

SATURDAY 09 SEPTEMBER 2017

SAT 19:00 The Brain with David Eagleman (b070ss9x)
Why Do I Need You?

Series in which Dr David Eagleman takes viewers on an extraordinary journey that explores how the brain, locked in silence and darkness without direct access to the world, conjures up the rich and beautiful world we all take for granted.

This episode explores how the human brain relies on other brains to thrive and survive. Dr Eagleman demonstrates how, from as young as ten months old, babies can discern who is trustworthy and who isn't.

Our fundamentally social brain draws us together into groups. An experiment with a simple game of catch reveals that the pain we feel when we are excluded from the group is the same kind of pain as when we hurt ourselves. The powerful testimony of Sarah Shourd, who was imprisoned in Iran for over a year and was kept in solitary confinement - and others like her - demonstrates the absolute need the human brain has for others. She describes the slow disappearance of her 'self'.

In groups, humans have accomplished great things - but there's a darker side. For every 'in group' there is always an 'out group'. Dr Eagleman reveals the results of an experiment he carried out in his lab showing that people who witness a hand getting stabbed with a needle feel less empathy at a deep neural level if that hand is labelled with a religion to which they do not belong.

He journeys to modern-day Bosnia to hear from an eyewitness about what happened in 1995 when genocide returned to Europe. What could have allowed for such horrific group-on-group violence? Dr Eagleman believes that neuroscience offers important answers. Dr Lasana Harris at Leiden University has discovered that there are certain circumstances under which the human brain stops perceiving others as human and it becomes easier to suspend the moral and social rules we normally live by.

Finally, Dr Eagleman explores what can be done to prevent these neural effects, and reveals that our fundamentally social nature holds the key.

SAT 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 mesmeric 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.

SAT 21:00 Inspector Montalbano (b094n0mc)
As Per Procedure

A young woman is found dead and naked in the foyer of an apartment block, her body showing signs of what can only have been a brutal and sexually motivated murder. Montalbano sets out to investigate the circumstances surrounding the girl's death, but every one of the block's inhabitants claims to never have met her before. Someone must be lying.

In Italian with English subtitles.

SAT 22:55 Top of the Pops (b0940bzk)
Steve Wright and Andy Peebles present the pop chart programme, first broadcast on 28 June 1984. Featuring The Bluebells, Human League, Bob Marley & The Wailers, Alison Moyet, Scritti Politti and Frankie Goes To Hollywood.

SAT 23:30 Len Goodman's Dance Band Days (b03n2sck)
Len Goodman takes a step back in time to the heyday of British dance bands, a golden age of music that laid the foundations for

20th-century pop. In the years between the wars, band leaders such as Bert Ambrose and Jack Hylton were household names and the country danced its socks off. It was a time of radio and records, when Britain absorbed black American music and gave it a unique twist.

Many of the bands played in the posh society hotels of London's West End. Some were making big money and enjoying the high life. They were also keen to broadcast to the nation via the new BBC. Len discovers that 'Auntie' had a tricky relationship with the bands - though they formed a key part of the corporation's entertainment output, during the 1920s and 1930s there were concerns about the influence of American culture, song-plugging and commercialisation.

Crooning was also developed as a new style of singing, thanks in part to the development of better microphones. But this new 'intimate' form of singing did not impress everyone at the corporation. Despite the BBC's concerns the vocalists continued to enjoy huge success and fame, as did the bands. Len follows the story of vocalist Al Bowlly, a man of huge talent who attracted great public adoration. Al was killed in London's blitz and buried in a mass grave - a sad and symbolic moment in the history of dance bands.

Len discovers how we went dance band crazy and asks why, within just two decades, our love affair with this music began to fall flat.

SAT 00:30 Andrew Marr on Churchill: Blood, Sweat and Oil Paint (b06714zy)

Andrew Marr discovers the untold story of Winston Churchill's lifelong love for painting and reveals the surprising ways in which his private hobby helped shape his public career as politician and statesman, even playing an unexpected part in his role as wartime leader.

Marr is himself a committed amateur painter and art has played an important role in his recovery from a serious stroke in 2013. His fascination with the healing powers of art fuels a journey that opens a new perspective on one of Britain's most famous men.

Andrew travels to the south of France and Marrakech, where Churchill loved to paint, and discovers how his serious approach to the craft of painting led to friendships with major British artists of the 20th century. He finds out how a single painting in the 1940s may have influenced the course of the Second World War, and meets Churchill's descendants to discover what his family felt about a private hobby that helped keep him sane through his wilderness years. And he discovers how, 50 years after Churchill's death, his art is being taken more seriously than ever before, with one painting being sold for almost £2 million in 2014.

SAT 01:30 Bright Lights, Brilliant Minds: A Tale of Three Cities (b04f83xq)
Vienna 1908

Dr James Fox tells the story of Vienna in 1908, a city of amazing creativity and dangerous tension. This was the year Gustav Klimt painted his masterpiece The Kiss, Sigmund Freud revealed the Oedipus complex, Egon Schiele produced startling pictures of humanity stripped to the bare essentials, and both music and architecture took a bold step in a radical new direction. But it was also the year a struggling young artist named Adolf Hitler arrived in the city, a year that would put Vienna and Europe on the road to destruction.

