and give her as much protection as possible during the lift and transfer.



The hull of the Mary Rose, supported by a steel cradle attached to a lifting frame, is

It was those protective bags which first put the historic mission in peril. A weakness in the system became apparent during sea trials and the original lift date of September 28 had to be pushed back by two weeks.

And so started a real race against time.

With a new date set for Sunday, October 10, the Mary Rose Trust knew this may be their last chance before the winter brought the archaeological operation to an end.

This did not simply mean that they would pack everything up and try again the next year. Having readied the ship for the rescue mission she no longer had the silt of the Solent to protect her. There was a real fear that the newly exposed hull of the ship would be unlikely to survive another winter with storms breaking her up.

On Saturday, September 25, the front page headline of *The News* was FLOODING CHAOS IN SOUTH as high winds and torrential rain wreaked havoc on the region. Little did anyone

realise that this was to set the scene as Hampshire suffered the worst torrential rain on record through October.

The impact of the storms was instant. By the following Monday it was reported that those gale force winds and stormy seas had left the dream to raise the Mary Rose on a knife edge as efforts to lower the lifting cradle alongside the wreck on the Solent seabed had been thwarted.

Calmer weather meant that the cradle was finally lowered that week and hydraulic jacks began lifting the Mary Rose off the seabed. But then the transfer to the support cradle had to be postponed for at least a week because of fierce winds and worsening tidal conditions.

On Tuesday, October 5, it was announced that the lifting day that coming Sunday was in doubt. Project leaders said the weather had set operations back considerably and work was now underway to come up with a new timetable to complete what needed to be done before the tides turned.

raised above the water level by a crane on the barge Tog Mor. Photo by Fox Photos/Hulton Archive/Getty Images

But, with 24 hours to go, things were finally looking up. On Saturday the lifting frame carrying the cradle could be visible above the waterline and Mary Rose Trust officials 'gave a hearty thumbs up' to the lift continuing as planned.

But plain sailing was never going to be a term easily hitched to the Mary Rose and so it was to be with plenty more dramas over the coming days. This time it wasn't the weather which was to cause a number of huge heart-in-the-mouth scares as technical gremlins returned.

As the lift was about to get underway - with the world's press and television looking on and hundreds of spectators creating a carnival atmosphere on the Southsea shoreline - it was discovered that one of the legs of the lifting frame had buckled. All hope of seeing her raised that day had to be abandoned.

For the waiting crowds, it was a bitter disappointment. For the team of divers and engineers working on the project, it was another problem to be over-

90

The height in metres of the crane barge Tog Mor

9.03

The time in the morning on October 11, 1982, that the 'black, smelly hulk' of the Mary Rose emerged into the daylight - the first time she had been above water for 437 years

come. They set to and worked into the night to cut away the damaged leg and replace it with massive steel hawsers.

By early morning on Monday, October 11, Mary Rose was on her way to the surface... then trouble struck again, this time in the form of a steel pin in the patched-up leg which sheared through. As the huge steel structure slipped deeper into the sea, there was fear that the ship could have been badly damaged.

But, amazingly, Mary Rose survived. Even after a huge hawser wrapped itself around part of the cradle, the lift continued. By the afternoon, she was snug in her cradle on the barge which took her to Portsmouth harbour - and home.

Mr McKee said: "Today is the most wonderful day of my life. We have snatched triumph from the jaws of disaster. Everybody thought we were quite mad when we announced we would bring her up - now we have proved all the sceptics wrong."

"It's a boyhood dream come true."



Large bags are inflated to cushion the hull of the Mary Rose in its salvage operation

RECOLLECTIONS OF MAKING HISTORY

‘We left just memories... & a hole on the seabed’

FOR 16 years, a dedicated team of divers gave up their own time and skills for free to bring alive the dream of raising the Mary Rose from her 400-year-old watery tomb.

It was often a difficult task in murky, cold water but those divers knew what they were doing had such historical significance. What follows are tales of those hours underwater told by the people who were there. Some of those quoted have sadly passed away, but this article is dedicated in their memory.

