

THE LOST WORLD

A READERS' GUIDE

MELANIE
KELLY



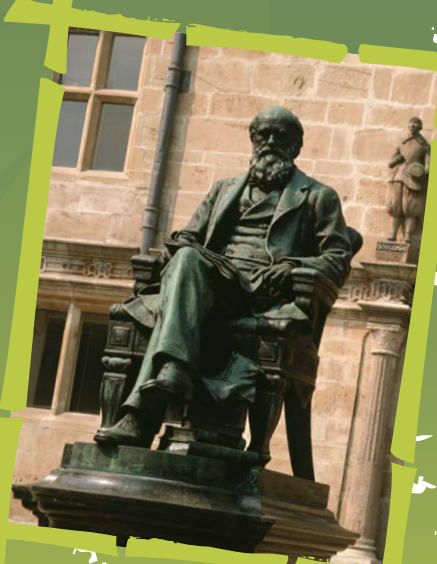
www.lostworldread.com

CONTENTS

THE LOST WORLD READ 2009	1
KEY DATES	2
SIR ARTHUR CONAN DOYLE	4
THE LOST WORLD	12
DISCUSSION QUESTIONS	18
CHARLES DARWIN	20
FOSSILS AND DINOSAURS	26
EVOLUTION AND SCIENCE FICTION	32
RESOURCES	39
ACKNOWLEDGEMENTS	40



Statue of Sherlock Holmes outside 11 Picardy Place, Edinburgh where Conan Doyle was born (Edinburgh UNESCO City of Literature Trust, 2008).



Statue of Darwin in the centre of Shrewsbury, his home town (Britain on View).

THE LOST WORLD READ 2009

The Lost World Read 2009 celebrates the 150th anniversary of the birth of Sir Arthur Conan Doyle and the bicentenary of the birth of Charles Darwin with a mass-read of the classic adventure story *The Lost World*. It is part of Darwin 200 – the global celebrations of the life and work of the man who transformed the world with his theory of evolution by natural selection.

The project brings communities together to share the joy of reading, learn about the past and discuss issues of current concern. People will be taking part in locations across England and Scotland.

Thousands of copies of the full-text version of the book and a specially commissioned adaptation for younger or less confident readers are being distributed across the participating areas, along with a graphic-style biography of Darwin.

Support material includes a dedicated website providing information on activities taking place during the course of the project. Visit www.lostworldread.com for further details.

This illustrated guide provides historical background information of relevance to the novel. It includes biographies of Conan Doyle and Darwin, pointing out where their lives and interests overlapped; a look at fossils and dinosaurs and the impact their discovery had upon the popular imagination; and a survey of evolutionary themes in British science fiction.

Further background material can be found on the website. This guide can also be downloaded from the website in PDF and Word format.

Once you've finished the book please submit your comments via the online survey.

We hope you enjoy taking part in The Lost World Read 2009.

SPOILER ALERT

You may want to leave this guide and the other background material until you have read the book in case you see something that will give the plot away.

KEY DATES

YEAR	DARWIN	CONAN DOYLE	OTHER EVENTS
1809	Born in Shrewsbury		Fulton's steamboat
1825	University of Edinburgh		Stockton & Darlington Railway
1828	University of Cambridge		Wellington becomes PM
1831	Graduates. <i>Beagle</i> departs Plymouth		Reform Bill riots
1836	<i>Beagle</i> returns		Battle of Alamo
1839	Marries Emma. First child born		Chartist riots
1842	Moves to Down House		Britain acquires Hong Kong
1851	Death of daughter Anne		Great Exhibition
1859	<i>On the Origin of Species</i>	Born in Edinburgh	Deaths of Stephenson and Brunel
1868	<i>Variation of Animals and Plants</i>	Starts boarding school	Gladstone becomes PM
1876	Writes autobiography	University of Edinburgh	Bell patents telephone
1879	Biography of grandfather published	First story and first non-fiction published	Zulu rebellion



Illustration from Conan Doyle's 'The Silver Blaze' (City of Westminster Libraries).

YEAR	DARWIN	CONAN DOYLE	OTHER EVENTS
1881	Revises his autobiography	Graduates Bachelor of Medicine (CM)	End of first Boer War
1882	Dies	Plymouth. Southsea	<i>Treasure Island</i>
1885		Marries Louise. Graduates MD	Benz Patent motorcar
1887	<i>Life and Letters</i> published	'A Study in Scarlet'	Golden Jubilee
1891		Full-time writer	Edison's kinetoscope
1895		Visits Egypt	Dreyfus Affair
1900		Serves in Boer War	Relief of Mafeking
1901		'The Hound of the Baskervilles'	Death of Victoria
1907		Marries Jean	New Zealand independent dominion
1912		<i>The Lost World</i> book	Titanic sinks
1917		Speaks publicly on spiritualism	Russian Revolution
1918		Son Kingsley dies	End of World War One
1920		Cottingley fairies	Prohibition in USA
1925		<i>The Lost World</i> film	Scopes' 'Monkey Trial'
1930		Dies	Gandhi leads salt protest

SIR ARTHUR CONAN DOYLE

ARTHUR IGNATIUS CONAN DOYLE WAS BORN ON 22 MAY 1859 AT 11 PICARDY PLACE, EDINBURGH. HE WAS ONE OF NINE DOYLE CHILDREN AND THE ELDEST SON.