SAT 02:30 Swarm: Nature's Incredible Invasions (b00gkrm2)

[Repeat of broadcast at 20:00 today]

SUNDAY 10 SEPTEMBER 2017

SUN 19:00 The Making of King Arthur (b00t2q2)

Poet Simon Armitage traces the evolution of the Arthurian legend through the literature of the medieval age and reveals that King Arthur is not the great national hero he is usually considered to be. He's a fickle and transitory character who was appropriated by the Normans to justify their conquest, he was cuckolded when French writers began adapting the story, and it took Thomas Malory's masterpiece of English literature, Le Mort d'Arthur, to restore his dignity and reclaim him as the national hero we know today.

SUN 20:00 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!

SUN 21:00 Horizon (b00vv0w8)
2010-2011

Asteroids - The Good, the Bad and the Ugly

Famed for their ability to inflict Armageddon from outer space, asteroids are now revealing the secrets of how they are responsible for both life and death on our planet.

Armed with an array of powerful telescopes, scientists are finding up to 3,000 new asteroids every night. And some are heading our way.

But astronomers have discovered that it's not the giant rocks that are the greatest danger - it's the small asteroids that pose a more immediate threat to Earth.

Researchers have explained the photon propulsion that send these rocks across space, and have discovered that some asteroids are carrying a mysterious cargo of frost and ice across the solar system that could have helped start life on Earth.

SUN 22:00 The Sky at Night (b094mhbc)
Cassini: The Gamechanger

On 15 September 2017, the most successful space mission of all time will come to a dramatic and violent end as the Cassini probe is sent crashing into the planet Saturn. This one space probe has rewritten the rules of space exploration, repeatedly surprising scientists with its incredible and unexpected observations. It discovered lakes of pure methane on Saturn's moon Titan, mysterious weather systems on Saturn itself, and all the conditions for life on the moon Enceladus. It has exceeded every expectation of its original design brief, and its mission duration has been extended not once but four times. Its legacy for science and for space travel is unique.

Chris Lintott and Maggie Aderin-Pocock explore four major ways in which space exploration of the future has been changed by the discoveries of the Cassini mission.

SUN 22:30 The 21st Century Race For Space (b094f595)

A new age of space exploration, and exploitation, is dawning. But surprisingly, some of the boldest efforts at putting humans into space are now those of private companies started by a handful of maverick billionaire businessmen.

In this film, Brian Cox gains exclusive access behind the scenes at Virgin Galactic, Blue Origin and Spaceport America, exploring what is really happening in privately financed space flight right now. From space tourism to asteroid mining, and even dreams of colonies on Mars, these new masters of the universe refuse to limit their imaginations. But are private companies led by Jeff Bezos, Sir Richard Branson and Elon Musk really going to be able to pull this off? How will they overcome the technical challenges to achieve it? And is it really a good idea, or just a fool's errand?

Cox meets key players in the story - Bezos, founder of Blue Origin as well as Amazon, and Sir Richard Branson, founder of Virgin Galactic. He wants to find out how entrepreneurs - and engineers - really plan to overcome the daunting challenges of human space travel. It certainly hasn't been easy so far. Jeff Bezos has sold a further billion dollars of Amazon stock this year to fund Blue Origin. Branson has been working on Galactic for more than a decade. Lives have been lost. And some companies have already all but given up. But real progress has been made too. The origins of the new space boom, the X-prize in 2004, proved that reusable space craft could be built by private enterprise. Now the challenge is to work out how to run reliable, safe, affordable services that will show a return on the massive financial investments. Sixteen years since Dennis Tito became the first civilian in space, Cox explores the hardware and companies that are aiming to make daily tourist flights to space.

Beyond mass space travel, and even space mining and manufacturing, the dream of Elon Musk and others is true space exploration. His company, SpaceX, already delivers supplies to the International Space Station, and their next step is delivering astronauts too. But their true ambition is to ensure the survival of the human race by crossing our solar system and colonizing Mars in the next decade. Could commercial spaceflight companies eventually make us a space-faring civilization?

SUN 23:30 Horizon (b00hr6bk)
2008-2009

Can We Make a Star on Earth?

Professor Brian Cox takes a global journey in search of the energy source of the future. Called nuclear fusion, it is the process that fuels the sun and every other star in the universe. Yet despite over five decades of effort, scientists have been unable to get even a single watt of fusion electricity onto the grid.

Brian returns to Horizon to find out why. Granted extraordinary access to the biggest and most ambitious fusion experiments on the planet, Brian travels to the USA to see a high-security fusion bomb-testing facility in action and is given a tour of the world's most powerful laser. In South Korea, he clammers inside the reaction chamber of K-Star, the world's first supercooled, superconducting fusion reactor, where the fate of future fusion research will be decided.

SUN 00:30 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.

