

SATURDAY 07 JANUARY 2017

SAT 19:00 Why the Industrial Revolution Happened Here (b01pz9d6)

Professor Jeremy Black examines one of the most extraordinary periods in British history: the Industrial Revolution. He explains the unique economic, social and political conditions that by the 19th century, led to Britain becoming the richest, most powerful nation on Earth. It was a time that transformed the way people think, work and play forever.

He traces the unprecedented explosion of new ideas and technological inventions that transformed Britain's agricultural society into an increasingly industrial and urbanised one. The documentary explores two fascinating questions - why did the industrial revolution happen when it did, and why did it happen in Britain?

Professor Black discusses the reasons behind this transformation - from Britain's coal reserves, which gave it a seemingly inexhaustible source of power, to the ascendancy of political liberalism, with engineers and industrialists able to meet and share ideas and inventions. He explains the influence that geniuses like Josiah Wedgwood had on the consumer revolution and travels to Antigua to examine the impact Britain's empire had on this extraordinary period of growth.

SAT 20:00 The Magic of Mushrooms (b041m6fh)

Professor Richard Fortey delves into the fascinating and normally hidden kingdom of fungi. From their spectacular birth, through their secretive underground life to their final explosive death, Richard reveals a remarkable world that few of us understand or even realise exists - yet all life on earth depends on it.

In a specially built mushroom lab, with the help of mycologist Dr Patrick Hickey and some state-of-the-art technology, Richard brings to life the secret world of mushrooms as never seen before and reveals the spectacular abilities of fungi to break down waste and sustain new plant life, keeping our planet alive.

Beyond the lab, Richard travels across Britain and beyond to show us the biggest, fastest and most deadly organisms on the planet - all of them fungi. He reveals their almost magical powers that have world-changing potential - opening up new frontiers in science, medicine and technology.

SAT 21:00 Lost Kingdoms of Central America (b04hkb5p)
Kingdom of the Jaguar

Dr Jago Cooper explores the rise and fall of the forgotten civilisations of Central America.

His quest takes him from the crystal-blue seas of the Caribbean to the New World's most impressive pyramids, flying over the smoking volcanoes of Costa Rica and travelling deep underground in the caves of central Mexico.

He travels in the footsteps of these peoples to reveal their secrets and unearth the astonishing cultures that flourished amongst some of the most dramatic landscapes in the world.

Jago begins by journeying through southern Mexico to investigate the rise and fall of America's oldest civilisation, the Olmec, which thrived over 3,000 years ago. He encounters colossal stone heads and the oldest rubber balls in the world and descends deep inside an ancient cave network in search of a were-jaguar.

SAT 22:00 The Young Montalbano (b06vn811)

Series 2

The Man Who Followed Funerals

Pasqualino Cutufa' is a Vigata inhabitant who for years has made a habit of showing up at other people's funerals mourning their deaths. Despite having no enemies in the town, one day Pasqualino is found brutally murdered in the street. His death seems totally inexplicable, until the disappearance of a woman linked to his former employer gives Montalbano his first lead. Meanwhile, Livia has come to stay at Marinella, but her behaviour is erratic and Salvo starts to suspect that something may be wrong.

In Italian with English subtitles.

SAT 23:50 An Evening with Sammy Davis Jr (b04w7wn5)

A compilation of the very best of Sammy Davis Jr's famous 1960s performances for the BBC, that leaves no doubt as to why at the time he was billed as the world's greatest living entertainer. This show captures Davis as the ultimate swinger, singer and gunslinger, performing classic songs like My Funny Valentine and Once in a Lifetime, showing how he's quick on the draw with a pistol, and demonstrating his incredible

impersonations of some of the best-known stars of the era.

SAT 00:50 Sammy Davis Jr: The Kid in the Middle (b04w7wgr)

Sammy Davis Jr was born to entertain. He was a human dynamo who made his debut at the age of five and by the time he was a teenager was wowing audiences across America. A gifted dancer, actor and singer, and a key member of the Rat Pack, Davis is best remembered for his unforgettable rendition of Mr Bojangles and his number one single The Candyman.

However, as a black man, making his way in the entertainment business saw him struggle to overcome racial prejudice, letter bombs and death threats. Davis fought back with his talent and in the 1960s marched alongside Dr Martin Luther King. Despite his reputation as a civil rights campaigner and one of the world's greatest entertainers, Davis remains an enigma. Those closest to him tell of a man never quite comfortable in his own skin, a workaholic and spendaholic who put his career before his family and who died leaving them millions of dollars in debt.

This documentary is Sammy Davis Jr's remarkable life story - his rise and his fall - told by those who knew him best. For the first time his family and friends including Paul Anka, Engelbert Humperdinck, Reverend Jesse Jackson and Ben Vereen share their memories - shedding new light on the legacy of one of the most gifted and loved performers in show business.

