

SATURDAY 22 OCTOBER 2016

SAT 19:00 Lost Kingdoms of South America (b01qh0d)
Kingdom of the Desert

In the spectacular deserts of coastal Peru, archaeologist Dr Jago Cooper explores the dramatic rise and fall of Chimor, the first empire of South America. His journey begins among the ruins of a vast lost city once home to an all-powerful monarchy, whose subjects transformed the desert landscape, created gold and silver treasures and believed so strongly in the power of their gods that they made the most shocking of sacrifices. Chimor thrived despite facing some of the most extreme climate conditions in the world, but not even this powerful empire could withstand the forces that eventually destroyed it.

SAT 20:00 The Incredible Human Journey (b00kmtf)
Asia

There are seven billion humans on earth, spread across the whole planet. Scientific evidence suggests that most of us can trace our origins to one tiny group of people who left Africa around 70,000 years ago. In this five-part series, Dr Alice Roberts follows the archaeological and genetic footprints of our ancient ancestors to find out how their journeys transformed our species into the humans we are today, and how Homo sapiens came to dominate the planet.

The journey continues into Asia, the world's greatest land mass, on a quest to discover how early hunter-gatherers managed to survive in one of the most inhospitable places on earth - the Arctic region of northern Siberia. Alice meets the nomadic Evenki people, whose lives are dictated by reindeer, both wild and domesticated, and discovers that the survival techniques of this very ancient people have been passed down through generations. Alice also explores what may have occurred during human migration to produce Chinese physical characteristics, and considers a controversial claim about Chinese evolution - that the Chinese do not share the same African ancestry as other peoples.

SAT 21:00 The Code (b080tp7b)
Series 2

Episode 1

Hoping to escape the storm they unleashed previously, bruised but essentially scot-free, Jesse and Ned Banks are confronted with the terrifying possibility of being extradited to the US to face serious charges in an American court. Fortunately for the Banks brothers, Australian National Security is sitting on an explosive case they cannot crack, and Jesse might just be the man to do it.

Brilliant, mercurial Jan Roth hosts a hidden online bazaar of illicit weapons, drugs and dangerous ideas. Exchanging his hacker skills for their freedom, Jesse and Ned are drawn into Roth's dark world that could not only cost their own lives, but all that they hold dear.

SAT 21:55 The Code (b080tw8g)
Series 2

Episode 2

Kidnapped by Roth, Jesse and Hani disappear into the jungles of West Papua where Roth lays out his own offer - unlock a heavily encrypted file and get out alive. Hoping this will buy them time to find the data the authorities need, Jesse reluctantly makes a deal with a man no-one trusts.

SAT 22:55 Meat Loaf: In and out of Hell (b04xdrrb)

Since the release of the *Bat Out of Hell* album, Meat Loaf has possessed the kind of international status that few artists obtain. His larger-than-life persona and performances are fuelled by a passion for theatre and storytelling. This candid profile reveals the man and his music through his own testimony and from the accounts of those closest to him.

Meat Loaf's life story is one of epic proportions - he survived a childhood of domestic violence only to face years of record company rejection before eventually finding global fame. Along the way he experienced bankruptcy, health scares, bust-ups and one of the greatest comebacks of all time. All this and more is explored in the film, which features behind-the-scenes footage of his Las Vegas residency, plus plans for a new album featuring songs by Jim Steinman.

The film also revisits the Dallas of Meat Loaf's early years and includes insights from his high school friends, who reveal how Meat really got his famous moniker.

After his mother died, Meat Loaf fled Texas for the bright lights of L.A. He sang in itinerant rock bands, but no-one would give him a recording contract. By 1969 he was broke and

disillusioned. His break would take the form of a musical. He was offered a part in Hair, having been invited to audition whilst working as a parking attendant outside the theatre. Shortly afterwards he met Jim Steinman and the road to success really began. Yet the Hair gig was the beginning of an enduring love affair with theatre that is reflected in his singing persona today.

His first album, the now legendary *Bat Out of Hell*, was initially rejected by scores of record companies, yet went on to spend a staggering 485 weeks in the UK charts. The whole album is a masterwork of storytelling that Meat Loaf and Steinman worked on for four years and then battled to get heard. Meat Loaf and those who worked on the album - from Todd Rundgren to Ellen Foley - reflect on the songs, and celebrate the alchemy that resulted in such a blistering back catalogue.

When *Bat Out of Hell II* was finally released 15 years after the first album, it defied industry expectations, with *I'd Do Anything for Love* reaching number one in 28 countries. It is considered one of the greatest comebacks in music history. More albums and hits were to follow across the '90s and '00s, alongside a varied and successful acting career. Mark Kermode examines some of the roles Meat Loaf made his own, in films as diverse as *The Rocky Horror Picture Show* and *Fight Club*.

Having traversed the peaks and troughs of a career spanning the best part of 50 years, this consummate performer finally reveals what spurs him on, in this, the inside story of a bat out of hell who continues to blaze a trail into the hearts and minds of millions.