SUN 01:30 Horizon (b00vv0w8)
[Repeat of broadcast at 21:00 today]

SUN 02:30 Timeshift (b01q9vhy)
[Repeat of broadcast at 20:00 today]

MONDAY 11 SEPTEMBER 2017

MON 19:00 Beyond 100 Days (b094jnxq)
Series 1

11/09/2017

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

MON 19:30 Brushing up on... (b01s0zpm)
Series 1

British Bridges

Danny Baker endeavours to present the definitive guide to Britain's bridges in 30 minutes, armed only with a few VHS tapes and some ham-fisted research. Buckle up!

MON 20:00 Dangerous Earth (b0824cw7)
Avalanche

Dr Helen Czernski looks at the anatomy of an avalanche. From shocking eyewitness footage from within an avalanche to detailed CT scans showing the microscopic changes that cause them, we can now capture exactly what happens as snow transforms into a deadly and unpredictable danger.

MON 20:30 Dangerous Earth (b083bm5m)
Volcano

Helen looks at volcanoes. With shocking eyewitness footage of eruptions, and new thermal imagery and ultra high-speed photography, we can now capture on camera the complex processes crucial to understanding how and why these forces of nature erupt.

MON 21:00 The Normans (b00thpzb)
Normans of the South

Professor Robert Bartlett explores the impact of the Normans on southern Europe and the Middle East. The Normans spread south in the 11th century, winning control of southern Italy and the island of Sicily. There they created their most prosperous kingdom, where Christianity and Islam co-existed in relative harmony and mutual tolerance. It became a great centre of medieval culture and learning.

But events in the Middle East provoked the more aggressive side of the Norman character. In 1095, the Normans enthusiastically answered the pope's call for holy war against Islam and joined the first crusade. They lay siege to Jerusalem and eventually helped win back the holy city from the Muslims. This bloody conquest left a deep rift between Christianity and Islam which is still being felt to this day.

MON 22:00 Blood and Gold: The Making of Spain with Simon Sebag Montefiore (b06ssjfk)
Nation

Simon explores Spain's golden age under Philip II through to the Spanish Civil War and dictatorship under Franco, from which Spain has emerged as a modern democratic monarchy.

MON 23:00 A Very British Murder with Lucy Worsley (p01ftzs2)
The New Taste for Blood

Lucy Worsley investigates the dark and revealing history of our curious relationship with killing. She explores notorious real-life crimes from the first half of the 19th century, finding out how these murders were transformed into popular entertainments.

MON 00:00 She-Wolves: England's Early Queens (b01bgpm7)
Matilda and Eleanor

In the medieval and Tudor world there was no question in people's minds about the order of God's creation - men ruled and women didn't. A king was a warrior who literally fought to win power then battled to keep it. Yet despite everything that stood in their way, a handful of extraordinary women did attempt to rule medieval and Tudor England. In this series, historian Dr Helen Castor explores seven queens who challenged male power, the fierce reactions they provoked and whether the term 'she wolves' was deserved.

Eight hundred years ago, Matilda came within a hair's breadth of being the first woman to be crowned queen of England in her own right. Castor explores how Matilda reached this point and why her bid for the throne ultimately failed. Her daughter-in-law Eleanor of Aquitaine was an equally formidable woman. Despite being remembered as the queen of courtly love, in reality during her long life she divorced one king and married another, only to lead a rebellion against him. She only finally achieved the power she craved in her seventies.

MON 01:00 How to Be Bohemian with Victoria Coren Mitchell (b05yvvvtb)
Episode 1

In the opening episode, Victoria traces the story of the first bohemians. She begins in post-revolutionary Paris, where poverty-stricken, garret-dwelling artists and writers gained a reputation for loose living, colourful clothing and wild, naked parties. They revelled in the absurd - for example, one legendarily took his pet lobster for walks in the park. Here the archetype of the bohemian was born, immortalised later in Puccini's opera La Bohème. But were they trailblazing creatives or irritating posers? And is living outrageously a necessary step towards producing great art?

Victoria goes on to explore how bohemian subculture took root in Britain through the groundbreaking art, eccentricities and bad-boy behaviour of the Pre-Raphaelites. Dante Gabriel Rossetti cultivated his image as an oddball, keeping a menagerie including a much-loved wombat. He caused a scandal when he became obsessively entangled with Jane Morris, wife of his friend, the designer William Morris. Victoria learns how bohemianism evolved into the dandy pose of aesthetes such as playwright Oscar Wilde and artist Aubrey Beardsley, whose explicit drawings intrigued and shocked the public in equal measure.

And she recounts how, most surprisingly, bohemian living found one of its greatest advocates in children's author Arthur Ransome who, long before Swallows and Amazons, wrote a whimsical traveller's guide to bohemian London.

Victoria's historical journey is given added resonance through her probing, highly entertaining encounters with a range of illuminating modern bohemians, including Stephen Fry, artists Grayson Perry and Maggi Hambling, pop star-turned-vicar and broadcaster Richard Coles, writer Will Self and drag artist Jonny Woo.