Christopher Dobbs, archaeological supervisor

“It was 4 o’clock in the morning on Friday, October 1, 1982. I was alone in the dark on the seabed, or to be more precise, five metres below the seabed, with my hands touching the timbers of the Mary Rose. But I could feel her moving. She was a few inches clear of the seabed and swaying gently on her lifting wires like a pensive child sitting on a swing. We had done it; we had proved it. We proved that the hull was now in one piece, clear of the seabed and ready for the next part of the operation. Yet an even more memorable experience was to come. The ship seemed to be breathing. As the whole 35m long hull swayed back and forth, the silty water



The ship seemed to be breathing... like moist breath on a frosty morning. She had now really come to life: I felt she was a living ship



Mary Rose Trust Salvage and Recovery Team divers (back, from left) Peter Ewens, Nick Thompson, Martin Icke. Front: Simon Jones, Martin Freeman

in that narrow gap between the ship and the seabed was forced out in puffs – like moist breath on a frosty morning. She had now really come to life: I felt she was a living ship. I was not to experience that feeling again in the same way until we revealed the Mary Rose in the new museum 34 years later.”

King Charles III - then HRH Prince of Wales - dived ten times on the Mary Rose, from 1975 to the day before she was raised

“It was like diving in lentil soup, you couldn’t see anything until it was right in front of your nose. I remember when the day came to raise the Mary Rose the only way we could do this was by borrowing an enormous float-

ing crane, and this crane was in huge demand around the world. We had a very short moment, as you can imagine in the Solent the tidal windows are very short. I remember sitting on the boat when the crane was sitting over the wreck and people were saying it was getting too difficult and we can’t fix this and we can’t fix that and I said the crane is going to disappear to the other side of the world, you will never get it back, you have just got to get it up. Thankfully we did. But I have never forgotten that moment after it came up when there was that almighty crunch as the chains and the ship dropped. I thought, it’s all my fault now... fortunately, thank goodness, no harm was done.”

Margaret Rule, Archaeological Director

“Well, she was ours when she was down there, now she belongs to everybody. But look at those deck beams. I mean, that’s a damn strong ship isn’t it, that’s a hell of a ship. I mean, think of everything she’s gone through, not only during the excavation,

all those years of excavation, but now the recovery and still, those deck beams haven’t collapsed. It’s totally remarkable. It’s a wonderful structure and a wonderful sight.”

Alexander McKee, historian and leader of the team that searched for and found the Mary Rose

“...a boyhood dream come true and I think one of the big moments in British archaeology this century.”

Stephen Foote, Mary Rose Trust photographer/diver, on the raising of the ship

“A profound moment...it was an incredible thing to witness. I felt a little disappointed as I realised that this had been taken away from me and the special thing that had occupied me and taken up so much of my time was now out for everybody. But it was well worth it.”

Colin Fox, archaeological team diver

“I felt both elated and sad; elated that at last she had been successfully raised and sad that I would never dive on her again.”



Most of the salvage and recovery team with Margaret Rule, the then HRH Prince Charles, King Constantine of the Hellenes (seated) and Lord Romsey standing. Back row (left to right) David Burden, Christopher Dobbs, Paul Chisholm, Simon Jones, Charles Pochin, Peter Ewens, Nick Thompson, Martin Icke, Martin Freeman, Kester Keighley. Front: Jonathan Adams (far left), Christopher Underwood (far right).

Barrie Andrian, archaeological supervisor, on seeing the ship raised

“I felt an overwhelming sense of pride, elation and utter relief that we did it!”

Alex Hildred, archaeological supervisor

“Elation at what we had achieved, but desperation at what we had lost. We had lived inside her, crammed in tiny spaces bounded by her timbers. We had emptied her of her secrets and gently removed her from her resting place; we would never have that escape, silence, peace and singular focus again - just memories and an empty hole in the seabed.”