His father, Charles Doyle, was a London-born clerk employed by the Office of Works. His mother, Mary, had emigrated to Scotland from Ireland with her mother and sister, and claimed a distinguished family history. His paternal grandfather, John – also Irish – was a successful cartoonist and painter known by the pseudonym HB.

As a result of the turmoil at home caused by his father's alcoholism, Conan Doyle lived for a time with his mother's friend, Mary Burton at Liberton Bank in Edinburgh. She was the sister of the Scottish historian and political economist, John Hill Burton, who encouraged the future author's interest in history. His mother had already instilled in him a love of reading and of ancestry. When Conan Doyle rejoined his family they had moved to a tenement flat at 3 Sciennes Hill Place.

In 1868, dissatisfied with the education he was receiving at Newington Academy in Edinburgh, Mary persuaded Charles' more prosperous brothers to pay for Conan Doyle to attend Hodder, a Jesuit preparatory school in Lancashire. He transferred to its upper school, Stonyhurst College, two years later. While at school he developed his talent as a story-teller and was also a keen

Conan Doyle at his desk (reprinted by kind permission of the Royal College of Surgeons of Edinburgh).



sportsman (in later life he continued to play cricket, rugby, football and golf, and was a cross-country skier). Among his favourite authors at this time were Walter Scott, James Fenimore Cooper and Jules Verne.

In 1875, Conan Doyle was sent to Feldkirch in Austria – another Jesuit school – before taking up a place at the University of Edinburgh the following year to study medicine. While still a student, he submitted the story 'The Haunted Grange of Goresthorpe' to *Blackwood's Edinburgh Magazine*, but it was rejected. He had more luck with 'The Mystery of Sasassa Valley', which was published in *Chambers's Edinburgh Journal* on 6 September 1879. He received a payment of three guineas. That same year his first work of non-fiction, 'Gelseminium as a Poison', was published in the *British Medical Journal*.



Left: Plaque outside 23 George Square, one of the Doyle family's many homes when they were living in Edinburgh (Edinburgh UNESCO City of Literature Trust, 2008).

Below: Professor William Rutherford of the University of Edinburgh who would later provide the inspiration for Professor Challenger in *The Lost World* (Edinburgh UNESCO City of Literature Trust, 2008).

Conan Doyle took a break from his studies in 1880 when he signed on as a surgeon for a voyage to the Arctic on the whaling ship *Hope*. He returned to Edinburgh to graduate as Bachelor of Medicine and Master of Surgery in 1881. In October that year he joined the steamer *Mayumba* as the ship's medical officer. This voyage took him out to Sierra Leone and Liberia. He returned home in January 1882.

By the summer, Conan Doyle had moved to Plymouth to join Dr George Budd, a fellow Edinburgh graduate, in general practice. The unpredictable Budd proved to be an unscrupulous business partner and Conan Doyle soon left for Southsea, Portsmouth where he eventually built up a more successful practice of his own (he gave a fictionalised account of his Plymouth experience in *The Stark Munro Letters*, published in 1895).

Throughout this period, he continued to write and among his early short stories were two inspired by his maritime adventures: 'The Captain of the *Pole-Star*', a ghost story set on a whaler, and 'J Habakuk Jephson's Statement', a version of the *Mary Celeste* mystery. Around this time he also began writing a novel, *The Firm of Girdlestone*. This was eventually published in 1890. The previous year the historical romance, *Micah Clarke*, became his first full-length novel to get into print.

Conan Doyle completed his studies and graduated as an MD from the University of Edinburgh in 1885. On 6 August that year he married Louise Hawkins who was the sister of one of his Southsea patients. Conan Doyle had already developed an interest in



Issue of *The Strand Magazine* featuring a Holmes competition (reprinted by kind permission of the Royal College of Surgeons of Edinburgh).

mediums by this time and, through his wife, he mixed socially with people who took part in séances. The world of spiritualism would become increasingly important to him and was one he would try to reconcile with the world of science.

Conan Doyle's Sherlock Holmes series began with 'A Study in Scarlet', which was published in 1887 in Beeton's *Christmas Annual* (Conan Doyle had sold the rights to Ward Lock for £25 the previous year, a decision he would later regret, feeling he had been exploited by the publisher). It was described by the *Glasgow Herald* as the annual's 'pièce de résistance'. Its sequel, 'The Sign of the Four', was commissioned and published by *Lippincott's*



Magazine in February 1890 (Oscar Wilde was commissioned to write 'The Picture of Dorian Gray' at the same meeting). In his Holmes stories, Conan Doyle applied the knowledge he had gathered from his medical studies of how a case was built up by the logical accumulation of evidence. The character of Holmes was partly based on that of Dr Joseph Bell, one of his lecturers at Edinburgh, who had impressed his students with his deductive reasoning.