MON 02:00 Dangerous Earth (b0824cw7)
[Repeat of broadcast at 20:00 today]

MON 02:30 Dangerous Earth (b083bm5m)
[Repeat of broadcast at 20:30 today]

MON 03:00 The Normans (b00thpzb)
[Repeat of broadcast at 21:00 today]

TUESDAY 12 SEPTEMBER 2017

TUE 19:00 Beyond 100 Days (b094jnxw)
Series 1

12/09/2017

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

TUE 19:30 Brushing up on... (b01s1c4y)
Series 1

British Tunnels

Danny Baker considers some tunnel-based archive footage and endeavours to give a quick brush up on these mysterious, subterranean realms.

TUE 20:00 India's Frontier Railways (b05nhjht)
The Samjhauta Express

Freedom came to the subcontinent in August 1947. The British hastily partitioned British India before they left. Independence was attended by a million deaths and 14 million people were displaced.

Yet despite three wars, Pakistan and Indian railways have established a cross-border train, known as the Samjhauta Express - Samjhauta meaning agreement.

Amongst the passengers on the Samjhauta Express from Lahore to Delhi are Bilal and his father Abiz. Seventeen-year-old Bilal was the victim of an accident which damaged his eye. Unable to source the right treatment in Pakistan, father and son trawled the internet and finally found a suitable clinic. But it was in India. They have never stepped outside Pakistan, so they are a little nervous. Will they be successful in getting Bilal's eye treated?

Also on the train is Rahat Khan, the hockey queen. She's a Pakistan international and a railway hockey champion. She is travelling with her Pakistan girls' hockey team to play a match in India. But not everything goes to plan.

For the Sikh community, the Punjab is home. The golden temple of Amritsar is the holy of holies. But each year, on Guru Nanak's birthday, the railway runs special trains across the border to the guru's birthplace in Pakistan, despite the security concerns.

TUE 21:00 Sir Peter Hall Remembered (b0969gs1)

Dame Judi Dench, Sir Ian McKellen, Vanessa Redgrave, Sir Trevor Nunn and many others look back at the extraordinary life of Sir Peter Hall, the man who transformed British theatre. In a career spanning seven decades he brought Samuel Beckett and Harold Pinter to the London stage and led the Royal Shakespeare Company while still only 29 years old.

This film charts his life from simple beginnings as the son of a railwayman to his huge success in British theatre, through the turbulent years at the National Theatre and his other work directing opera, TV and film.

TUE 22:00 The Golden Age of Steam Railways (b01pdsy6)
Branching Out

For more than 100 years steam trains ran Britain, but when steam started to disappear in the 1950s bands of volunteers got together to save some of the tracks and the steam engines that ran on them. Some of these enthusiasts filmed their exploits and the home movies they shot tell the story of how they did it, and how they helped people to reconnect to a world of steam most thought had been lost forever.

TUE 23:00 Inspector Montalbano (b094n0mc)
[Repeat of broadcast at 21:00 on Saturday]

TUE 00:55 The Brain with David Eagleman (b071gx2k)
Who Will We Be?

Series in which Dr David Eagleman takes viewers on an extraordinary journey that explores how the brain, locked in silence and darkness without direct access to the world, conjures up the rich and beautiful world we all take for granted.

In this episode, Dr Eagleman journeys into the future, and asks what's next for the human brain and for our species. Mother Nature has evolved a brain that is able to rewire itself according to its environment. We meet Cameron Mott, who had half her brain removed at the age of four, but was able to develop normally as her brain rewired itself to take over the functions of the missing half. This extraordinary plasticity of the brain opens up all sorts of possibilities for enhancing our reality with new technology.

Dr Eagleman shows us ways in which we'll be able to plug new sensory inputs into our brains and demonstrates his lab's new invention - a vibratory vest which turns sound into patterns of vibration that the brain can learn to interpret. Technology can also allow the brain to control new outputs such as artificial limbs. We meet a disabled patient who can't move her body from the neck down. Electrodes eavesdropping on her motor cortex pick up on electrical signals there and transmit them to an arm across the room.

We may have evolved two arms and two legs, but there is nothing to stop us from extending - and enhancing - our physical selves in the future. These kinds of technological advances are poised to change us - as individuals and as a society - but the biggest game changer as a species would be if we found a way to upload our brains into digital space. Dr Eagleman explores what it would take to do so. We would need powerful computers, and a complete map of the brain's connections, as well as the activity that runs on top.

Dr Eagleman visits the Blue Brain Projects in Lausanne, where scientists are attempting to model a simulation of a working human brain. The chance of success is still many years away, but the possibility leads us to the biggest question in neuroscience - could a simulation of a human brain ever be conscious? Could 'you' exist digitally? And if so, how do we know we are not already living in a simulation?

TUE 01:50 How to Be Bohemian with Victoria Coren Mitchell (b05z5hc2)

Episode 2

In episode two, the journey through bohemian history reaches the early 20th century, when the Bloomsbury Group and others were determined to challenge sexual taboos - sometimes in their work and often in their private lives. They threw off their inhibitions, and frequently their clothes, and set the tone for generations of bohemians who followed. But what did the pursuit of freedom do for these artists, their art, and the people around them?