John Selwyn Gilbert, writer/producer of 4 Chronicle films

“It was so emotional, it was absolutely hair raising. I cried. Lining the walls and beaches of Portsmouth as we came in there were thousands of people... it was an overwhelming moment.”

Paul Chisholm and Simon Jones, Mary Rose Salvage and Recovery Diving Team

10

The number of times King Charles III - then HRH Prince of Wales - dived on the Mary Rose

34

The number of years which elapsed between the raising of the Mary Rose and the opening of her state-of-the-art museum in Portsmouth’s historic dockyard

“It was incredible, we realised we were the first two people to stand on the Mary Rose above the surface of the Solent in over 500 years!”

All Mary Rose Trust divers “GOSH” - a favourite expression, for anything new or interesting or exciting.

Christopher Underwood, co-director Mary Rose Salvage and Recovery Diving Team

“The biggest surprise for me: when I realised the importance of what had just happened was important beyond the team that lived in this bubble. That was when the penny dropped we had done something a bit different.”

Kester Keighley, Mary Rose Salvage and Recovery Team on the hand over of the ship

“What a relief to see the Mary Rose safely landed on the barge. A few days later, after the underwater lifting frame was removed, we realised that our job as the salvage team was done as we handed over the Mary Rose to the Trust for the next phase of its journey to becoming a world class Tudor icon.”



Flashback to April 1982 - fresh from a dive, the then HRH The Prince of Wales (centre front) together with Margaret Rule and Wendell Lewis (Director of Salvage and Recovery, far right) plus members of the archaeological and salvage diving teams and the some of the ship’s crew.



From the bottom of the Solent to pride of place in a world famous museum – the Mary Rose

HOW THE MARY ROSE WAS UPRIGHTED

Hooray, and up she rises ...with quite a lot of help

AFTER the euphoria of the excavation and salvage, culminating in the successful raising of the hull on October 11 1982, some would say that is when the real work started.

Initially the salvage barge, safely holding the Mary Rose in her cradle, stayed in the centre of the channel of Portsmouth Harbour.

Deputy Director Andrew Fielding and a small team of archaeologists and members of the excavation dive team set up spray systems and foam sheeting over the hull to keep the timbers damp before a permanent system could be set up.

As soon as possible, the hull came into the dockyard and the ULF (Underwater Lifting Frame) that had safely raised her from the seabed was removed, leaving the Mary Rose supported in the cradle.

This had been designed to be both a salvage cradle and the support cradle for the hull in the future museum.

Transferring to her final resting place in Portsmouth Historic Dockyard

2The next major operation in the project was to transfer the hull and cradle onto a permanent barge. The conun-



The dock was then drained, leaving the Mary Rose in her final resting place 437 years after she had last set sail...

drum was that a barge seaworthy enough to tow into the dockyard from the wreck site was always going to be too large for manoeuvring into Dry Dock Number 3, in Portsmouth Historic Dockyard, so a system of a multi-wheeled bogeys was used to transfer the Mary Rose from one barge to another.

3Once safely on the new barge, the whole package of the hull, cocooned in the cradle, was floated into No 3 Dock in December 1982. The dock was then drained, leaving the Mary Rose in her final resting place 437 years after she had last set sail.

Constructing the Ship Hall building around the Mary Rose

4To protect her in the dry dock, a temporary building was constructed over the hull where both the hull conservation and public viewing could take place.

5The building was a lightweight 'Orbital Spandrel' structure with two skins of fabric, sandwiching an insulation layer. Another advantage of this swiftly built, temporary building was that it could open for visitors in October 1983.

A bridge was built over the bows of the Mary Rose so that visitors could look down on the wreck, and in those early years



Archaeologist Barrie Andrian placing foam sheeting in the hold.

the ship was indeed displayed as a wreck – still lying on her starboard side at the same angle that she had rested on the seabed.

6A disadvantage was that the building could not also house the objects excavated from within the ship so one of the boathouses in the Historic Dockyard was converted into a museum which opened to visitors in July 1984.