SAT 23:55 Metal Britannia (b00r600m)

Nigel Planer narrates a documentary which traces the origins and development of British heavy metal from its humble beginnings in the industrialised Midlands to its proud international triumph.

In the late 60s a number of British bands were forging a new kind of sound. Known as hard rock, it was loud, tough, energetic and sometimes dark in outlook. They didn't know it, but Deep Purple, Uriah Heep and, most significantly, Black Sabbath were defining what first became heavy rock and then eventually heavy metal.

Inspired by blues rock, progressive rock, classical music and high energy American rock, they synthesised the sound that would inspire bands like Judas Priest to take metal even further during the 70s.

By the 80s its originators had fallen foul of punk rock, creative stasis or drug and alcohol abuse. But a new wave of British heavy metal was ready to take up the crusade. With the success of bands like Iron Maiden, it went global.

Contributors include Lemmy from Motorhead, Sabbath's Tony Iommi, Ian Gillan from Deep Purple, Judas Priest singer Rob Halford, Bruce Dickinson from Iron Maiden and Saxon's Biff Byford.

SAT 01:25 Top of the Pops (b080193m)

Simon Bates presents the weekly pop chart show, first broadcast on 17 June 1982. Includes appearances by Natasha, Roxxy Music, Echo & the Bunnymen, Duran Duran, ABC, Bow Wow Wow, Queen, Toyah and Adam Ant.

SAT 02:05 Top of the Pops (b0807yy5)

John Peel presents the weekly pop chart show, first broadcast on 1 July 1982. Includes appearances from Natasha, Captain Sensible, Visage, Queen, Midge Ure, The Jam and Dollar. Also includes a dance performance from Zoo.

SAT 02:35 Meat Loaf: In and out of Hell (b04xdrrb)
[Repeat of broadcast at 22:55 today]

SUNDAY 23 OCTOBER 2016

SUN 19:00 British Art at War: Bomberg, Sickert and Nash (b04j2yvv)
Paul Nash: The Ghosts of War

In the years preceding 1914, David Bomberg, Walter Sickert and Paul Nash set out to paint a new world, but, as the century unfolded, found themselves working in the rubble.

On 25th May 1917, war artist Paul Nash climbed out of his trench to sketch the battlefields of Flanders near Ypres. So focused was he on his work he tripped and fell back into the trench, breaking his ribs. Stretchered back to England, Nash missed his regiment going over the top at the Battle of Passchendaele. His regiment was wiped out.

Nash was scarred by the war and the ghosts of those

experiences haunted his work throughout his life. A lover of nature, Nash became one of Britain's most original landscape artists, embracing modern Surrealism and ancient British history, though always tainted by his experiences during two world wars. A private yet charismatic man, he brought British landscape painting into the 20th century with his mixture of the personal and visionary, the beautiful and the shocking. An artist who saw the landscape as not just a world to paint, but a way into his heart and mind.

SUN 20:00 Aberfan: The Green Hollow (b07zk9fl)

A film poem to commemorate the 50th anniversary of the Aberfan disaster, written by Owen Sheers and performed by a stellar cast of Wales's best-known acting talent, including Michael Sheen, Jonathan Pryce, Sian Phillips, Eve Myles and Iwan Rheon, with some contributions from the local community.

SUN 21:00 Aberfan: A Concert to Remember (b080hj5r)

Tim Rhys Evans presents highlights of a special concert from Wales Millennium Centre to commemorate the 50th anniversary of the Aberfan tragedy. The concert features the premiere of *Cantata Memoria* by Sir Karl Jenkins and Mererid Hopwood performed by Bryn Terfel, Elin Manahan Thomas, Catrin Finch, David Childs, violinist Joo Yeon Sir, massed children and adult choirs and Sinfonia Cymru.

SUN 22:00 Arena (b0803q76)

The Roundhouse - The People's Palace

On October 15th 1966, the Roundhouse in north London hosted its first gig - the launch of radical newspaper *International Times*. The audience included Paul McCartney and Marianne Faithfull, along with 3,000 others trying desperately to get in. The result was a glorious shambles. Since then, virtually every big name in rock and alternative theatre has played there. Today it's as vibrant as ever, continuing to attract big names and full houses and running an array of outreach and youth programmes enabling young people to express themselves in the arts. Arena tells the tragicomic rollercoaster story of a unique venue.

SUN 23:00 Pink Floyd Beginnings 1967-1972 (b0803q78)

Pink Floyd released their first single in 1967, and as their popularity around the world grew, they increasingly travelled outside the UK to perform live shows and make TV appearances. After *The Dark Side of the Moon* became a global smash, the band concentrated on the creative freedom of live performance, leaving the world of TV behind, but now, after painstaking research, tapes of those early historic appearances have been tracked down and compiled into a fascinating hour of early Pink Floyd.

With frontman Syd Barrett, they perform *Astronomy Domine* and *Jugband Blues*, and after Syd's departure, Roger Waters, David Gilmour, Richard Wright and Nick Mason can be seen playing a full range of their eclectic material, from out and out pop in *It Would Be So Nice*, through instrumental improvisations, collaboration with choir and orchestra on *Atom Heart Mother* and enduring rock material like *Wot's... Uh the Deal*.