Victoria considers the very open relationships of the Bloomsbury set, famously known as 'a circle who lived in squares and loved in triangles'. She also visits Charleston, the rural love nest of painters Vanessa Bell and Duncan Grant. She explores the story of Edward Carpenter, the poet and proto-hippy who dared to campaign for gay liberation in Edwardian England, and examines the 'King of Bohemia', painter Augustus John, who was alleged to have sired at least 99 children - one of whom Victoria meets.

This episode also features the Bright Young Things - the glamorous, party-loving bohemians of the Roaring Twenties, who provided the inspiration for photographer Cecil Beaton and writer Evelyn Waugh. Victoria discusses them with Stephen Fry, who directed the film of Waugh's novel *Vile Bodies*. She also uncovers the forgotten life of Nina Hamnett, a painter who spent too much time down the pub to fulfil her early promise. Finally she grapples with the truly shocking sexual conduct of one of the greatest English artists of the century, Eric Gill, whose actions for many embody the most unpalatable excesses of bohemian behaviour, living beyond any boundaries.

Along the way Victoria also meets artists Grayson Perry and Maggi Hambling, and seeks the wisdom of the Rev Richard Coles and author Will Self.

TUE 02:50 India's Frontier Railways (b05nhjht)
[Repeat of broadcast at 20:00 today]

TUE 03:50 The Golden Age of Steam Railways (b01pdsy6)
[Repeat of broadcast at 22:00 today]

WEDNESDAY 13 SEPTEMBER 2017

WED 19:00 Beyond 100 Days (b094jny1)
Series 1

13/09/2017

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

WED 19:30 Brushing up on... (b01s6h36)
Series 1

British Towers

Danny Baker turns his attention to Britain's towers, those soaring structures that loom loftily above us but about which little is known.

WED 20:00 Everyday Eden: A Potted History of the Suburban Garden (p01t8n4q)

Because it's not grand, the story of the suburban garden has barely been told - and yet eight out of ten people in England live in the suburbs. In this documentary, writer and historian Michael Collins delivers a riposte to the urban intelligentsia which has spent a century sneering at the suburbs. His south London pilgrimage takes him to Bexley and Bromley, Surbiton and the new promised land of Bluewater in Kent to explore what the suburban garden has meant to the UK and to celebrate what one contributor calls 'their little piece of heaven'.

George Orwell famously laid out the icons of English culture as 'solid breakfasts and gloomy Sundays, smoky towns and... red pillarboxes' and Collins shows that the suburban garden very much deserves a place in that canon. South Londoner Collins previously charted the history of the white working class in his controversial book *The Likes of Us* and explored the rise and fall of the council house in BBC Four's *The Great Estate*. He tends to admire what critics of suburbia have loathed - its lack of history, the mock and ersatz style of its homes and gardens, and the suggestion that it is a 'nowhere place', neither town nor country but stranded in between.

Collins's journey starts a century ago in Hampstead Garden Suburb, a planned utopia that transformed the lives of its residents fleeing urban squalor, but one that came with off-putting regulations - maximum hedge size, a designated wash-day, and no pub. Suburban sprawl between the wars, when three million new homes were built, couldn't have been more different. 'You could', recalls one contributor from Welling, 'buy a house for 12/6 down and pay 7/6 a week on the mortgage, and suddenly you had a two-up/two-down, front garden/back garden. Those were the days!'

In the 1930s, Wills cashed in on the suburban gardening craze with 50 cigarette cards offering handy tips. But this was also the era that identified a new condition - suburban neurosis. When war broke out, Rita Withers's dad, a veteran of the Somme, was so traumatised he dug a trench right across their lawn, thinking it the only way to protect his family. Wartime 'Dig for Victory', launched by the BBC's first horticultural expert, Mr Middleton, saw flowers sacrificed for vegetables and the war effort.

The Peace Rose ushered in the post-war garden, and contributors fondly remember the ubiquitous swing of the 1950s and 60s, the equally ubiquitous tortoise and the shock of the new as suburbia's new mecca, the garden centre, transformed the 70s garden. This was the era of *The Good Life*, but a Surbiton couple, the Howes, whose immaculate garden would have impressed Margot and Jerry, are keen to point out the series was actually shot in north London 'because Surbiton was not sufficiently like Surbiton to be worth filming... a kind of oblique compliment.'

Collins's suburban odyssey ends in the spanking new 21st-century purpose-built suburb of Ingress Park in Kent, a dormitory for Europe's biggest mall, Bluewater. Karen Roberts may have bought her astroturf lawn for £700 on the internet, but the appeal of the suburban garden is timeless. 'Ingress Park is dope', she explains. 'I live the dream. I haven't got a lot of money to spend, but I can go snip, snip, I'm doing my garden, I love it.'

WED 21:00 Andrew Marr's The Making of Modern Britain (b00p7099)
Britannia at Bay

The final film in Andrew Marr's epic six-part series is a vivid account of Britain in the Second World War.

Marr's story of 'the people's war' begins with the defeat that came to define modern Britain's national spirit: Dunkirk. In 1940, Britain stood alone against the might of the German war machine. Churchill produced the words that stirred the Blitz spirit, but a Nazi invasion seemed inevitable. How could Britain fight on? The 'Dad's Army' of the Home Guard was hastily assembled and Britain was forced to pull together in ways it never had before.