Turning upright

7The vision had always been that one day the hull would be turned upright so that visitors could understand the ship better and see it like an opened-up dolls house, with all the decks and the starboard side of the ship at the correct angle.

So, in 1985, the hull was turned upright, still resting on the cradle designed for this purpose and using Bill Summers

and Byggwik, the same company that had performed the initial 'jacking lift' underwater in 1982.

8Very gradually the hull was turned back the 60 degrees into the upright position and then new supports and chocks were added to the cradle to keep the ship stable by Harry Spencer of the local Isle of Wight company Spencer Thetis Wharf Ltd.



Start of the complex operation to move the Mary Rose on to a permanent barge.



The Mary Rose in Dry Dock No 3 at Portsmouth Historic Dockyard.



Constructing the Ship Hall over the hull.



A bridge over the bow of the Mary Rose provided a view over the entire ship.



Between 1984 and 2013 a converted boathouse enabled over 1,000 artefacts from the ship to be displayed until a museum was built over and around the hull.



Turning the ship.



Uprighting the Mary Rose.

SEARCH FOR MORE TUDOR TREASURES

Diving on the wreck site into the 21st century

IN December 2002 plans were drawn up by the Ministry of Defence to create a new straight channel into Portsmouth Naval Base for the two 'Carrier Vessels Future', which we now know as the Queen Elizabeth and the Prince of Wales.

The proposed route bisected the eastern portion of the area on the seabed where the Mary Rose had lain, and within the area protected under law as an historic wreck site, and within the area of the seabed leased to the Mary Rose Trust from the Crown Estates.

It was like ploughing a motorway through Stonehenge! Anything remaining of one of the most advanced weapon carriers of the 16th century was under direct threat from her 21st century counterpart.

The bow
"But it was raised in 1982, surely there is nothing left?" - a common misconception. The method used to lift the Mary Rose required a sound, complete shell, and so a portion of the bow had been cut off underwater where the structure was weak and incomplete. Basically, the bow was missing, and the area never fully excavated.

Debris from the excavation
Diving to pick up debris left from the excavation began in



Anything remaining of one of the most advanced weapon carriers of the 16th century was under direct threat from her 21st century counterpart



John Lippiett (Chief Executive of the Mary Rose Trust) and Margaret Rule

June 1983. Alongside the modern remains were Tudor ones, many eroding out of steep sections along the starboard side.

Thus, a monitoring system was set up to quantify the erosion patterns within the hole and visual searches of the seabed were undertaken on all sides of the hole.

Amorphous lumps of corroded iron were lifted, many yielding exciting objects, and modern objects of differing materials were positioned on and buried within the seabed as experiments of preservation in situ. More than 800 objects were raised between 1983 and 2002, including two of the largest gunpowder chambers known in Europe.



Raising of the Mary Rose anchor

Diving in the new millennium

As part of the MoD pre-dredge mitigation strategy, funding was provided for three 25-day programmes of exploration, excavation and recovery between 2003 and 2005.

This time all of the team used surface-supplied diving equipment with a wet bell as an elevator and wore small (acoustic) transponders so they could be followed on a virtual site plan while working. A remotely operated crawler excavator recovered to a sieve on the surface approximately 10% of linear spoil mounds which had resulted from airlifting inside the ship a generation earlier.

Finding the stem and Tudor Rose billet head after 32 years

In 2004, the aim was to excavate to the north to search for the stem and any remains of the starboard side lower bow castle. After 32 years of searching, the stem was found! What was completely unexpected was a section of lower hull structure from the port side.

To the east of the stem a large anchor was found, and close by a carved oak object. When studied and with the aid of photogrammetry, laser scanning, computer modelling and 3D rendering undertaken by the University of Portsmouth's creative technologies and geography department, the image of a Tudor Rose became visible.

This was the ship's billet head or badge, nearly identical to the badge of the Queen Elizabeth.

In total, 611 objects and 185 timbers have been recovered this century, and the port side timbers were reburied.