Beginnings 1967-1972 tracks the fascinating gestation of one of the world's most creative and heralded groups in the less well-known period that preceded the triumphs of *The Dark Side of the Moon*, *Wish You Were Here* and *The Wall*.

SUN 00:00 Horizon (b039grrx)
2013-2014

Dinosaurs: The Hunt for Life

The hunt for life within the long-dead bones of dinosaurs may sound like the stuff of Hollywood fantasy, but one woman has found traces of life within the fossilised bones of a *Tyrannosaurus rex*.

Dr Mary Schweitzer has seen the remains of red blood cells and touched the soft tissue of an animal that died 68 million years ago. Most excitingly of all, she believes she may just have found signs of DNA. Her work is revolutionising our understanding of these iconic beasts.

SUN 01:00 Oak Tree: Nature's Greatest Survivor (b06fq03r)

George McGavin investigates the highly varied and dramatic life of oak tree. Part science documentary, part historical investigation, this film is a celebration of one of the most iconic trees in the British countryside. It aims to give viewers a sense of what an extraordinary species the oak is and provide an insight into how this venerable tree experiences life.

Filmed over a year, George uncovers the extraordinary transformations the oak goes through to meet the challenges of

four very different seasons.

In autumn, George goes underground, digging below an oak tree to see how its roots extract precious resources from the soil. And he sees why the oak's superstrong wood made it the perfect material for building some of the most famous ships in naval history, including Nelson's flagship The Victory.

In winter, George discovers the sophisticated strategies the tree uses to survive gales and bitter frosts. He finds out about the oak's vital role in architecture, showing how some very familiar sights, such as the tower of Salisbury Cathedral, are in fact giant oak structures.

In spring, George investigates how the oak procreates, spreading its pollen through the countryside. He discovers the incredibly sophisticated strategies it uses to withstand savage onslaughts from predators hellbent on eating it alive.

In summer, George uses a high-powered microscope to see the hundreds of species that regard the oak as their home. Humans too rely on the oak for their own form of 'sustenance'. Whisky gets its unique flavours from the oak wood barrels in which it's matured.

SUN 02:30 British Art at War: Bomberg, Sickert and Nash (b04j2yvw)
[Repeat of broadcast at 19:00 today]

MONDAY 24 OCTOBER 2016

MON 19:00 World News Today (b080cpqg)
The latest national and international news, exploring the day's events from a global perspective.

MON 19:30 Canal Walks with Julia Bradbury (b011g6dw)
The Llangollen Canal

Seasoned stomper Julia Bradbury dons her walking boots once again to explore her own British backyard, travelling along the country's network of canals and their accompanying towpath trails. This sees her navigating Highland glens, rolling countryside and river valleys, as well as our industrial heartlands, following these magical waterways as they cut a sedate path through some of the country's finest scenery.

Julia's final walk takes her to north Wales, where 200 years ago the great engineer Thomas Telford had to overcome seemingly impossible challenges in order to access the valuable slate industries of Snowdonia. In doing so, he created a masterpiece of 19th-century engineering - an aqueduct 126 feet high and spanning 1,000 feet across the Vale of Llangollen. To find out why it has become a world heritage site, Julia follows the cut of the Llangollen Canal, starting at the picturesque Horseshoe Falls. Her six-mile walk takes her along the winding Dee Valley, ending on the aqueduct that Telford described as 'a stream through the skies'.

MON 20:00 Timeshift (b06b36q3)
Series 15

A Very British Map: The Ordnance Survey Story

For over 200 years, Ordnance Survey has mapped every square mile of the British Isles, capturing not just the contours and geography of our nation, but of our lives. Originally intended for military use, OS maps were used during wartime to help locate enemy positions. In peacetime, they helped people discover and explore the countryside.

Today, the large fold-out paper maps, used by generations of ramblers, scouts and weekend adventurers, represent just a small part of the OS output. As Ordnance Survey adjusts to the digital age, Timeshift looks back to tell the story of a quintessentially British institution.

MON 21:00 Sleuths, Spies & Sorcerers: Andrew Marr's Paperback Heroes (p040pw15)
Fantasy

What is it about stories of magic, epic adventure, and imaginary worlds that has turned fantasy fiction into one of the world's most popular forms of storytelling, regularly filling the bestseller lists and entrancing adults and children alike?

In the second episode of his series that deconstructs the books we (really) read, Andrew Marr argues that these stories are filled with big ideas. Yes, there may be wizards with pointy hats as well as the odd dragon, but what fantasy novels are really good at is allowing us to see our own world in a surprising way, albeit through a twisted gothic filter.

The current leading exponent of fantasy fiction is a bearded

Texan, George RR Martin, whose A Game of Thrones began a bookshelf-buckling series of novels, and spawned a vast TV empire. But Andrew reminds us that this is a genre whose origins are British, and at its heart is still a quest to reconnect readers with the ancient ideas and folk beliefs of the world before the Enlightenment.