Andrew Marr finds some surprising twists to legendary stories; the Battle of Britain was not simply a story of reckless bravery, but also a one of lethally efficient command and control. The Blitz was a devastating attack from the air that everyone had dreaded, yet it didn't break the spirit of the people or dim their humour.

This was also the boffins' war, and Churchill understood the importance of science. He was prepared to give away Britain's most highly classified scientific and military secrets to help bring the Americans into the conflict. This wooing would help bring victory. But it came at a price: a bankrupt nation, a crumbling empire and a US cultural invasion that defines modern Britain to this day.

WED 22:00 Sound Waves: The Symphony of Physics (b08h06tq)

Series 1

Making Sound

Dr Helen Czerski investigates the extraordinary science behind the sounds we're familiar with and the sounds that we normally can't hear.

She begins by exploring the simplest of ideas: what is a sound? At the Palace of Westminster, Helen teams up with scientists from the University of Leicester to carry out state-of-the-art measurements using lasers to reveal how the most famous bell in the world - Big Ben - vibrates to create pressure waves in the air at particular frequencies. This is how Big Ben produces its distinct sound. It's the first time that these laser measurements have been done on Big Ben.

With soprano singer Lesley Garrett CBE, Helen explores the science of the singing voice - revealing in intimate detail its inner workings and how it produces sound. Lesley undergoes a laryngoscopy to show the vocal folds of her larynx. At University College London, Lesley sings I Dreamed a Dream inside an MRI scanner to reveal how her vocal tract acts as a 'resonator', amplifying and shaping the sound from her larynx.

Having explored the world of sounds with which we are familiar, Helen discovers the hidden world of sounds that lie beyond the range of human hearing. At the summit of Stromboli, one of Europe's most active volcanoes, Helen and volcanologist Dr Jeffrey Johnson use a special microphone to record the extraordinary deep tone produced by the volcano as it explodes - a frequency far too low for the human ear to detect. Helen reveals how the volcano produces sound in a similar way to a musical instrument - with the volcano vent acting as a 'sound resonator'.

Finally, at the University of Cambridge's Institute of Astronomy, Helen meets a scientist who has discovered evidence of sound waves in space, created by a giant black hole. These sounds are one million billion times lower than the limit of human hearing and could be the key in figuring out how galaxy clusters, the largest structures in the universe, grow.

WED 23:00 Britain in Focus: A Photographic History (b08h95jk)

Series 1

Episode 1

Series in which Eamonn McCabe celebrates Britain's greatest photographers, sees how science allowed their art to develop, and explores how they have captured our changing lives and country.

In the first of three programmes, Eamonn goes back to the 19th century to trace the astonishingly rapid rise of the photograph in British life. Eamonn explores the science behind early photography, and shows how innovative photographic techniques made possible the careers of pioneers like Roger Fenton and Julia Margaret Cameron. He sees how great figures of the age such as Queen Victoria and Isambard Kingdom Brunel were captured on camera, and revisits the Victorians' sense of wonder about the 'natural magic' of photography and the role it played in their lives.

WED 00:00 Hidden Histories: Britain's Oldest Family Businesses (b03q0177)

Balson the Butcher

The first of three documentaries following the bosses of some Britain's oldest family businesses as they go on a journey into their remarkable pasts.

Richard Balson's family have been butchers for almost 500 years, since Henry VIII was on the throne. He goes back through centuries of butchery to the origin of the British high street. Along the way he discovers how the Balsons have stayed in the butchery business despite scandal and tragedy.

WED 01:00 How to Be Bohemian with Victoria Coren Mitchell (b0607p4y)

Episode 3

Are we all bohemian now or are none of us? Just one of the questions Victoria discusses with a colourful array of modern-day bohemians in the final episode of her series exploring unconventional living. This time she runs the postwar gamut from artist, drinker and sexual masochist Francis Bacon to the modern-day, latte-sipping hipster.

The birth of pop music and the sexual revolution spread bohemian values from an arty elite to ordinary folk in the suburbs. But were these watered down with mass take-up in the 1970s, becoming little more than a lifestyle choice, signalled perhaps by a taste for eccentric clothes, recreational drugs and a willingness to talk frankly about sex? Perhaps, Victoria

wonders, it was punks who were the true bohemians of their day, because like their 19th-century French predecessors, they set out to shock. And she asks, were the new bohemians those who flamboyantly championed gay rights in the 1980s, then equally shocking to mainstream society?

And what of today? Do today's artists and wannabe artists still identify with either the values or the pose of bohemians past? Or has the idea of the 'alternative' lifestyle, like everything else in our post-industrial culture, become a commodity to such an extent that the concept has been robbed of any value? Does a fine beard really signal a free spirit? Or is the life of the hipster worlds apart from those few daring individuals still determined to plough their own furrow?