SAT 01:50 ... Sings the Great American Songbook (b00rs3w4)

Presenting the best and most eclectic performances on the BBC from the world's best-known artists performing their interpretations of classic tracks from The Great American Songbook.

In chronological order, this programme takes us through a myriad of BBC studio performances, from Dame Shirley Bassey in 1966 performing The Lady is A Tramp, to Bryan Ferry in 1974 on Twigg's BBC primetime show performing Smoke Gets in Your Eyes, to Captain Sensible on Top of the Pops in 1982 with his number one hit version of Happy Talk, through to Kirsty MacColl singing Miss Otis Regrets in 1994 to Jamie Cullum with his version of I Get a Kick Out Of You on Parkinson in 2004 and bang up to date with Brit winner Florence from Florence and the Machine performing My Baby Just Cares for Me with Jools Holland on his Annual Hootenanny at the end of 2009.

The Great American Songbook can best be described as the music and popular songs of the famous and prolific American composers of the 1920s and onwards. Composers such as Cole Porter, Irving Berlin, Johnny Mercer, Harold Arlen, Rodgers and Hammerstein, and Hoagy Carmichael to name but a few... songwriters who wrote the tunes of Broadway theatre and Hollywood musicals that earned enduring popularity before the dawning of rock 'n' roll.

These famous songwriters have penned songs which have entered the general consciousness and which are now best described as standards - tunes which every musician and singer aspires to include in their repertoire.

SAT 02:55 An Evening with Sammy Davis Jr (b04w7wn5)
[Repeat of broadcast at 23:50 today]

SUNDAY 08 JANUARY 2017

SUN 19:00 David Starkey's Music and Monarchy (p018rffp)

Crown and Choir

Dr David Starkey reveals how the story of British music was shaped by its monarchy. In this first episode he begins with kings who were also composers - Henry V and Henry VIII - and the golden age of English music they presided over. He discovers how the military and religious ambitions of England's monarchy made its music the envy of Europe - and then brought it to the brink of destruction - and why British music still owes a huge debt to Queen Elizabeth I.

Featuring specially recorded music performances from King's College Cambridge, Canterbury Cathedral and Eton College, and early music ensemble Alamire, and the music of Thomas Tallis, William Byrd, John Dunstable and John Dowland.

Dr Starkey reveals why Henry V took a choir with him to the Battle of Agincourt, and hears the music the king wrote to keep God on-side in his crusade against the French - rarely performed in the centuries since, and now sung by the choir at Canterbury Cathedral. He visits Eton College, founded by Henry VI, where today's choristers sing from a hand-illuminated choir book which would have been used by their 16th-century predecessors. King's College, Cambridge, built by

successive generations of monarchs and still world-famous for its choir, and the Chapel Royal at Hampton Court Palace, where Henry VIII and Elizabeth I heard works created especially for their worship by some of the greatest composers in British history.

SUN 20:00 Sword, Musket & Machine Gun: Britain's Armed History (b087llsj)
Cut & Thrust

In the first of this three-part series, Dr Sam Willis charts the evolution of weaponry in Britain throughout the Middle Ages.

Beginning with the Battle of Ethandun in 878, when the future of Anglo-Saxon England lay in the balance, Sam examines the weapons and tactics used by King Alfred to keep the Viking raiders at bay, and gets hands-on experience as he joins re-enactors behind a shield-wall, used by the Anglo-Saxons en masse as an attacking weapon to drive back and defeat the Vikings.

Sam travels to France to examine the famous Bayeux Tapestry, with its depiction of the huge arsenal massed by William the Conqueror for his invasion of England in 1066. With the Norman mounted knight came innovations in weapon technology, chiefly stronger and lighter swords, and Sam is given a lesson in swordsmanship using the earliest known combat manual.

Sam also visits the Chateaux de Tancarville in Normandy to tell the story of William Marshal, said to be the greatest knight who ever lived, and how he forged his reputation using a new weapon - the lance - in the extreme sport of its day, the tourney. To get a real sense of the tourney, Sam watches a display of its later incarnation - the joust.

The increasing number of castles and sieges brought with it a new age of projectile missile weaponry, principally the crossbow. Holed up in a castle tower, Sam gets to test-fire different crossbows and discovers why they became outlawed by the pope as instruments of the devil. Visiting the battlefield sites of Halidon Hill in Northumberland and Crecy in northern France, and again getting hands-on with the weapon in question, Sam examines how King Edward III strategically deployed the traditional longbow in vast numbers to devastating effect against the Scots and the French, and as such how it came to be regarded as the chief weapon of the Middle Ages.