Andrew breaks down fantasy books into a set of conventions that govern the modern genre - he looks at the intricacy with which imaginary worlds are built (as seen in George RR Martin's A Song of Ice and Fire series), the use of portals that are able to bridge this world and another (most famously, the wardrobe in CS Lewis's Narnia books), as well as the concept of 'thinning' - these novels are typically set in a world in decline. In fantasy fiction, winter is always coming.

To help him understand these books, Andrew meets bestselling fantasy writers and the programme includes interviews with Neil Gaiman, Alan Garner and Frances Hardinge.

As well as profiling key figures such as CS Lewis and Sir Terry Pratchett, Andrew considers the spell that medieval Oxford has cast on generations of authors from Lewis Carroll to Philip Pullman. And he gets to grips with the legacy of JRR Tolkien, a figure so important that his influence pops up everywhere 'like Mount Fuji in Japanese prints', according to Pratchett. Tolkien's predominance would not go unchallenged, and Andrew shows how writers like Ursula K Le Guin confronted Tolkien's rather European notions of what an imaginary world should be.

MON 22:00 The Victorians (b00j4b2q)
Series 1

Dreams and Nightmares

Jeremy Paxman discovers how, in the dying years of Victoria's reign, artists led a revolt against Victorian values of money and morality, preferring to create a world filled with medieval knights and damsels, dreams and fairies, sex and death.

He meets a pair of spiritualist mediums, visits a collection of Victorian nudes and is allowed into Broadmoor hospital in search of mad Victorian artist Richard Dadd.

MON 23:00 The First World War (b01rp9tf)
Jihad

The Ottoman Empire, Germany's ally, summoned all Muslims to Jihad - holy war - to overthrow Allied power in the Middle East. Turkey's search for scapegoats after defeat by the Russians at Sarakamish led to the mass-deportation of Armenians in the Ottoman Empire. Perhaps 800,000 Armenians died in all. The Allies initially thought Turkey - the 'sick man of Europe' - would be a pushover, but Turkey tied up Allied troops across the Middle East for four years, winning triumphantly at Gallipoli with terrible losses on both sides, and then at Kut, south of Baghdad, forcing the British into humiliating surrender.

MON 23:50 Dan Cruickshank's Adventures in Architecture (b009s0kr)
Beauty

Dan Cruickshank explores how humanity has created beauty through architecture. He travels to Greenland to build an igloo, creating an architectural form that is under threat due to climate change. In China he scales the world's biggest Buddha and deciphers a temple in India rich with erotic images. He visits the Catherine Palace, a hot-blooded baroque masterpiece in the middle of snowy Russia. Finally, he uncovers the dark tale of Albi Cathedral, a building originally designed to suppress the local population but now an object of beauty and wonder.

MON 00:50 Timewatch (b016xjwh)
The Most Courageous Raid of World War II

Lord Ashdown, a former special forces commando, tells the story of the 'Cockleshell Heroes', who led one of the most daring and audacious commando raids of World War II.

In 1942, Britain was struggling to fight back against Nazi Germany. Lacking the resources for a second front, Churchill encouraged innovative and daring new methods of combat. Enter stage left, Blondie Hasler.

With a unit of 12 Royal Marine commandos, Major Blondie Hasler believed his 'cockleshell' canoe could be effectively used in clandestine attacks on the enemy. Their brief was to navigate the most heavily defended estuary in Europe, to dodge searchlights, machine-gun posts and armed river-patrol craft 70 miles downriver, and then to blow up enemy shipping in Bordeaux harbour.

Lord Ashdown recreates parts of the raid and explains how this experience was used in preparing for one of the greatest land

invasions in history, D-day.

MON 01:50 Fabric of Britain (b03bgrvf)
Knitting's Golden Age

Documentary exploring how knitting rose from basic craft to the height of popular fashion in the 20th century. It's a craft that has given us scratchy jumpers, sexy bathing costumes and the infamous poodle loo cover, has sustained Britain through the hardships of war and shown a mother's love to generations of little ones. Today, knitwear has become a staple of every wardrobe thanks to a prince's golfing taste, The Beatles and 80s breakfast television. Warm-hearted and surprising, this is the story of the people's craft, and a very British one at that.

MON 02:50 Sleuths, Spies & Sorcerers: Andrew Marr's Paperback Heroes (p040pw15)
[Repeat of broadcast at 21:00 today]

TUESDAY 25 OCTOBER 2016

TUE 19:00 World News Today (b080cpwg)
The latest national and international news, exploring the day's events from a global perspective.

TUE 19:30 Grand Tours of Scotland (b016qxjs)
Series 2

Crossing the Border

Presenter Paul Murton returns with a second series of Grand Tours of Scotland to explore the most fascinating parts of the country that have charmed visitors for more than 200 years.

In the Victorian era, tourists poured across the border to explore Scotland's unique blend of stunning scenery, romantic ruins, myths and legends. This first episode sees Paul board a traditional gypsy caravan to travel through the Borders and up to Glasgow.