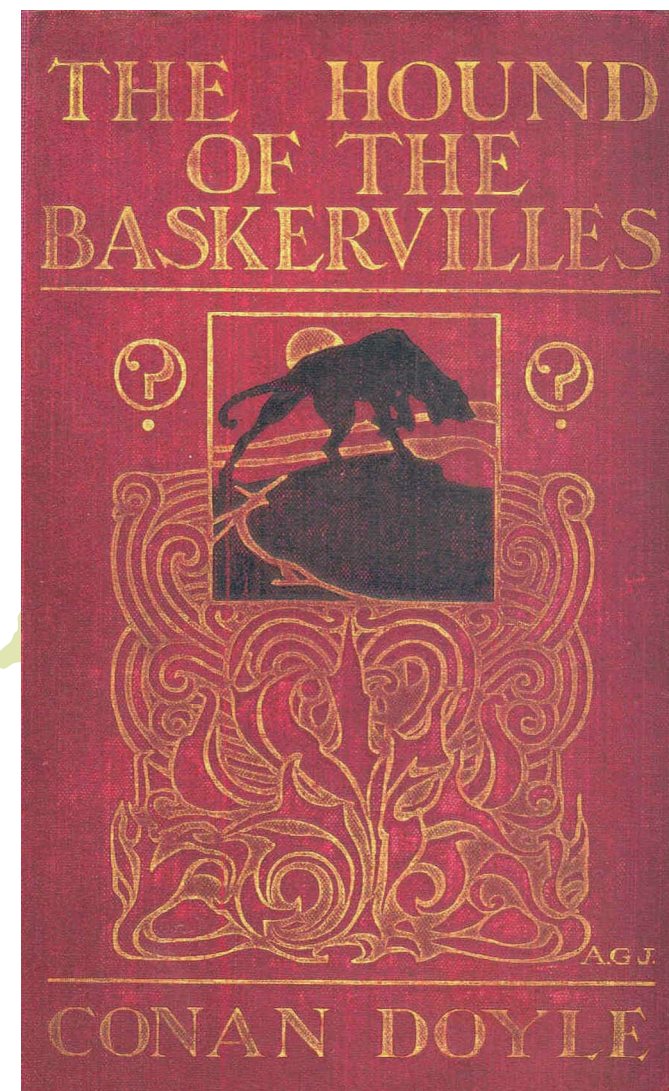
At this stage, Conan Doyle still intended to continue working in medicine. On a trip to Berlin in 1890 he had met Malcolm Morris, a Harley Street doctor, who advised him to leave Southsea and set himself up as an eye specialist in London. The career move was unsuccessful, but fortunately the Holmes stories were taken up by the newly founded *Strand Magazine* and quickly became a hit with readers (the first to appear there was 'A Scandal in Bohemia'), allowing Conan Doyle to increase his author's fees and become a full-time writer.

Conan Doyle's first love remained historical fiction and he worried that his detective stories would come to overshadow his more serious literary work. He wrote to his mother Mary in November 1891: 'I think of slaying Holmes... and winding him up for good and all. He takes my mind from better things.' To that end, in 'The Final Problem' (published December 1893), he plunged Holmes and his arch-nemesis, Professor Moriarty, seemingly to their deaths at the Reichenbach Falls. Conan Doyle's liberation was short-lived, however, and he was forced to bring Holmes back by popular demand with 'The Hound of the Baskervilles' in 1901. He negotiated a generous fee of £100 per 1,000 words from *The Strand* for his work. From this he paid a percentage to the journalist Bertram Robinson who had first told him the legend of a terrifying dog at loose on Dartmoor and had provided some local background for the story. Conan Doyle continued to produce Holmes stories in the coming years, concluding with the collection published as *The Casebook of Sherlock Holmes* in 1927. *The Complete Sherlock Holmes Short Stories* was published the following year.

During a visit to Egypt for Louise's health in 1895, fighting broke out between the Dervishes and the British, and Conan Doyle cabled *The Westminster Gazette*, offering his services as a war correspondent. With the outbreak of the Boer War in 1899, he

enthusiastically volunteered to serve as a doctor at the hospital set up by his friend John Langman in Cape Town. More than 300,000 copies of his pamphlet *The War in South Africa: its cause and conduct* were sold in Britain, and it was also made widely available abroad to counter anti-British propaganda. Conan Doyle's patriotism made him a public figure, his fame going far beyond

First edition of
*The Hound of the
Baskervilles* (City of
Westminster Libraries).



what he had achieved with his fiction, and he was rewarded, to his apparent embarrassment, with a knighthood in 1902.

Conan Doyle had moved from London to Haselmere in Surrey in 1893. By now he had two children, a daughter Mary Louise, born in 1889 and a son, Kingsley, born in 1892. His wife had contracted tuberculosis soon after their son's birth and remained an invalid for the remainder of her life, finally succumbing to the disease on 4 July 1906. The following year, Conan Doyle married Jean Leckie, with whom he had had an unconsummated love affair for over ten years (one of the many causes he adopted was that of reforming British divorce laws). They moved to Windlesham in Crowborough, Sussex and had three children. It was here he wrote *The Lost World*, which was published in 1912.