SUN 21:00 Horizon (b0656dbj)
2014-2015

The Trouble with Space Junk

In 2014, the International Space Station had to move three times to avoid lethal chunks of space debris and there is an increasing problem of satellites mysteriously breaking down.

With first-hand accounts from astronauts and experts, Horizon reveals the scale of the problem of space junk. Our planet is surrounded by hundreds of millions of pieces of junk moving at 17,000 miles per hour. Now the US government is investing a billion dollars to track them, and companies around the world are developing ways to clear up their mess - from robot arms to nets and harpoons. Horizon investigates the science behind the hit film Gravity and discovers the reality is far more worrying than the Hollywood fiction.

SUN 22:00 The Sky at Night (b088d1pv)

Guide to the Galaxy

All good travel guides need a map, and the team unveil the most detailed 3D map of the Milky Way ever produced. A map that reveals that there may be 50 per cent more stars in the galaxy than we previously thought. American astronomer Neil deGrasse Tyson gives us a guided tour of the strangest stars we have ever observed, and we discover that the Milky Way may already be colliding with our neighbouring galaxy, Andromeda.

SUN 22:30 Venus in Fur (b04d1jp7)

French-Polish drama. An actress tries to convince a theatre director that she is perfect to play the leading role in his play, a reworking of Leopold von Sacher-Masoch's 1870 S&M novella Venus in Furs.

In French with English subtitles.

SUN 00:00 Natural World (b03fq319)
2013-2014

Killer Whales: Beneath the Surface

The killer whale was long feared as a sea monster until, in May 1964, one was brought into captivity for the first time. This spawned a journey of discovery into the killer whale's true

nature.

It quickly became clear these were not mindless killers - they were, in fact, highly intelligent social creatures. Today, our understanding is deepening still further and the latest revelations are among the most sensational - not only will these top predators 'adopt' and care for injured and abandoned orphans, but it seems there's no longer just the 'killer whale'.

SUN 01:00 The Magic of Mushrooms (b041m6fh)
[Repeat of broadcast at 20:00 on Saturday]

SUN 02:00 Lost Kingdoms of Central America (b04hkb5p)
[Repeat of broadcast at 21:00 on Saturday]

SUN 03:00 Boxing at the Movies: Kings of the Ring (b01r5mhb)

Danny Leigh explores the elemental drama of the boxing movie. For over 120 years, boxing and film have been entwined and the fight film has been used to address powerful themes such as redemption, race and corruption. Film writer Leigh examines how each generation's fight films have reflected their times and asks why film-makers from Stanley Kubrick to Martin Scorsese have returned time and again to tales of the ring.

Interviewees include former world heavyweight champion Lennox Lewis, Rocky director John G Avildsen and Thelma Schoonmaker, editor of Raging Bull.

MONDAY 09 JANUARY 2017

MON 19:00 World News Today (b0888dj1)

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

MON 19:30 Grand Tours of the Scottish Islands (b01mm3bn)
Shorts

Episode 1

We accompany presenter Paul Murton, as he travels round one of Scotland's best-loved holiday destinations, the Isle of Arran. Known as 'Scotland in miniature', Paul sets off to explore this diverse island that has something for everyone - ruined castles, rugged mountains, stunning wildlife. Arran has always been a popular tourist location - one particularly regal visitor was Prince Rainier of Monaco, as Paul discovers, when he calls on Lady Jean Fforde, at Brodick Castle.

MON 20:00 Swarm: Nature's Incredible Invasions (b00gkrm2)
When Worlds Collide

This two-part documentary reveals the awe-inspiring world of animal swarms, discovering what happens when superswarms invade people's lives and, using the latest camera techniques, going to the heart of the swarm to reveal how the creatures therein view our world.

Real-life footage from camcorders and mobile phones captures the amazing impact they can have. Killer bees mount an attack on an international football match in Costa Rica. In the US, the Illinois River boils with leaping silver carp, an alien species that has hijacked the river, smashing into boats and injuring people.

In South Australia, a sea of mice raids farms, consuming and destroying in their millions on a scale that defies belief. The largest swarm on Earth erupts from Lake Victoria - trillions of flies blanket villages, but the locals have learnt to turn the swarm into a highly nutritious fly burger. In Rome, cameras fly alongside ten million starlings, the largest swarm in Europe. Their mesmerizing waves stop many residents in their tracks, but as they roost they smother the city in tons of excrement.

One man has learnt to control the ultimate swarm. He has become their 'queen bee' with startling results, learning to control what most people fear and to understand one of the most incredible forces of nature.

MON 21:00 The Great Butterfly Adventure: Africa to Britain with the Painted Lady (b07yqfkg)

The migration of the painted lady has long fascinated scientists, artists and nature lovers alike. The longest butterfly migration on earth, it sees millions of these delicate creatures travel from the desert fringes of north Africa, across thousands of miles of land and sea, before settling in the UK. However, the migration has never truly been understood, the mysteries of the painted lady never unravelled - until now. This documentary reveals the secrets of this extraordinary phenomenon. Observed,

investigated and analysed by presenter Martha Kearney and entomologist Dr James Logan, it employs groundbreaking techniques to unlock the secrets of the painted ladies.