TUE 20:00 Timeshift (b0803m60)
Series 16

Bridging the Gap: How the Severn Bridge Was Built

2016 saw the 50th anniversary of the Severn Bridge, which completed the motorway link between England and Wales. Timeshift tells the inside story of the design and construction of 'the most perfect suspension bridge in the world', and how its unique slimline structure arose by accident.

TUE 21:00 Horizon (b036bv0z)
2012-2013

Swallowed by a Black Hole

In summer 2013, the black hole at the centre of the Milky Way was getting ready to feast.

A gas cloud three times the size of our planet strayed within the gravitational reach of our nearest supermassive black hole. Across the globe, telescopes were being trained on the heart of our galaxy, some 27,000 light years from Earth, in the expectation of observing this unique cosmic spectacle.

For cosmic detectives across the Earth, it was a unique opportunity. For the first time in the history of science, they hoped to observe in action the awesome spectacle of a feeding supermassive black hole.

TUE 22:00 Storyville (b080k2za)
Fatal Experiments: The Downfall of a Supersurgeon

Part 1

Paolo Macchiarini is one of world's most famous surgeons. He hopes to revolutionize medicine by creating a new type of synthetic organ - a vision that could save many lives. But the Italian surgeon has also been accused of using terminally ill patients as human guinea pigs as well as falsifying his science. Is he a genius - or is he behind one of medicine's biggest scandals?

This gripping investigative series gains access to Macchiarini's closed world of organ transplants, animal experiments and stem-cell research. From his base at one of the world's most prestigious medical institutions - the Karolinska Institute, home of the Nobel Prize in Stockholm, Sweden - the series explores the fallout from his work across the world, from London to Russia. It poses a fundamental ethical question - how far can you risk a human life in the name of cutting-edge science?

TUE 23:00 The Brain: A Secret History (b00xln23)

Broken Brains

Dr Michael Mosley concludes his series exploring the brutal history of experimental psychology by looking at how experiments on abnormal brains have revealed the workings of the normal brain.

He meets remarkable individuals like Karen, who suffered from a rare condition - alien hand syndrome - which meant that one of her hands constantly attacked her. And Julia, who seems to have recovered from her stroke - until experiments reveal she is unable to recall the name of any object.

Michael explores the case of an amnesiac known for years only by his initials, HM, who became the most studied individual in the history of psychology and whose extraordinary case opened a window on how our memory works. He visits the centre which has been set up to map HM's brain down to the level of a neuron. But are the functions of our brain really as fixed as we think? Michael tries out a device which aims to make us see using our tongue.

TUE 00:00 Precision: The Measure of All Things (b02xbj6m)

Time and Distance

Professor Marcus du Sautoy tells the story of the metre and the second - how an astonishing journey across revolutionary France gave birth to the metre, and how scientists today are continuing to redefine the measurement of time and length, with extraordinary results.

TUE 01:00 Natural World (b0078gk1)

2002-2003

My Halcyon River

An idyllic portrait of a British river, chronicling the small dramas of the wildlife that lives in and around it. Otters hunt under the cover of darkness, mink lie in wait for unwary victims and kingfishers spear their prey, while newborn chicks learn to swim under the watchful eye of their parents.

TUE 01:50 Fabric of Britain (b03bm1rg)

The Story of Wallpaper

Paul Martin presents the surprisingly compelling story of wallpaper. From its origins in the 16th century to the present day, wallpaper has always had something to say about us and our tastes and aspirations. It's a journey that takes Paul from the grandest of stately homes to the poorest of two-up-two-downs, the height of luxury to industrial grime and infestation. There are some fascinating tales along the way; wallpaper may seem insignificant, but governments have tried to control it, and it's even threatened to poison us.

The programme also reveals the art and craft of wallpaper. Paul learns how to make flock wallpaper, very much a deluxe item in the 18th century, helps to uncover a rare antique piece of wallpapering from a building site, and prints the designs of Marthe Armitage. Along the way, he meets contemporary designers and makers, and tells the stories of such historical wallpaper luminaries as Pugin and William Morris.

TUE 02:50 Horizon (b036bv0z)

[Repeat of broadcast at 21:00 today]

WEDNESDAY 26 OCTOBER 2016

WED 19:00 World News Today (b080cph2)

The latest national and international news, exploring the day's events from a global perspective.

WED 19:30 Grand Tours of Scotland (b0171n40)

Series 2

Elemental Beauty

Paul Murton travels from the shores of beautiful Loch Maree, into the wilds of Assynt and on to the northern most part of mainland Scotland. Paul is braving the weather and making this journey on foot in order to experience nature in all its elemental glory - which sometimes means four seasons in one day.

WED 20:00 Castles: Britain's Fortified History (b04v85sy)

Defence of the Realm

Sam Willis explores how, by the Wars of the Roses, castles were under attack from a new threat - the cannon - but survived into the Tudor era only to find their whole purpose challenged.

What had once been strategic seats of power now had to keep up with the fickle fashions of the court and become palaces to impress monarchs such as Elizabeth I.