During the First World War Conan Doyle served as a private in the Crowborough Company of the Sixth Royal Sussex Volunteer Regiment, and as a military correspondent and historian (his



Conan Doyle with his sons from his second marriage (reprinted by kind permission of the Royal College of Surgeons of Edinburgh).

six-volume *The British Campaign in France and Flanders* was published in 1920). His eldest son, having been injured while serving as a captain at the front, died of influenza in 1918. Conan Doyle found some degree of solace from this death, and those of other close family members, through spiritualism; although he had long lost his religious faith, he still believed in an after life. Throughout the 1920s, his time was dominated by his commitment to evangelising worldwide on behalf of the spiritualist movement, leading to publications that included *The Wanderings of a Spiritualist* (1921), *The History of Spiritualism* (1926) and *Pheneas Speaks: direct spirit communications in the family circle* (1927). *The Coming of the Fairies* (1922) was his account of the story of two little girls from Cottingley, Yorkshire, who had made photographs of fairies (a hoax which had taken him in completely). This along with his spiritualism led to criticism in the press of his credulity.

Conan Doyle died at his home on 7 July 1930 following a heart attack. He was originally buried in the rose garden at Windlesham, but was later interred with his second wife in Minstead churchyard in the New Forest.

In his biography of Conan Doyle, Andrew Lycett writes:

At the time the obituaries were respectful. But there was a sense that his day had past. As the bright young things of the jazz age struggled with economic depression, they were not greatly interested in a man who had become obsessed with another world.

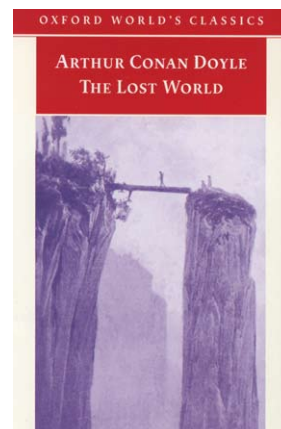
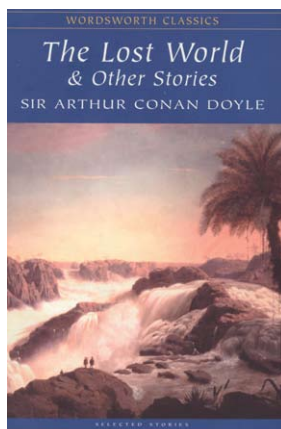
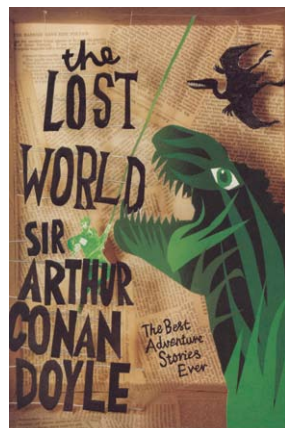
His reputation as an author was not helped by the activities of enthusiasts such as the Baker Street Irregulars who lived in a fantasy world in which Dr Watson actually wrote the Holmes stories and Conan Doyle was just his literary agent! However, Conan Doyle's skill as a storyteller can not be in doubt, whether this be in historical, detective or science fiction, and he remains one of the world's most popular authors.

THE LOST WORLD

I HAVE WROUGHT MY SIMPLE PLAN
IF I GIVE ONE HOUR OF JOY
TO THE BOY WHO'S HALF A MAN,
OR THE MAN WHO'S HALF A BOY

The Lost World (1912) is an exciting tale of heroism and skulduggery involving bad-tempered scientists, unrequited love, hidden diamonds and dinosaurs. The plot hinges upon the irascible character of Professor Challenger who goes to South America to verify some of the observations made by other naturalists. He discovers that prehistoric creatures, long thought to be extinct, still exist on the continent. He later returns to the 'lost world' to gather the evidence that will convince his sceptical colleagues back

Modern editions of *The Lost World* (Headline, Wordsworth and Oxford University Press).



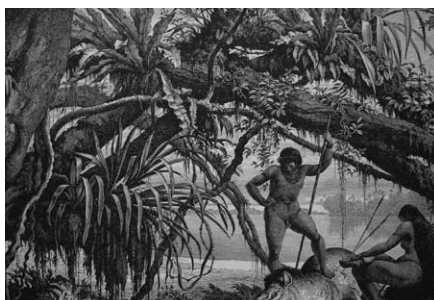
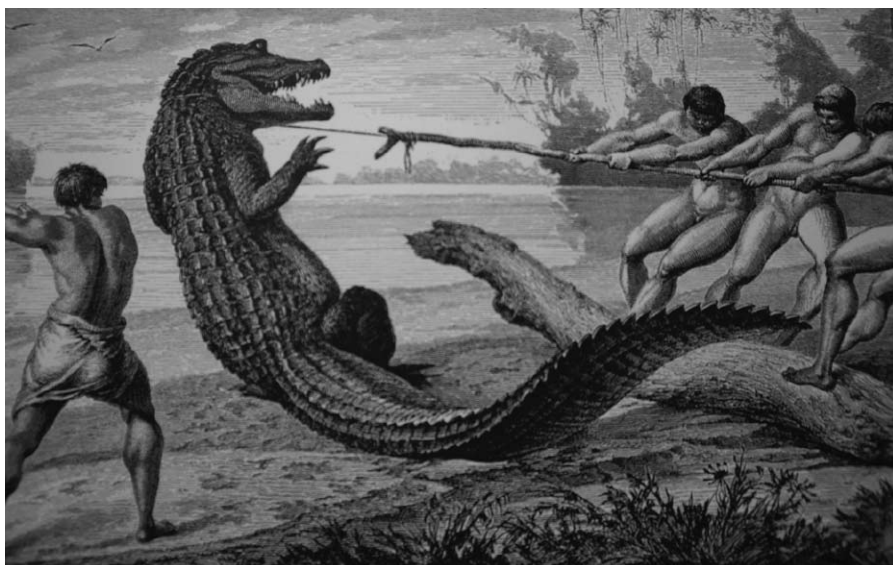
'The saurian age, when the world's inhabitants were gigantic reptiles' from Harmsworth's *History of the World Vol 1* (1907) (Bristol Libraries). Conan Doyle would have had access to many images of dinosaurs and prehistoric reptiles as reference material for *The Lost World* in popular illustrated books such as this.