At a time when more than a third of Britain's butterfly species are classed as under threat of extinction or have already vanished, it documents the largest butterfly migration into the UK. Over the course of the butterflies' five-month quest from the Atlas Mountains to Great Britain, Martha and her companion - leading butterfly expert Constanti Stefanescu - follow them along the route, observing and investigating this breathtaking natural phenomenon.

Meanwhile, back at the cutting-edge Rothamsted Research Centre in Harpenden, Dr Logan complements their adventures on the road, conducting experiments into butterfly biology and behaviour and, from our communications centre, he is able to follow the butterflies as they make their way from Morocco to Britain.

This is a visceral journey with real jeopardy, a real-life detective story. We break away from the central narrative to unravel the mysteries of the painted lady via experiments, including how they navigate and move between different altitudes, and we examine their flight patterns. As well as experiments there are also standalone packages on a variety of subjects, including the decline of the British butterfly and how some species are fighting back with the help of conservation groups. Butterfly Conversation's legions of butterfly spotters track the migration and those pioneers who make the journey from Morocco in a single flight.

By the end of the programme we discover how this tiny creature weighing less than a single gram is capable of completing an epic 4,500 mile journey from Africa to Great Britain. And even more remarkably, the offspring of these multi-generational butterflies that help to complete the journey their parents started. Could it be that despite having no life experience or learned knowledge of the migration they are innately drawn to the species' route?

An unforgettable adventure, and a groundbreaking project.

MON 22:30 Clydebuilt: The Ships that Made the Commonwealth (p01n8dv0)
HMS Hood

In this episode, David Hayman meets some of the men who sailed on HMS Hood. He travels to Scapa Flow to experience what life was like for the hundreds of people working to protect the vital North Atlantic convoys.

In Australia, he uncovers the legacy of her flag-waving visits and he tries his hand at riveting to understand what it took to make this battlecruiser strong and watertight. David also investigates why this 'mighty' ship was flawed from the very day she was launched.

MON 23:30 Knights of Classic Drama at the BBC (b06nsxyn)

In the first of a two-part series, the BBC delves into its archives to discover British acting greats as they take their first tentative steps on the road to success. Long before they were knighted for their services to drama, we see early appearances from Michael Caine in a rare Shakespearean role, Ben Kingsley, Ian McKellen, Derek Jacobi and Michael Gambon.

Featuring unique behind-the-scenes footage alongside a wealth of classic British productions like War and Peace, the Mayor of Casterbridge and the Singing Detective, it reveals many career-defining moments from the first generation of acting talent to fully embrace television drama.

MON 00:30 David Starkey's Music and Monarchy (p018rffp)
[Repeat of broadcast at 19:00 on Sunday]

MON 01:30 The King & the Playwright: A Jacobean History (b01h23lr)
Equivocation

It's 1606, and in the aftermath of the Gunpowder Plot the authorities are cracking down on Catholics. Shakespeare's Macbeth captures the anxiety and obsessions of the time, with James continuing to focus on succession and legitimacy, while food riots in the Midlands create the climate for the gripping tragedy of Coriolanus.

MON 02:30 Ego: The Strange and Wonderful World of Self-Portraits (b00vngl0)

Art critic Laura Cumming takes a journey through more than five centuries of self-portraits and finds out how the greatest names in western art transformed themselves into their own masterpieces.

The film argues that self-portraits are a unique form of art, one that always reveals the truth of how artists saw themselves and how they wanted to be known to the world. Examining the works of key self-portraitists including Durer, Rembrandt, Van Gogh and Warhol, Laura traces the development of the genre, uncovering the strange and various ways artists have managed to get their inner and outer selves to match up.

Laura investigates the stories behind key self-portraits, interviews artists as they attempt a self-portrait, and shows how the history of the self-portrait is about more than how art and artists have changed, it also charts the evolution of the way we see ourselves and what it means to be human.

She also discusses Courbet with Julian Barnes, Rembrandt's theatricality with Simon Callow, and meets the contemporary artists Mark Wallinger and Patrick Hughes, observing the latter making his first ever self-portrait.

TUESDAY 10 JANUARY 2017

TUE 19:00 World News Today (b0881zc5)

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

TUE 19:30 Grand Tours of Scotland (b01mrdry)
Series 3

The Feminine Touch

The first travellers to come north were predominantly men. Scotland was considered to be very much a 'man's world' - full of unseen perils that could only be faced down by the brave and definitely not a place for ladies! Paul Murton travels through Dumfries and Galloway to uncover the stories of the pioneering female tourists who were determined not to be left at home and bravely headed north to explore Scotland.