The site is still surveyed regularly to produce an acoustic and magnetic map in order to monitor sediment movement.

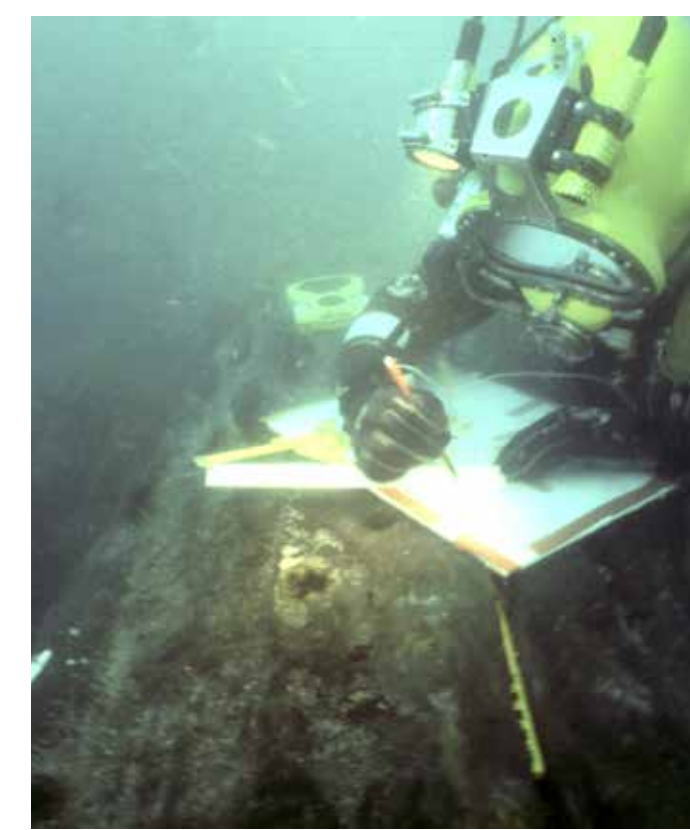
In 2022, some scouring was noted to the north of the site and diving took place in May and September. Finding the port side structure indicates the potential for the survival of pockets of structure all along the port side. Who knows what future generations might reveal in another 40 years...?



Raising of the Mary Rose anchor



Raising of the Mary Rose stem timber



Drawing the stem

COLLECTION OF EVERYDAY TUDOR LIFE

Creating a captivating museum for the future

IN 2013 a fresh chapter of the Mary Rose story began with the opening of a brand new state-of-the-art museum.

For the first time in more than 30 years, the ship, her crew and their objects were displayed together under one roof.

Never before or since has such a comprehensive collection of everyday Tudor life been on display to the public.

A new museum

The collection gives fascinating insight into life at sea and ashore: the food and cooking; clothes and footwear; jewellery and other personal possessions.

The new building was constructed to resemble "a finely crafted wooden jewellery box" with the hull at its centre and galleries running the length of the ship, each at a level corresponding to a deck level.

The Mary Rose's crew's possessions, tools and clothing were displayed to give visitors an impression of what these decks would have looked like moments before the ship sank.

Dedicated to the men of the Mary Rose, even the external architecture contained their individual marks, which are etched into the wooden exterior of the building.



1545, as a new immersive experience, is a great introduction to those fateful final moments overseen by King Henry VIII



Exterior of The Mary Rose at Portsmouth Historic Dockyard.

1545 Experience

Looking for new ways to tell the Mary Rose's story never stops and, in the summer of 2021, Oscar-winning actress Dame Judi Dench helped stationing Brits step back in time to relive the sinking of the Mary Rose in its stunning new 1545 experience.

1545 allows visitors to be fully immersed in the Battle of the Solent and re-live the final breathtaking moments on board King Henry VIII's favourite ship.

Dame Judi introduces the experience at the museum, and said: "I remember being one of the millions who watched the Mary Rose being raised from the Solent in 1982, and it's a memory that has stayed with me ever

since.