home in London of his amazing find. He is accompanied by a small party comprising reporter Edward Malone, adventurer Lord John Roxton and rival academic Professor Summerlee. The explorers reach an isolated plateau where they encounter pterodactyls and other Jurassic monsters. They are also caught up in a war between a primitive tribe of Indians and a fierce race of ape-men.

The Lost World was serialised in *The Strand* from April 1912, illustrated with photographs of Conan Doyle and his friends in the guise of the explorers, and was published in book form in October that year. The 'lost world' is a subgenre of science fiction covering those stories in which the protagonists come across a fascinating – and usually dangerous – place previously untouched by Westerners. The discovery often follows a perilous journey that has been prompted by a mysterious map or an intriguing rumour, and the more hackneyed stories feature fearful and superstitious native peoples and stiff-upper-lipped white heroes. Early lost world stories include Jules Verne's *Journey to the Centre of the Earth* (1863), H Rider Haggard's *King Solomon's Mines* (1885) and *She* (1887), Bulwer Lytton's *The Coming Race* (1871) and Edgar Rice Burroughs' *The Land That Time Forgot* (1924). Less typically, in James Hilton's *Lost Horizon* (1933), it is the travellers who are shown to be ignorant savages rather than the 'lost' people, and in Joseph O'Neill's *Land Under England* (1935) and Douglas V Duff's *Jack Harding's Quest* (1939), the inhabitants demonstrate superior scientific knowledge.

Lost world stories have proved popular with filmmakers, including Steven Spielberg's *Jurassic Park* (1993) and its sequel *The Lost*



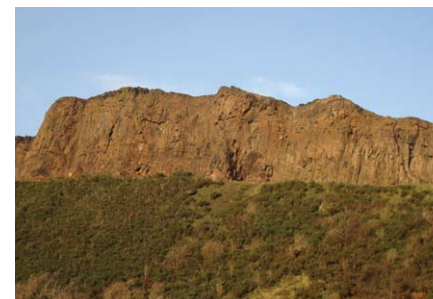
'Caripuna Indians with tapir' from *The Amazon and Madeira Rivers* by Franz Keller (1874), left, and, above, 'Indians capturing alligator' from Edward Whymper's *Travels Amongst the Great Andes of the Equator* (1892) (Bristol Libraries). The indigenous peoples of South America suffered disease and exploitation following European colonisation. The character of Lord John Roxton in *The Lost World* is thought to be partly based on that of Conan Doyle's friend the Irish diplomat Roger Casement who exposed social injustices when he was consul-general in Rio.

World, both based on novels by Michael Crichton. Conan Doyle's own novel was first released in a film version in 1925 starring Wallace Beery and Bessie Love. The dinosaurs were created using the same stop-motion animation that was later used in *King Kong*. Before the film's release, Conan Doyle had shown a clip from one of the animated sequences at a gathering of magicians in New York that included Harry Houdini. Many in the audience were convinced they were watching an apparition of actual dinosaurs cavorting in a primeval swamp!

Conan Doyle's name has also been linked to a much more elaborate hoax, the fossilised remains of Piltdown Man which were discovered not far from Crowborough around the time *The Lost World* was being serialised. This creature was thought to provide the missing



Below: 'Part of the exterior of the crater of Cotopaxi' from *Travels Amongst the Great Andes of the Equator* by the mountaineer and wood-engraver Edward Whymper (1892) (Bristol Libraries). Such dramatic images of South American expeditions had captured the popular imagination in the late nineteenth century.