Just as castles seemed to have lost their defensive function, the English Civil War erupted. The legacy of that tumultuous period resulted in castles no longer being associated with protection. Rather, their ruins took on a unique appeal, embodying a nostalgia for an age of chivalry that became a powerful part of the national psyche.

WED 21:00 Timeshift (b080dyvc)

Series 16

Sailors, Ships & Stevedores: The Story of British Docks

Throughout the 20th century, Britain's docks were the heartbeat of the nation - bustling, exciting and often dangerous places where exotic goods, people and influences from across the globe ebbed and flowed and connected Britain with the wider world. Thousands of men, with jobs handed down from father to son through generations, sustained these emblems of national pride, typified by London, the hub of the British Empire.

The waterside cities within cities where they lived and worked formed the frontier of the country's postwar recovery. Communities connected to the sea grew around them, some as unique as the multicultural sailortown of Tiger Bay in Cardiff, others like Liverpool primed for a new wave of world fame thanks to the music and style being brought into the country by the city's seafarers. The 1960s heralded the arrival of new forms of technological innovation in our ports, and thanks to a simple metal box, the traditional world of docks would be radically transformed, but not without a fierce struggle to protect the dock work that many saw as their birthright.

Today, docksides are places of cultural consumption, no longer identifiable as places that once forged Britain's global standing through goods and trade. People visit waterfronts at their leisure in bars, cafes and marinas or buy a slice of waterside living in converted warehouses and buildings built on the connection to the sea. While the business of docks has moved out of sight, over 95 per cent of national trade still passes through the container yard on ever-larger ships. However, it is still possible to glimpse the vanished dockside through the archive films and first-hand stories of those who knew it best.

Narrated by Sue Johnston.

WED 22:00 Storyville (b0813msd)

Fatal Experiments: The Downfall of a Supersurgeon

Part 2

Is Paolo Macchiarini, the star surgeon of the Karolinska Institute - home of the Nobel Prize - a genius who will revolutionise science and solve one of medicine's biggest challenges? Or is he the man who has caused the biggest medical scandal in Swedish history?

The second episode of this gripping investigative series starts in the summer of 2012, with supersurgeon Macchiarini under pressure when problems start to arise. His pioneering transplant work seems at risk when he discovers faults with the new synthetic organs. Macchiarini still has faith in the procedure and plans new operations. This time it will no longer be fatally ill patients on whom he tries out his new methods, but patients whose condition is not life-threatening. Will Macchiarini succeed with his pioneering work?

WED 23:00 Sleuths, Spies & Sorcerers: Andrew Marr's Paperback Heroes (p040pw15)

[Repeat of broadcast at 21:00 on Monday]

WED 00:00 The Last Explorers (b017zqnn)

John Muir

Neil Oliver follows in the footsteps of four Scottish explorers who planted ideas rather than flags - ideas that shaped the modern world we know today.

Set in the spectacular Yosemite Valley in California, this is the story of the father of the modern conservation movement and one of the founders of America's National Park movement. John Muir was a 19th-century adventurer who explored the natural world and devoted his life and work to persuade others to see the sacred beauty of his discoveries.

WED 01:00 Britain's Whale Hunters: The Untold Story (b046w231)

The Fall

Writer Adam Nicolson continues to explore the forgotten role that British whalers played in Antarctic whaling as late as the

1960s. Granted rare access to the ruins of the whaling stations on the island of South Georgia, he charts the boom and bust of this once multimillion-pound industry. He hears first-hand about the battle between science, politics and profit that brought whales to the brink of extermination just 50 years ago and reveals the astounding role that Britain played in the international whaling industry.

A few hundred years ago, the oceans were home to millions of whales, but then we found that they were incredibly useful: by the 1920s they were even forming an essential part of Britain's fat supply to make soap and margarine. On the remote British Antarctic island of South Georgia, the centre of the industry in the 1920s, Adam explores the incredible ruins of the world's largest whaling station. Abandoned in the 1960s, Leith Harbour is a complete, but now deserted, whaling town. To fully understand how whale populations were so drastically reduced, Adam puts our modern environmental guilt to one side and, with the help of the last of the British whalers and dramatic archive film, sees the industry through the eyes of its own time.

In the mid-1920s, up to 8,000 whales a year were being processed on South Georgia to satisfy Europe's demand for fat. The whalers describe the dangers of using industrial machinery to process whales and Adam explores the hospital that treated the unlucky ones, still stocked with 1950s medicine. Meanwhile, some scientists in Britain were aware of the threat of the industry to whale populations, and a hugely ambitious piece of marine biology - the 'Discovery Investigations' - were launched. Adam visits a legacy of this program, the new ship Discovery, and learns how the original attempted to build an argument for sustainable whaling.

The industry soon found a way to become yet more effective at hunting and processing whales through a revolutionary piece of ship design, which also allowed them to dodge British attempts at regulation. Adam explores the incredible scale of the oil being sent home: by 1933, 37 per cent of the fat in British margarine was from whales. As World War Two approached, Germany and Japan joined the industry, and catches reached a staggering 46,000 whales caught in the Antarctic in one year.