"Her incredible story both before she sank and now afterwards reveals so much about our history and 1545, as a new immersive experience, is a great introduction to those fateful final moments overseen by King Henry VIII."

With 1545, The Mary Rose is able to bring to life the final moments of the Mary Rose – as a spectacular interactive experience.

It's an exciting addition for Portsmouth Historic Dockyard and gives visitors a way to understand how her story as a warship ended, and how The Mary Rose's as a museum began.

Stavros Niarchos Foundation Learning Centre

The Mary Rose Museum has a well-established learning programme. On-site, the dedicated Learning Team teaches history and science sessions to pupils of all ages and abilities, as well as adult learners.

The purpose-built learning centre contains a classroom for

workshop and lectures, a laboratory and a break-out space.

Workshops use evidence from the Mary Rose to illuminate cross-curricular topics, including everyday Tudor life, diversity in Tudor England and conservation science.

It has a huge collection of real and replica artefacts, replica Tudor costumes and scientific equipment, which bring learning to life.

The Mary Rose Museum is proud to hold the Learning Outside the Classroom Quality Badge - the only national accreditation that recognises both learning and safety at such venues and is endorsed by the Department of Education.

The museum is designed to give students an immersive experience of life on a Tudor ship.

They can see projections of the crew working, hear the Mary Rose's original watch-bell ring, and touch and even smell real artefacts – including anchor rope covered in tar.

Accessibility and inclusion are integrated into the pro-



A visitor enjoying the 1545 Experience



Events

Meetings - Drinks receptions – Dining - Bespoke

Henry VIII's pride and joy the *Mary Rose* and her stunning collection create the perfect backdrop for any event.

From informal and intimate to bespoke and inspiring, the Museum's spaces for hire will suit any event you have in mind.

maryrose.org/venue-hire



events@maryrose.org

"I've just ticked something off my bucket list that I didn't even know was on there!"



CONSERVING 400 YEARS OF HISTORY

Keeping the Mary Rose in ship-shape condition

The raising of the Mary Rose on October 11, 1982, was the culmination of years of grit, determination and ground-breaking advances in marine archaeology.

As the worldwide audience watched the surviving hull emerge from the Solent, and rightly celebrated this momentous occasion, the next critical phase of this famous ship's story started.

Since the moment the ship was extracted from the seabed to this very day, its conservation, whether actively treating it, monitoring it, or researching new methods to preserve it, has been paramount in ensuring it is preserved for years to come.

The wood of the Mary Rose

Despite its age, and the hundreds of years spent in the marine environment, the wood of the Mary Rose is in remarkable condition.

It owes this to the muddy seabed environment it became buried in which gradually cut off oxygen, eliminating most chemical and biological reactions that will normally ravage and destroy wood in seawater.

The visual appearance of marine archaeological wood straight after excavation, can, however, be misleading, and the bacterial damage that has



We talk about the ship being made of wood but in reality, it is very old wood, that has been marinating in seawater for hundreds of years



Cleaning the hull of the Mary Rose.

undoubtedly happened to the wood is not instantly recognisable. While we know the ship was eventually covered with layers of silt, how quickly this happened is unknown, so there would have been periods of time when the wood was exposed, and parts of it destroyed.

When wet, this damage is masked by the water that is occupying the microscopic voids where the wood once was, keeping it swelled out to its original shape. Therefore, it was crucial to keep the timbers wet when initially raised, until a conservation treatment could be applied.

Nineteen years applying conservation treatment

Applying a conservation treatment to a piece of history, such



as the Mary Rose, is a daunting task.

The selection process was based on advice from our international friends working on projects such as the 17th-century warship Vasa in Stockholm and using pieces of Mary Rose wood to trial different treatments.

Polyethylene glycol (PEG, for short) was selected to be applied to the wood, so that it would gradually migrate to the missing pockets of wood and replace the water that had taken its place.

Prior to this stage, visitors had been able to visit within the same enclosure as the ship, but this marked the cut-off of this for various reasons, including the health and safety of everyone involved and ensuring the success of the treatment.