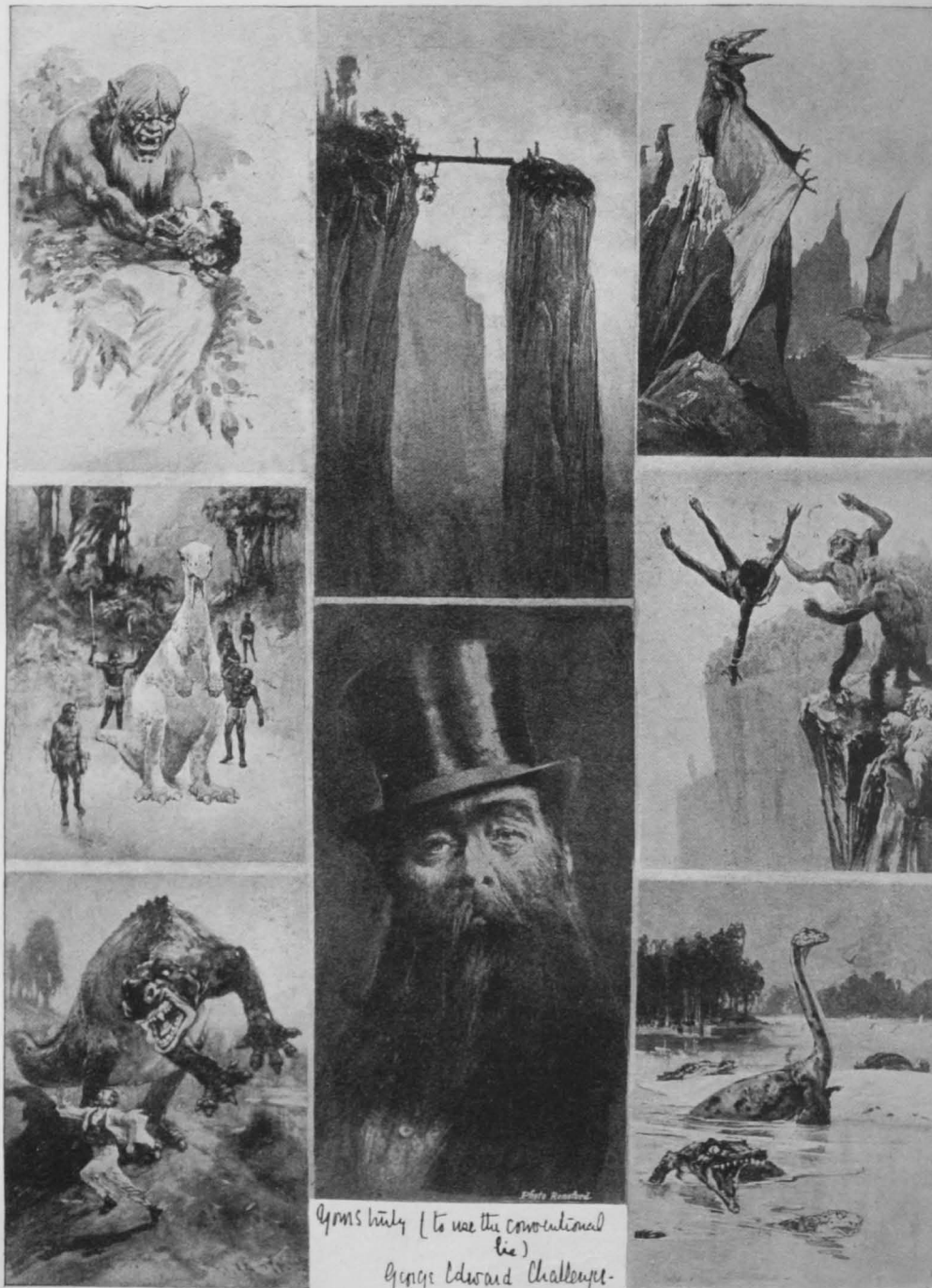


Above: As well as South America, Conan Doyle found inspiration for the descriptions of the landscape of *The Lost World* closer to home in the form of Salisbury Crags, Edinburgh (Edinburgh UNESCO City of Literature Trust, 2008).

evolutionary link between apes and humans. It would be 40 years before the fossil was discovered to be a fake. Although Conan Doyle did know the man who uncovered the find, Charles Dawson, sending him a letter of congratulation, he is unlikely to have been involved with what has been called 'the science fraud of the century'.

With *The Lost World*, Conan Doyle was deliberately setting out to write 'a sort of wild boy's book', as he described it to his friend Roger Casement, a change of pace from his previous fiction. He was fascinated by the field of exploration and complained jokingly at a Royal Societies Club luncheon that with the world's far-flung places already mapped 'the question is where the romance-writer is to turn when he wants to draw a vague and not too clearly-defined region' (this sentiment is echoed by Malone's editor in the book).

The Amazon basin still retained its mysteries, however. At a Royal Geographical Society talk in 1911, Conan Doyle met Colonel Percy Fawcett, who had charted the South American interior. During their conversation, he quizzed him about the topography of the Ricardo Franco hills, which later provided some of the inspiration for his descriptions of the plateau in *The Lost World*. Fawcett eventually disappeared without trace in 1925, supposedly searching for a legendary 'lost' white civilisation in Brazil. Conan Doyle must also have read the work of the naturalist Alfred Russel Wallace, who had undertaken an extensive expedition to the Amazon in the mid-nineteenth century, accompanied by Henry Walter Bates, as it is the findings of these two explorers that Challenger is putting to the test in his own South American journey.



"THE LOST WORLD."