Victoria quizzes a range of entertaining and colourful interviewees over the course of the episode - hearing the hedonistic exploits of artist Molly Parkin, uncovering the punk past of critic AA Gill, and asking former pop star-turned-vicar Richard Coles about his drug and sex-fuelled party years. She also talks to fine artists Grayson Perry and Maggi Hambling, drag artists Jonny Woo and the Virgin Xtravaganzah, poet John Cooper Clarke and writer Will Self. And she visits the squat where the self-styled 'Bohemians 4 Soho' are seeking to prevent corporate redevelopment of one of London's iconic music venues.

WED 02:00 Everyday Eden: A Potted History of the Suburban Garden (p0118n4q)
[Repeat of broadcast at 20:00 today]

WED 03:00 Sound Waves: The Symphony of Physics (b08h06tq)
[Repeat of broadcast at 22:00 today]

THURSDAY 14 SEPTEMBER 2017

THU 19:00 Beyond 100 Days (b094jny6)
Series 1

14/09/2017

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

THU 19:30 The Sky at Night (b094mhbc)
[Repeat of broadcast at 22:00 on Sunday]

THU 20:00 Britain's Outlaws: Highwaymen, Pirates and Rogues (b06rfl46)
Rogues Gallery

Few figures in British history have captured the popular imagination as much as the outlaw. From gentleman highwaymen, via swashbuckling pirates to elusive urban thieves and rogues, the brazen escapades and the flamboyance of the outlaw made them the anti-hero of their time - feared by the rich, admired by the poor and celebrated by writers and artists.

In this three-part series, historian Dr Sam Willis travels the open roads, the high seas and urban alleyways to explore Britain's 17th and 18th-century underworld of highwaymen, pirates and rogues, bringing the great age of the British outlaw vividly to life.

Sam shows that, far from being 'outsiders', outlaws were very much a product of their time, shaped by powerful national events. In each episode, he focuses not just on a particular type of outlaw, but a particular era. The series as a whole offers a chronological portrait of the changing face of crime in the 17th and 18th centuries.

In the final episode, Sam looks at urban crime, fraud and corruption in the 18th century, uncovering a fascinating rogues' gallery of charmers, fraudsters and villains. Charmers like thief and serial escaper Jack Sheppard, so notorious that almost a quarter of a million people turned up to witness his hanging. Almost as controversial in her lifetime was Mary Toft, a fraudster who managed to convince no less than King George I and his surgeon that she had given birth to rabbits, making her, perhaps, the original 'con' artist.

THU 21:00 Mercury Prize (b09560x8)
2017

Album of the Year Live

Lauren Laverne hosts this year's prestigious Mercury Music Prize from the Eventim Apollo in Hammersmith, London. Each year, an esteemed collection of artists, broadcasters and tastemakers decide on what they believe to be the outstanding albums of the year from the UK and Ireland. This shortlist is

seen as reflecting and highlighting the diversity of the UK music scene and this year features grime, pop, jazz, rap and indie guitar.

As ever the albums and artists are an eclectic bunch which include previous winners alt-J and The xx, grime star Stormzy, poet Kate Tempest and the interesting choice that has had the critics talking, a certain Mr Ed Sheeran. During this show, all the shortlisted albums will be celebrated through special performances, culminating in the live announcement of this year's winner.

THU 22:25 Indie Classics at the BBC (b06g5jfp)

A look back through the archives at some of the classic tunes from the world of indie music through the 80s and early 90s, including the likes of Joy Division, Depeche Mode, The Smiths, Cocteau Twins, Primal Scream and many more.

THU 23:30 The Kate Bush Story: Running Up That Hill (b04dzwb)

Documentary exploring Kate Bush's career and music, from January 1978's Wuthering Heights to her 2011 album 50 Words for Snow, through the testimony of some of her key collaborators and those she has inspired.

Contributors include the guitarist who discovered her (Pink Floyd's David Gilmour), the choreographer who taught her to dance (Lindsay Kemp) and the musician who she said 'opened her doors' (Peter Gabriel), as well as her engineer and ex-partner (Del Palmer) and several other collaborators (Elton John, Stephen Fry and Nigel Kennedy).

Also exploring their abiding fascination with Kate are fans (John Lydon, Sidi Larbi Cherkaoui) and musicians who have been influenced by her (St Vincent's Annie Clark, Natasha Khan (aka Bat for Lashes), Tori Amos, Outkast's Big Boi, Guy Garvey and Tricky), as well as writers and comedians who admire her (Jo Brand, Steve Coogan and Neil Gaiman).

THU 00:30 Music Moguls: Masters of Pop (p039w64c)
Money Makers

Three-part series revealing the secret history of pop and rock from the men and women who pull the strings behind the scenes.

Programme one tells the story of the maverick managers who controlled the careers of megastar artists, from Colonel Parker (Elvis) right the way up to Scooter Braun (Justin Bieber). Along the way are rollicking tales of industry legends like Led Zeppelin's Peter Grant, and Don Arden, who managed The Small Faces, Black Sabbath and ELO.

Narrated by Simon Napier-Bell, it also features contributions from Andrew Loog Oldham (The Rolling Stones), Jon Landau (Bruce Springsteen), Bill Curbishley (The Who), Paul McGuinness (U2) and Jonathan Dickinson (Adele).