While exploring an abandoned whale-catching ship and taking a peek behind the scenes at the Natural History Museum, Adam examines the tussle between the industry and science. War-ravaged Europe was desperate for fats, and new attempts to regulate the industry proved completely inadequate to protect whale populations. It wasn't until population dynamics experts were included in the 1960s that the industry began to take action to seriously reduce catches. And by then, whale stocks were in a disastrous state, with some species near extinction.

Having discovered so much about the forgotten story of British whaling, Adam attempts to find a balanced view of the industry as a whole - one that killed over 1.6 million whales in the Antarctic. He feels a deep admiration for the great skill and courage of the whalers, but, at the same time, concludes that he hates the whaling itself.

WED 02:00 Fabric of Britain (b03c2766)

The Wonder of Embroidery

The Reformation in England witnessed the destruction of the most brilliant art of the medieval age. Church paintings and stained glass - even sculpture - were destroyed throughout England in the name of religion. And yet one art survived against the odds - the art of medieval embroidery.

Portable and easily squiggled away, English embroidery was spirited out of the country in the 16th century and many brilliant examples survive today - if slightly unappreciated and forgotten in Italian churches and museums, even the Vatican. And yet it is an art form that rivalled the very finest in medieval painting or stained glass and for 200 years was the finest embroidery in the western world. Known simply as Opus Anglicanum (English work), the work of English embroiders was desired by kings and popes throughout Christendom.

Dan Jones, Plantagenet expert and medievalist, goes in search of these fragile yet stunning survivors from the great age of embroidery - encountering a world of finery, bejewelled luxury and sacred beauty on an undreamt-of scale.

WED 03:00 Timeshift (b080dyvc)

[Repeat of broadcast at 21:00 today]

THURSDAY 27 OCTOBER 2016

THU 19:00 World News Today (b080cph9)

The latest national and international news, exploring the day's events from a global perspective.

THU 19:30 Top of the Pops (b080yybr)

David Jensen presents the weekly pop chart show, first

broadcast on 8 July 1982. Includes appearances from Captain Sensible, Bananarama, Imagination, Irene Cara, Odyssey, Bucks Fizz and The Steve Miller Band.

THU 20:00 Railways: The Making of a Nation (b07x4f1y)
Food and Shopping

The railways changed what we eat and the culinary tastes of the population. Moving produce around at speed was suddenly possible - fresh meat, wet fish, dairy, fruit and veg were now widely available. And it was in London where arguably the nation's diet changed the most. With a new system of rapid transport it was now possible for the capital to enjoy food supplies from all corners of the nation. Diets improved in terms of the variety and quality of food available. Victorian men and women developed a taste for one particular dish that would be popular with the masses for generations to come - fish and chips.

THU 20:30 Hive Minds (b080dwbw)
Series 2

Belgae v Doosras

Fiona Bruce presents the quiz show where players not only have to know the answers, but have to find them hidden in a hive of letters. It tests players' general knowledge and mental agility, as they battle against one another and race against the clock to find the answers.

Belgae take on Doosras in this edition.

THU 21:00 Rome's Invisible City (b05xxl4t)

With the help of a team of experts and the latest in 3D scanning technology, Alexander Armstrong, along with Dr Michael Scott, explores the hidden underground treasures that made Rome the powerhouse of the ancient world. In his favourite city, he uncovers a lost subterranean world that helped build and run the world's first metropolis and its empire.

From the secret underground world of the Colosseum to the aqueducts and sewers that supplied and cleansed it, and from the mysterious cults that sustained it spiritually to the final resting places of Rome's dead, Xander discovers the underground networks that serviced the remarkable world above.

THU 22:00 Storyville (b0813n4j)

Fatal Experiments: The Downfall of a Supersurgeon

Part 3

Paolo Macchiarini, star surgeon at Sweden's prestigious Karolinska Institute, home to the Nobel Prize, seemed to be on the verge of solving one of medicine's biggest riddles - how to create artificial organs. But the final episode of this absorbing investigative series uncovers that something was seriously wrong.

By 2014, four Karolinska doctors started to question Macchiarini's transplantation of plastic tracheas and raised the alarm at Karolinska University Hospital and Karolinska Institute. They suspected that Macchiarini had been lying in his scientific papers and that patients' lives were being put at risk by a technique which had not been properly tested or investigated beforehand. But still his employer, the Karolinska Institute, defended him and claimed nothing was amiss.

Investigative journalist Bosse Lindquist confronts Macchiarini and the vice-chancellor of Karolinska Institute, to uncover why Macchiarini was able to continue.

THU 23:00 The Incredible Human Journey (b00kmtft)

[Repeat of broadcast at 20:00 on Saturday]

THU 00:00 Great Barrier Reef (b019xxhh)

Reef and Beyond

The Great Barrier Reef is vitally linked to the rest of the planet in many ways. Creatures travel for thousands of miles to visit in spectacular numbers, including tiger sharks, great whales, sea birds and the largest green turtle gathering on earth.