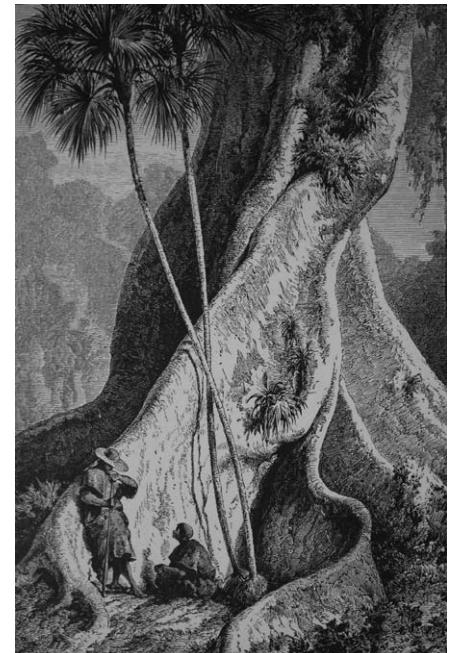
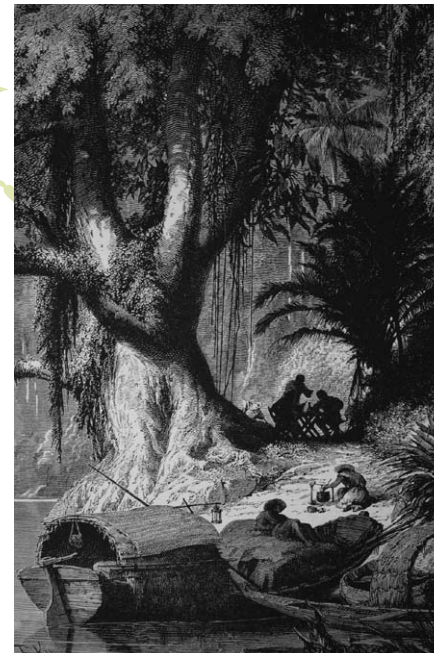
The Leader of the Explorers, with some of their Adventures.

Left: Illustration from *The Strand's* serialisation of *The Lost World* (1912) (City of Westminster Libraries/Mirrorpix).

Below: 'Buttressed tree', right, and, left, 'Halt under a giant of the primeval forest (Madeira)' from *The Amazon and Madeira Rivers* by Franz Keller (1874) (Bristol Libraries). Europeans were fascinated by the scale and lushness of the vegetation of the Amazonian region which seemed to belong to an ancient, prehistoric world rather than the nineteenth century.

Conan Doyle was equally fascinated by dinosaurs. He enjoyed fossil-hunting and discovered several fossilised iguanodon footprints in a quarry close to his home (the travellers come across a family of these creatures in the book). One of his principle sources for information on dinosaurs was Sir Edwin Ray Lankester's *Extinct Animals* (1905), which Challenger refers to in order to identify Maple White's drawing. Lankester, who had been keeper of Natural History at the British Museum, was proud to be associated with the novel and was an admirer of Conan Doyle's work, despite his vigorous opposition to spiritualism.

The belligerent Edinburgh-educated Challenger was partly based on Conan Doyle's own personality, and partly on that of William Rutherford, his former professor of physiology, an eccentric, heavily bearded man with a booming voice. Challenger went on to star in further stories, of which the best is probably *The Poison Belt*, published the following year and seen by some as an attack on the complacency that was leading Europe to war. Challenger ranks alongside Sherlock Holmes as one of the great characters of British fiction.



DISCUSSION QUESTIONS

THESE QUESTIONS ARE DESIGNED TO HELP GUIDE DISCUSSION IN READING GROUPS, BUT CAN ALSO BE OF VALUE TO THE INDIVIDUAL READER.

There are no right or wrong answers; only your opinions. In addition, there is a chapter by chapter summary of the book with further questions available to download as a Word document from the website.

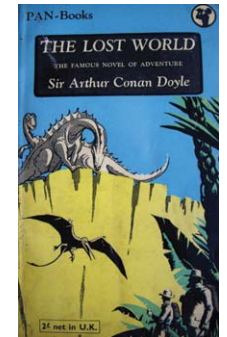
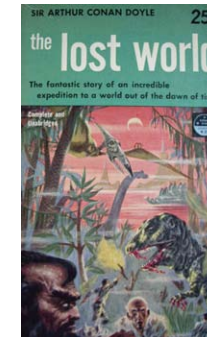
Conan Doyle dedicates the novel 'To the boy who's half a man/Or the man who's half a boy'. To what extent do you think this is a boy's book?

Critic Michael Coren says the 'other characters are mere shadows in comparison' to Challenger. Do you agree with this? Do you think this matters in an adventure book of this type? Why?

Do you think we are supposed to approve of Gladys' wish to be the wife of a hero? Why? What views of marriage and of women does Conan Doyle present in the book?

How does Conan Doyle present scientists and science in this book? How are men of science, like the professors, contrasted with men of action, like Lord John Roxton?

Covers of *The Lost World*, various editions (c 1950-1960) (private collection).



Conan Doyle refers to non-white races in a language that was common at the time. How does it feel to read this type of language today? How are the different races – the ape-men, Indians, Africans, "half-breeds" and Europeans – compared?

What effect does it have telling a large part of the story in the form of reports sent back to the newspaper by Malone? What is the effect of having the account of the dramatic events at the Zoological Society near the end of the book as a newspaper article rather than as first-person narrative? Why do you think Conan Doyle uses these devices?

What do you think Conan Doyle's attitude is to war and conquest from his description of the battle with the ape-men and its aftermath? How do you think we are supposed to respond to the annihilation of the ape-men?

How have the travellers each become 'a better and deeper man' as a result of their journey to the lost world?

What impact do you think the book had on readers of the time, and how might this compare with its impact on modern readers?