TUE 20:00 Timeshift (b068fvln)
Series 15

The Trains That Time Forgot: Britain's Lost Railway Journeys

Timeshift journeys back to a lost era of rail travel, when trains had names, character and style. Once the pride of the railway companies that ran them, the named train is now largely consigned to railway history.

Writer and presenter Andrew Martin asks why we once named trains and why we don't do so anymore. He embarks on three railway journeys around Britain, following the routes of three of the most famous named trains - the Flying Scotsman, the Cornish Riviera Express and the Brighton Belle. We reflect on travel during the golden age of railways - when the journey itself was as important as reaching your destination - and compare those same journeys with the passenger experience today.

TUE 21:00 Dan Snow on Lloyd George: My Great-Great-Grandfather (b0841s9)

At the end of the First World War, Britain's prime minister David Lloyd George was a national hero, hailed as 'the man who won the war'. A hundred years after he became PM, Lloyd George's great-great-grandson Dan Snow explores his famous forebear's life and asks why he's not better remembered, why he's not as famous a wartime leader as his friend and protégé Winston Churchill. It's a tale of sex and scandal, success and failure, with Dan discovering some home truths from his family's history.

Dan's journey starts in north Wales in the village of Llanystumdwy, where Lloyd George was raised by his uncle after his father's death. It's an area Dan knows well from childhood holidays visiting his grandmother. He climbs Moel y Gest, a rocky outcrop overlooking the sea, a view virtually unchanged since Lloyd George's day. Taking the Ffestiniog railway up into the mountains Dan travels in Lloyd George's own railway carriage, reputedly a place when he would enjoy some private time with his secretary.

Like Lloyd George, Dan journeys from Wales to Parliament, filming in the House of Commons where his ancestor made such an impact. Initially Lloyd George was a radical Liberal, causing outrage by opposing the Boer War in 1899, but ten years later he was chancellor of the exchequer, introducing some of the most important legislation of the early 20th century. His budget of 1909 brought in national insurance and old age pensions and, as his biographer Roy Hattersley tells Dan, laid the foundations of the welfare state.

When Britain went to war in August 1914, Lloyd George was a pivotal member of the cabinet. Historian Margaret Macmillan, an expert on the First World War and another descendant of Lloyd George, points out that if he'd come out against the war

the Liberal government would have fallen. Once war was declared Lloyd George was important in recruiting the new citizen's army, making speeches across the country. But in private he was making sure his sons didn't volunteer straightaway, another example of Lloyd George's double dealing.

Lloyd George's private life is as famous as his politics. Before the war he had a string of affairs, but by 1914 he was involved with his secretary Frances Stevenson. Half his age, she was a pioneering female civil servant and a constant companion during the First World War. Meeting her biographer John Campbell, Dan discovers some shocking secrets about their relationship during the war years.

Lloyd George's most significant work in the early years of the war was in munitions production. Britain, like all the other warring countries, was running out of shells. He revolutionised the war economy, creating a huge workforce, including many women, to produce the vast numbers of guns and ammunition needed to wage total war. Dan visits an engineering works in north Wales which in 1917 was turned over to armaments production.

But Lloyd George's dynamism wasn't reflected in the rest of the government, especially the prime minister Herbert Asquith. At the end of 1916 after the failure of the Somme, matters came to a head and Asquith was forced to resign to be replaced by Lloyd George. He was the first man from such humble origins to become prime minister.

In spring 1918, the Germans broke through and almost reached Paris, but the Allies fought back. This is when Lloyd George's war machine came into the effect - the huge amount of munitions he helped create, along with the newly arrived American troops, forced the German army into retreat, finally signing the Armistice on 11 November 1918.

In 1918, Lloyd George was wildly popular and re-elected by a landslide, but his postwar career was less successful. Dan visits the Hall of Mirrors at the Palace of Versailles where Lloyd George signed the famous treaty, but many think that this fuelled German resentment and led to the Second World War 20 years later. At home, the 'land fit for heroes' which Lloyd George had promised didn't materialise and there was a postwar slump. When it was revealed that he'd sold honours to fund his Liberal Party his days were numbered, and he was finally ousted by his Conservative coalition partners in 1922.

Until his death in 1945 Lloyd George was a figure in the wilderness, never returned to power and further damaging his reputation with an ill-advised visit to Hitler in 1936. He was, as Dan concludes, a flawed hero, but one from whom he's proud to be descended.

TUE 22:00 Walesa: Man of Hope (b050g4vh)

Ten years after the bloody aftermath of demonstrations at the Gdansk shipyards, a new uprising in the early 1980s is bolstered by the unexpected appearance of Lech Walesa, an electrician who had lost his job at the yards for his trade union activities, and is now gaining a reputation as an inspirational speaker prepared to defy the ruling communist party.