This process of applying PEG, within a sealed environment, continued for 19 years, with a changeover part way through to accommodate a new type of PEG that needed heating before being sprayed onto the ship.

During this phase, visitors could view the ship, in its misty

environment, through windows adjacent to the length of the ship.

Finally... drying the ship!

The final phase of the active conservation treatment involved the removal of any excess water still locked within the wood.

This may sound like a straightforward task but is complicated by the fact that the wood is not uniform.

To explain; when in the sea, not all parts of the ship would have been covered in silt at the same time.

Also, there would have been preferred routes for bacteria and other sea creatures to attack the wood.

This means there are non-uniform patterns of damage across the ship, which in turn means the water retention and PEG inclusion can vary significantly.

The best results from drying would be achieved by everything drying at the same rate; however, this is impossible to achieve with such a material, but certain measures could be put in place to help the situation.

A laser scan of the ship was completed so that the shape of the ship was captured precisely.

This could then be used to model air flow of different temperatures, humidities and velocities around the ship and how they impacted the drying patterns.

A network of metal supports was then constructed around the ship, from which fabric tubes were installed containing small holes delivering conditioned air to the timbers.

This point tied in with the opening of our museum in 2013, where visitors could look at this conservation stage from three different levels through windows.

The ship was only ready for visitors to once again walk within the same enclosure a few years later in 2016, once we were confident that the majority of the water had been unlocked and removed from the timbers.

Continuing to conserve

This was a major milestone in the conservation story of the Mary Rose, but it did not signify

Construction of the Ship Hall over Dry Dock 3.

the end.

While it is true that the wood is in remarkable condition considering its history, it is a complicated material that will always require constant care and attention.

We talk about the ship being made of wood but, in reality, it is very old wood, that has been marinating in seawater for hundreds of years and is now kept in a bespoke showcase.

Beneath the surface of the wood now lies the conservation treatment we applied, alongside anything that was incorporated from the seawater.

Understanding what it is there now, and how that could change over time and in different conditions, is imperative to its survival.

We constantly monitor the ship and carry out scientific research to understand any physical and chemical changes happening, so that we can arm ourselves with a conservation toolkit to care for this fabulous ship and safeguard it for the future.



The ducts installed to ensure even air-drying of the Mary Rose hull.

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THE MARY ROSE THE NATIONAL MUSEUM THE ROYAL NAVY

INSIGHTS INTO 1545 AND BEYOND

How future technology is telling the ship's past

SINCE the raising of Henry VIII's favourite ship forty years ago, many research projects have been undertaken by the Mary Rose Trust.

This is often in collaboration with local, national, and international research partners and institutions. Ultimately, research has enabled the surviving hull of the Mary Rose and all the artefacts recovered from the wreck to be preserved and enjoyed these past four decades.

It has also meant research could continue on the collection, to reveal new stories about the ship and its crew.

The Many Faces of the Mary Rose

In recent years, this has included research into the diversity of the men onboard the Mary Rose and the wider context of Tudor England.

Samples from teeth from eight of the crew recovered from the wreck were taken and chemical isotopes, stored permanently within developing teeth during childhood, were analysed.

The results revealed that several of these men were born and raised in the warmer climates of Europe, including Italy and Spain, and possibly North Africa.

This, plus other continuing



Visitors will then be virtually led by one of the original diver archaeologists down to the wreck as they become part of the Mary Rose dive team



Virtual view of the wreck underwater that can be explored and self-guided.

research, highlights that the understanding of individuals and artefacts onboard, and of the ship itself, is ever-evolving as the development of scientific research techniques supports the discovery of previously unknown stories.

The way that the Mary Rose stories are then told through accessible, innovative, and engaging methods is of great importance, allowing people to explore in a wide range of imaginative ways within the museum and online.

Virtually re-building the Mary Rose

In partnership this year with the University of Portsmouth's new Centre for Creative and Immersive Extended Reality

(CCIXR), the structure of the ship and the experience of being at the wreck site have been creatively re-imagined through immersive technology.