Alien creatures that are rarely seen, like nautilus, also rise out of the deep to visit the reef's warm waters. Weather systems travelling from across the Pacific also affect the whole reef, including mighty cyclones that bring destruction and chaos to the coral and the creatures that live on it. And it is weather patterns and climate change on a global scale that are likely to shape the future of the Great Barrier Reef and all its wildlife.

THU 01:00 Top of the Pops (b080yybr)

[Repeat of broadcast at 19:30 today]

THU 01:40 Arena (b0803q76)

[Repeat of broadcast at 22:00 on Sunday]

THU 02:40 Rome's Invisible City (b05xxl4t)

[Repeat of broadcast at 21:00 today]

FRIDAY 28 OCTOBER 2016

FRI 19:00 World News Today (b080cphl)

The latest national and international news, exploring the day's events from a global perspective.

FRI 19:30 Top of the Pops (b0813nn2)

Peter Powell presents the weekly pop chart show, first broadcast on 15 July 1982. Includes appearances from Hot Chocolate, Dexys Midnight Runners, Cliff Richard, David Essex, Japan, Visage and Irene Cara.

FRI 20:00 Nicky and Wynton: The Making of a Concerto (b080k4hq)

Documentary exploring a unique musical collaboration between American jazz legend Wynton Marsalis and Scottish violinist Nicola Benedetti.

The film follows the two musicians as they embark on a journey that culminates in the creation and performance of a violin concerto written by Marsalis especially for Benedetti. The composition, which draws inspiration from the violin concerto's first formation in the Baroque era to the 21st century and African-American spiritual music, explores Nicola and Wynton's own musical heritage in Scottish folk and American jazz music respectively.

The film follows Wynton and Nicola during the process of composition, rehearsals and performance, from the pair battling ideas and drafts back and forth across the Atlantic to rehearsals together in the UK and US, and the world premiere of the violin concerto with the London Symphony Orchestra at the Barbican.

FRI 21:00 Petula Clark Live in Berlin (b080dwxw)

Actress, songwriter and above all singer, Petula Clark is a music legend. With a career spanning nearly eight decades she has sold more than 68 million records worldwide and is back touring the UK. Playing live in Berlin for the first time she performs hits like Downtown, Don't Sleep in the Subway and Couldn't Live Without Your Love, as well as songs from her new album From Now On, including Sacrifice My Heart and a collaboration with Charles Aznavour - Pour Etre Aime de Toi.

FRI 22:00 Je t'aime: The Story of French Song with Petula Clark (b05vnhz1)

'I want to make people cry even when they don't understand my words.' - Edith Piaf

This unique film explores the story of the lyric-driven French chanson and looks at some of the greatest artists and examples of the form. Award-winning singer and musician Petula Clark, who shot to stardom in France in the late 1950s for her nuanced singing and lyrical exploration, is our guide.

We meet singers and artists who propelled chanson into the limelight, including Charles Aznavour (a protege of Edith Piaf), Juliette Greco (whom Jean-Paul Sartre described as having 'a million poems in her voice'), Anna Karina (muse of Jean-Luc Godard and darling of the French cinema's new wave), actress and singer Jane Birkin, who had a global hit (along with Serge Gainsbourg) with the controversial Je t'aime (Moi non plus), and Marc Almond, who has received great acclaim with his recordings of Jacques Brel songs.

In exploring the famous chanson tradition and the prodigious singers who made the songs their own, we continue the story into contemporary French composition, looking at new lyrical forms exemplified by current artists such as Stromae, Zaz, Tetes Raides and Etienne Daho, who also give exclusive interviews.

The film shines a spotlight onto a musical form about which the British are largely unfamiliar, illuminating a history that is tender, funny, revealing and absorbing.

FRI 23:00 Dusty Springfield at the BBC (b01qyv7)

A selection of Dusty Springfield's performances at the BBC from 1961 to 1995. Dusty was one of Britain's great pop divas, guaranteed to give us a big melody in songs soaring with drama and yearning.

The clips show Dusty's versatility as an artist and performer and

include songs from her folk beginnings with The Springfields; the melodrama of You Don't Have to Say You Love Me; Dusty's homage to Motown with Heatwave and Nowhere to Run; the Jacques Brel song If You Go Away; the Bacharach and David tune The Look of Love; and Dusty's collaboration with Pet Shop Boys in the late 1980s.

There are also some great duets from Dusty's career with Tom Jones and Mel Tormé.

FRI 00:00 Top of the Pops (b0813nn2)

[Repeat of broadcast at 19:30 today]

FRI 00:40 Petula Clark Live in Berlin (b080dwxw)

[Repeat of broadcast at 21:00 today]

FRI 01:40 Je t'aime: The Story of French Song with Petula Clark (b05vnhz1)

[Repeat of broadcast at 22:00 today]

FRI 02:40 Dusty Springfield at the BBC (b01qyv7)

[Repeat of broadcast at 23:00 today]