In Polish and Italian with English subtitles.

TUE 23:55 Storyville (b01ghtll)

The Real Great Escape

For the first time, the true story of the mastermind behind World War II's Great Escape is told by his niece, Lindy Wilson. Squadron Leader Roger Bushell was a young London barrister, an auxiliary pilot and a champion skier when he was shot down and captured early in the war. He escaped three times and, in spite of the Gestapo's threat to shoot him if he ever escaped again, Bushell accepted the role of 'Big X' on his return to the top-security PoW camp, Stalag Luft 111.

After 18 months of preparation, one of the greatest escapes of the war took place. Their aim to distract the enemy succeeded, as it was estimated that five million Germans were deployed to recapture the 76 escapees. However, Hitler's rage was uncontrollable and he personally ordered a terrible reckoning.

TUE 01:20 A Very British Renaissance (b03zmmk5)

The Elizabethan Code

Art historian Dr James Fox continues his exploration of a Renaissance that he believes was as rich and as significant in Britain as it was in Italy and Europe. He tells the story of the painters, sculptors, poets, playwrights, composers, inventors, craftsmen and scientists who revolutionised the way we saw the world.

In this episode, he explores the Elizabethans' love of secrecy, codes and complexity, and the cultural revolution sparked by an age of discovery and exploration.

TUE 02:20 Britain on Film (b03b8s51)

Series 2

The Home Front

Archive-based series on British life in the 1960s continues with an episode devoted to some of the most monumental challenges of the post-war period - how to tackle desperate housing shortages, rebuild shattered cities and meet the rising expectations of an increasingly affluent and consumerist nation. As these films show, 1960s Britain embraced ambitious solutions by building high-rise homes in our cities and New Towns in the country.

TUE 02:50 Dan Snow on Lloyd George: My Great-Great-Grandfather (b0841s9)

[Repeat of broadcast at 21:00 today]

WEDNESDAY 11 JANUARY 2017

WED 19:00 World News Today (b0881zdb)

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

WED 19:30 Grand Tours of Scotland (b01mtkmd)

Series 3

A Walk on the Wild Side

If you want to experience the wild side of life, then the northern Highlands of Scotland is where you have to be.

Paul Murton crosses the country coast to coast, from the remote lighthouse at Tarbat Ness over to the iconic castle of Eilean Donan. Travelling off the beaten track, Paul encounters the beautiful bottlenose dolphins that live in the Cromarty firth and travels by horseback through one of Scotland's most spectacular locations, Glen Affric.

WED 20:00 10 Things You Didn't Know About... (b008s991)

Earthquakes

Iain Stewart looks at some of the world's most dramatic earthquakes and reveals the stories and science behind them. In seconds, these powerful forces of nature which cannot be predicted or prevented can shake a town to destruction and shift the landscape forever. We discover why quakes can last 60 times longer on the moon than on Earth, how one particular earthquake fault line can produce hallucinations, and how 1960s Cold War spying gave scientists a crucial clue to understanding them.

WED 21:00 James May: The Reassembler (b0888hqh)

Series 2

Mini Motorcycle

As James May spends most of his spare time in his workshop tinkering around with old motorbikes, we thought we'd film it.

James is faced with reassembling a 1970s Honda Z50A Mini Trail Motorcycle from all its 303 component parts. This exciting and portable mini motorcycle was fun for all the family and got a whole generation of kids hooked on motorcycles for the rest of their lives.

This is an object James can't wait to reassemble, but along the way he faces a very real and very hostile battle with some springs, ponders over correct workshop etiquette and contemplates the lifelong debate - what's the difference between a bolt and a screw?

WED 21:30 Timeshift (b01q9vhy)

Series 12

The Joy of (Train) Sets

The Model Railway Story: From Hornby to Triang and beyond, this documentary explores how the British have been in love with model railways for more than a century. What began as an adult obsession with building fully engineered replicas became the iconic toy of 50s and 60s childhood. With unique archive and contributions from modellers such as Pete Waterman, this is a celebration of the joys of miniaturisation. Just don't call them toy trains!

WED 22:30 Egypt's Lost Cities (b011pwms)

It is possible that only one per cent of the wonders of ancient Egypt have been discovered, but now, thanks to a pioneering approach to archaeology, that is about to change.

Dr Sarah Parcak uses satellites to probe beneath the sands, where she has found cities, temples and pyramids. Now, with Dallas Campbell and Liz Bonnin, she heads to Egypt to discover if these magnificent buildings are really there.