CCIXR is the UK's first integrated facility to support innovation in the creative and digital technologies of virtual, augmented, and extended realities.

As part of the Enabling Extended Reality Enterprise project, CCIXR has been working with the Trust to explore how extended reality can be used to engage and educate visitors and online audiences.

Several exciting new methods of seeing and interacting with the Mary Rose have been developed and can now be discovered at the museum.

The starboard side of the ship, approximately 40 per cent of the original structure, survived for 437 years submerged at the wreck site. This surviving part of the hull is now the heart of the museum experience but many visitors often find it difficult to envisage how it relates to the ship's overall structure.

Using a range of photogrammetry, lidar scanning, 3D modelling software, and visual effects tools, a 3D rendered, looping animation of the full ship forming up around the wreck has been developed.

This involved taking precise imagery data of the surviving hull, historical reference imagery and archaeological evidence to virtually combine the wreck with the structure of the Mary Rose as her crew would have known it.

This animation is currently being presented on the upper deck of the museum, opposite the surviving hull, on a holofan. The holofan has strips of LED lights on four blades that turn at high speed to show holographic-like images and videos, creating the illusion of 3D objects floating in mid-air. Visitors can experience how the wreck forms into the full ship, with the visual effects enabling its sails and flags to billow in the virtual sea breeze.

An underwater journey through the wreck of the Mary



A promotional image for '1982: Dive the Mary Rose' experience

Rose on the seabed of the Solent, where it was raised from in 1982 more than four centuries after it sank, has also been created.

Using 3D models and gaming technologies, the resulting animation allows viewers to explore the wreck from a first-person perspective and to discover some of the artefacts recovered from the ship, as well as marine life that the original divers encountered. This underwater journey can be explored in the upper deck handling collection in the museum using interactive leap motion technology.

Visitors can pass their hands over the leap motion sensor to guide themselves through the virtual wreck site. A virtual reality (VR) version will also be available during October half-term for visitors to enjoy with use of VR headsets in the Museum's Learning Centre.

1982: Dive the Mary Rose

In celebration of forty years since the raising of the Mary Rose, a new immersive experience is being created to take visitors on a 4D journey diving

4

To celebrate 40 years since the Mary Rose was raised, a new experience will take visitors on a 4D dive on the wreck site

8

For The Many Faces of the Mary Rose, samples from teeth from eight of the crew recovered from the wreck were analysed for research into the diversity of the men onboard

to the wreck site. The story of the ship's sinking in 1545 and 21st century re-discovery by Mr Alexander McKee provides the pre-show narrative.

Visitors will then be virtually led by one of the original diver archaeologists down to the wreck as they become part of the Mary Rose dive team.

This 4D theatre experience will transport visitors down into the mysterious world of the Solent wreck site, to discover the surviving hull and help it to be raised. Visitors will be fully immersed within the new theatre – to be constructed in one of the museum galleries – and will encounter sights, sounds, scents, and physical sensations during their maritime adventure.

Content is being developed with members of the Mary Rose Trust's original dive, salvage and recovery teams contributing to the creative process to ensure an authentic and realistic experience can be enjoyed by visitors. This new experience will become part of the Museum during 2023.

Get up close with the new VIP guided tours

THE Mary Rose is now offering up-close and personal VIP experiences previously not available to the public.

Fully immerse yourself in the world of The Mary Rose, including access to areas within the museum and collection which have never before been accessible to visitors. The highlight of the tour is an exclusive, behind-the-scenes VIP tour into the Weston Ship

Hall, home of King Henry VIII's ship the Mary Rose, which gets you up close and personal with history. Smell the timbers, experience incredible close-up views of the ship and learn directly from the team of conservation experts. Access to the Ship Hall is as close as you can get to the Mary Rose, and really an awe-inspiring experience.

To book and find out more visit maryrose.org/ship-hall



1982: DIVE THE MARY ROSE

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4
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