THU 01:30 I'm Not In Love: The Story of 10cc (b06r14pr)

In celebration of the 40th anniversary of smash hit I'm Not in Love, the original members of 10cc - Graham Gouldman, Eric Stewart, Kevin Godley and Lol Creme - reunite to tell their story. The documentary shares the secrets to some of their most successful records, from the writing and the recording to the tours and the tensions.

With contributions from an impressive array of music industry legends including 10cc's band manager Harvey Lisberg, lyricist Sir Tim Rice, broadcaster Paul Gambaccini, legendary producer Trevor Horn, Stewart Copeland (The Police), Graham Nash (The Hollies) and Dan Gillespie Sells (The Feeling), not only does this film highlight the diversity of these four brilliant musicians' songwriting talent, but it also delves into the influence they had, as well as the politics beneath their acrimonious split in 1976, at the height of their fame.

THU 02:30 Britain's Outlaws: Highwaymen, Pirates and Rogues (b06rfl46)

[Repeat of broadcast at 20:00 today]

FRIDAY 15 SEPTEMBER 2017

FRI 19:00 World News Today (b094jnyc)

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

FRI 19:30 Top of the Pops (b0955wql)

John Peel and Tommy Vance present the pop chart programme, first broadcast on 12 July 1984. Featuring Shakatak, Tina Turner, Alison Moyet, Phil Fearon and Galaxy, Echo and The Bunnymen, The Bluebells and Frankie Goes To Hollywood.

FRI 20:00 The Live Lounge Show (b0956jfr)
Series 1

Foo Fighters and More: Live Lounge Special

Clara Amfo takes us behind the scenes of Radio 1's Live Lounge - the biggest live studio showcase in the world.

Live Lounge sessions happen twice a week across the year, attracting an array of some of the biggest and best artists on the planet. In September however, it gets turbo-charged with a performance every weekday across the whole month.

We bring you the very best of the first week of performances and Live Lounge exclusive interviews.

Clara heads to LA to the legendary 606 Studio to host the Foo Fighters in session and to catch up with Dave Grohl. Also in the programme, we bring you live music from Chris Martin, The Script, The xx and 30 Seconds to Mars.

This is live performance with a twist as each artist performs their own track and a cover version. Any Live Lounge listeners will know that the cover version is usually a recently released single, but not this year! To celebrate the 50th anniversary of Radio 1, the cover can be any track from the last 50 years and have we got some treats for you... Foo Fighters cover none other than AC/DC.

FRI 21:00 Marc Bolan: Cosmic Dancer (b094mcwl)

This intimate biography, narrated in Marc Bolan's own words, traces his remarkable journey from Hackney's 'king of the mods' to Tyrannosaurus Rex, as he evolved into the artist known as 'the hippie with a knife up his sleeve'.

With the dawn of the 1970s and the breakup of The Beatles, Bolan became the gender-bending glam rocker whose band T. Rex revitalised the British music scene. But director Jeremy Marre - incorporating unseen movies shot by record producer Tony Visconti and Marc Bolan himself - reveals a far more complex and driven figure whose life was tragically cut short, aged 29.

Featuring those who were closest to Marc, his friends, colleagues, family, partner Gloria Jones and producer Tony Visconti.

FRI 22:00 Glam Rock at the BBC (b094mcwn)

A spangly celebration of the outbreak of far-out pop and fuzz-filled rock that lit up the British charts in the early 1970s. Top of the Pops is our primary arena and its gloriously gaudy visual effects are used here aplenty! The compilation also utilises footage from a selection of BBC concerts as well as from Crackerjack and Cilla. It features classic BBC TV performances from T. Rex, David Bowie, Roxy Music, Alice Cooper, Suzi Quatro, Slade, The Sweet, Elton John, Queen, Sparks and many more.

FRI 23:00 Elton John at the BBC (b00vs5c0)

Elton John's career tracked in archive from performances, interviews and news clips.

FRI 00:00 Rod Stewart at the BBC (b03m81n5)

Compilation of Rod Stewart's finest performances at the BBC. We revisit the early 70s with The Faces performing Stay with Me and Three Button Hand Me Down on Sounds for Saturday. The BBC charted Rod's solo success over the years and there are classic performances and interviews that will make you dance, sing and pull on your heartstrings. Songs include Sailing, You're in My Heart, I Don't Want to Talk about It and Do Ya Think I'm Sexy?

We also have Rod's performance from Glastonbury 2002 of the classic Handbags and Gladrags, and we dip into the Great American Songbook with his version of the Dorothy Fields classic I'm in the Mood for Love. Finally, rounding off over five decades in music is a performance from Rod's Radio 2 concert from May 2013.

FRI 01:00 Top of the Pops (b0955wql)

[Repeat of broadcast at 19:30 today]

FRI 01:35 Marc Bolan: Cosmic Dancer (b094mcwl)

[Repeat of broadcast at 21:00 today]

FRI 02:35 Glam Rock at the BBC (b094mcwn)

[Repeat of broadcast at 22:00 today]