WED 00:00 Horizon (b0656dbj)

[Repeat of broadcast at 21:00 on Sunday]

WED 01:00 10 Things You Didn't Know About... (b008s991)

[Repeat of broadcast at 20:00 today]

WED 02:00 Knights of Classic Drama at the BBC (b06nxsyn)

[Repeat of broadcast at 23:30 on Monday]

WED 03:00 Timeshift (b01q9vhy)

[Repeat of broadcast at 21:30 today]

THURSDAY 12 JANUARY 2017

THU 19:00 World News Today (b0881zfb)

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

THU 19:30 The Sky at Night (b088d1pv)

[Repeat of broadcast at 22:00 on Sunday]

THU 20:00 A Timewatch Guide (b051h0gq)

Series 1

The Mary Rose

Historian Dan Snow explores the greatest maritime archaeology project in British history - the Mary Rose. Using 40 years of BBC archive footage Dan charts how the Mary Rose was discovered, excavated and eventually raised, and what the latest research has revealed about this iconic ship and her crew. Dan also investigates how the Mary Rose project helped create modern underwater archaeology, examining the techniques, challenges and triumphs of the divers and archaeologists involved.

THU 21:00 Sword, Musket & Machine Gun: Britain's Armed History (b0888mjv)

The Big Bang

Dr Sam Willis charts the impact of gunpowder on the battlefield, from cannons to the first handheld weapons.

His journey starts in the 13th century with Oxford scientist and monk Roger Bacon, believed to be the first Englishman to write down a recipe for gunpowder. Sam sees one of the largest surviving medieval cannons still in existence - Mons Meg in Edinburgh Castle. He examines a primitive 1400s 'handgonne' in the Tower of London Armouries that seems more like a mini cannon, with no trigger.

Sam tells the story of the Earl of Moray James Stewart who was regent of Scotland having ejected Mary Queen of Scots from the throne in 1570.

Sam next tells the story of the gunpowder plot. He includes lesser-known details of the 1605 attempted attack. For example, Guy Fawkes was discovered not just once but twice. Also the amount of gunpowder is thought to have been far more than was required. Another strange side to gunpowder's story is revealed - the saltpetre men. Gunpowder requires three ingredients - charcoal, sulphur and saltpetre. In the 17th century chemistry was primitive. Saltpetre or potassium nitrate forms from animal urine and the saltpetre men would collect soil where animals had urinated. This meant they dug up dovescots, stables and even people's homes. They had sweeping powers to come onto people's property and take their soil. They abused these heavily and one of the grievances against King Charles I was the heavy handedness of the saltpetre men.

Eventually, the conflict with the king would turn into the English Civil War. A key weapon in this war was the musket. It was so basic blacksmiths could churn it out by the dozen. Sam fires one with the help of expert gunsmith Robert Tilney. He shows both the musket's power and the lack of accuracy. Muskets were inaccurate but the tactic used was to wait until opponents were very close and then fire one huge volley. Sam shows that the musket would then be used as a heavy club.

Gunpowder weapons gave different injuries to swords and arrows. This led to changes in battlefield surgery, and one who was a key influence was surgeon Richard Wiseman. Sam shows that Wiseman had learnt that any cloth or fragment left from a bullet wound could cause infection and kill the patient.

Finally, Sam travels to Saint Malo in France to tell the story of a frightening attack by the British. In 1693, France and Britain were at war and French pirates had been attacking English ships. Captain John Benbow was asked to launch an attack using a ship crammed with gunpowder. Benbow put 20,000 pounds of gunpowder into the ship as well as many other inflammable ingredients - pitch, straw, sulphur, mortars and grenades. He planned to put this 'Infernal', as it was known, right next to the harbour walls of Saint Malo. But as the ship came near it struck a rock and held fast, within a pistol shot of the town. Then the ship exploded. The sound was heard 100 miles away yet a witness claimed 'no life was lost except a cat in a gutter.' The explosion was 'terrible beyond description' and it shows how far the English were prepared to go in the name of national security.

THU 22:00 Gunpowder 5/11: The Greatest Terror Plot (b04mhwfn)

For the first time, the inner secrets of the gunpowder plotters are dramatised using the actual words of their most senior captured leader Thomas Wintour, Guy Fawkes and state interrogators investigating the 18-month conspiracy in which a family circle of militant Catholic gentlemen tried to blow up king and parliament.

Wintour's insider account of this epic tale of faith, fanaticism, persecution and betrayal is told in detail, from his recruitment of both Fawkes and his own brother to his capture in a dramatic siege and bloody shoot-out on 8 November.

The hopes, fears and plans for a Midlands rebellion, royal kidnap, the plotters' penetration of the king's bodyguard and Fawkes's attendance, sword in hand, at a wedding attended by the king in December 1604 are shown, as well as a dramatisation of the thrilling, forgotten story of the final days after 5/11 as the conspirators are hunted down and then face the terrible punishments reserved for traitors.

THU 23:00 Roger Bannister: Everest on the Track (b07ixs4s)

On 6 May 1954, Roger Bannister became the first man to run a mile in under four minutes. He was the epitome of Britain's disappearing scholar-athlete ideal.

The lunchtime-trained runner, immersed in his medical school studies, injected a booster shot into Britain's flagging but still flickering morale. This documentary is as much an historical study of Britain's search for something to erase the woes of the Second World War as it is a fresh look at the story of the quest for the first four-minute mile, previously deemed physically impossible. The story is told by Sir Roger himself, his rival John Landy, Seb Coe and the late Chris Chataway - Bannister's friend and pacesetter - among many others.

THU 00:00 Timeshift (b068fvln)

[Repeat of broadcast at 20:00 on Tuesday]

THU 01:00 James May: The Reassembler (b0888hqh)

[Repeat of broadcast at 21:00 on Wednesday]

THU 01:30 Gunpowder 5/11: The Greatest Terror Plot (b04mhwfn)

[Repeat of broadcast at 22:00 today]

THU 02:30 Sword, Musket & Machine Gun: Britain's Armed History (b0888mjv)

[Repeat of broadcast at 21:00 today]

FRIDAY 13 JANUARY 2017

FRI 19:00 World News Today (b0881zg2)

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

FRI 19:30 Top of the Pops (b0888q6x)

John Peel and David Jensen present the weekly look at the pop charts, first broadcast on 13 January 1983. Featuring Incantation, Men at Work, Sharon Redd, Keith Harris and Orville, The Belle Stars, John Williams, Eddy Grant, The Maisonettes, Phil Collins and Donna Summer.

FRI 20:00 The Good Old Days (b0888q72)

Leonard Sachs presents an edition of the old time music hall programme, first broadcast on 24 February 1977. With Larry Grayson, Fenella Fielding, Hinge and Bracket, Anna Sharkey and members of the Players' Theatre, London.

FRI 21:00 Sound of Musicals with Neil Brand (b0888r7n)

Oh, What a Beautiful Mornin'

Series in which composer Neil Brand explores how musical theatre evolved over the last 100 years to become today's global phenomenon. Neil hears the inside story from leading composers and talent past and present, and recreates classic songs, looking in detail at how these work musically and lyrically to captivate the audience.

In the first episode, Neil finds out how the modern shape of the musical was established through a series of pioneering works, from Jerome Kern and Oscar Hammerstein's Show Boat in the 1920s with its bold take on America's racial divide and innovative use of songs that further the narrative, to Alan Jay Lerner and Frederick Loewe's My Fair Lady, which made a star of Julie Andrews in the late 1950s. Neil also reveals the songwriting secrets of some much-loved numbers, including 'Ol' Man River, Oh, What a Beautiful Mornin', and If I Loved You.

FRI 22:00 Bowie at the BBC (b0888f7r)

A chronology of clips from the BBC archive giving an overview of David Bowie's extraordinary career from 1964 to 2016. Blending interviews and performances from music programmes, documentaries, news outlets and chat shows, this portrait of Bowie both at his most thoughtful and his most opportunistically promotional is a series of snapshots into a rapidly evolving career across music, films and the theatre.

From a 17-year-old David Jones interviewed by Cliff Michelmore in 1964, on to 1973 when in Ziggy mode Bowie, Ronson and co gave their seminal Top of the Pops performance of Starman, and then to 2000 when Bowie reimagined himself as the cover of Hunks Dory to storm Glastonbury, this is a journey through many Bowies.

The programme includes other classic Top of the Pops, The Old Grey Whistle Test and Later... with Jools' performances and looks at Bowie the actor with interviews about his roles in The Elephant Man, Merry Christmas Mr Lawrence and Labyrinth.

Bowie at the BBC gives an insight into the many ways Bowie chose to present himself at different moments in time, revealing how innovative, funny, surprising and influential he always was.

FRI 23:00 David Bowie: Five Years (b0214tj1)

An intimate portrait of five key years in David Bowie's career. Featuring a wealth of previously unseen archive this film looks at how Bowie continually evolved, from Ziggy Stardust to the soul star of Young Americans and the 'Thin White Duke'. It explores his regeneration in Berlin with the critically acclaimed album Heroes, his triumph with Scary Monsters and his global success with Let's Dance. With interviews with all his closest collaborators, this film investigates how Bowie became an icon of our times.

FRI 00:30 Top of the Pops (b0888q6x)

[Repeat of broadcast at 19:30 today]

FRI 01:05 Sound of Musicals with Neil Brand (b0888r7n)

[Repeat of broadcast at 21:00 today]

FRI 02:05 David Bowie: Five Years (b0214tj1)

[Repeat of broadcast at 23:00 today]