Now you have finished the book, would you recommend it to other readers? Why?

CHARLES DARWIN

CHARLES DARWIN WAS BORN IN SHREWSBURY ON 12 FEBRUARY 1809. HIS FATHER, ROBERT, WAS THE TOWN'S LEADING DOCTOR. HIS PATERNAL GRANDFATHER WAS THE PHYSICIAN-PHILOSOPHER ERASMUS DARWIN.

His mother Susanna was the daughter of the master potter Josiah Wedgwood. Erasmus and Josiah had been founding members of the Lunar Society, a gathering of some of the most influential intellectuals and industrialists in Britain in the late eighteenth century.

As a boy, Darwin enjoyed collecting birds' eggs and interesting rocks, fishing, shooting, going for solitary walks, stealing fruit and, according to his autobiography, telling 'deliberate falsehoods... for the sake of causing excitement'. He was taken out of school by his father in June 1825 because of his poor grades and in October was sent to Edinburgh to study medicine. However, Darwin had little interest in the subject; he found the lectures boring and the surgery demonstrations horrific. He was more interested in the study of nature and one of the things he valued most about being in Edinburgh was the time he could spend at the Natural History Museum there.

Darwin abandoned his medical course in April 1827 and the following January took a place at Christ's College, Cambridge with the intention of becoming a clergyman. He wrote in his autobiography: 'During the three years which I spent at Cambridge my time was wasted,

Below: Illustration of crested cormorant on its rocky nest site from John Gould's *Birds of Australia* (1840-1869) (University of Bristol Library, Special Collections). In *On the Origin of Species*, Darwin refers to the variation in inherited nest-building instincts among different species of birds. Gould was an ornithologist and publisher who advised Darwin on the specimens of birds brought back from the *Beagle* voyage, including the famous Galapagos finches, 13 distinct species of which were present on the islands, each best suited to its specific environment.

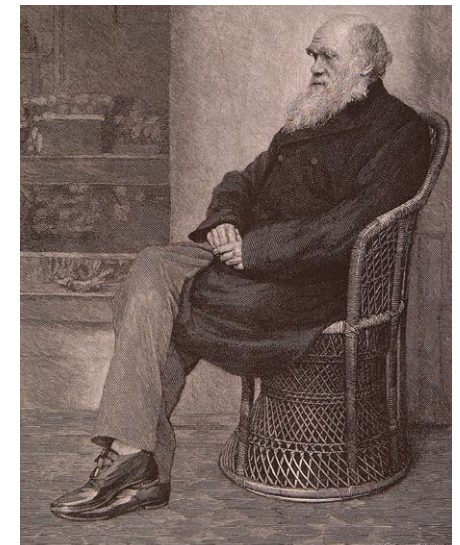
Below right: Portrait of Charles Darwin at Down House taken from a photograph by his son Leonard c 1880 (University of Bristol Library, Special Collections).



as far as the academical studies were concerned, as completely as at Edinburgh and at school.' He 'got into a sporting set, including some dissipated low-minded young men', collected beetles and was a member of the Glutton Club, which was devoted to eating 'birds and beasts which were before unknown to human palate'. He also attended lectures given by the Rev John Stevens Henslow, Professor of Botany, which reinforced his interest in natural history.

Darwin received his degree in April 1831. Henslow, who had become his mentor, introduced him to the eminent geologist Professor Adam Sedgwick whom Darwin accompanied on a walking tour in North Wales that summer. Darwin had previously attended geology lectures at Edinburgh and had found the subject dull, but now, with Sedgwick's help, he became fascinated by it. His knowledge of geology would later help him develop his theories about the earth and the species that live upon it.

At the end of August Darwin received a letter from Henslow telling him of an offer to join a survey of South America as a volunteer 'gentleman-naturalist'. The survey was being conducted from the ship *HMS Beagle* under the command of Captain Robert FitzRoy. Having overcome his father's opposition – Robert thought his son should be settling down to work at his age, not gallivanting on unpaid voyages – Darwin set sail from Plymouth on 27 December 1831. He did not return to England until October 1836 when the ship docked at





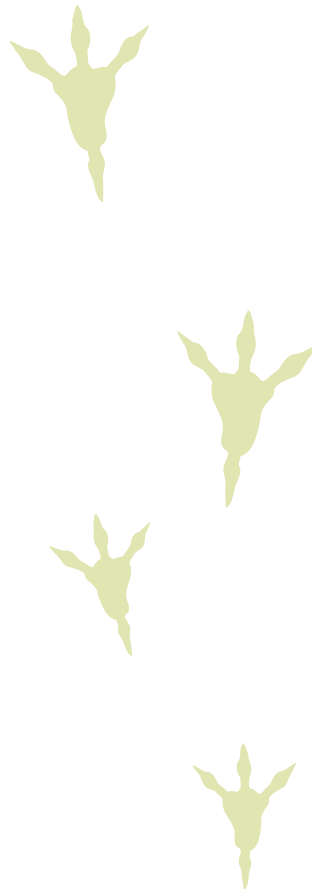
Cow bunting, Plate 99, from John James Audubon's *Birds of America* (1839) (Mitchell Library, Special Collections, Glasgow). In *On the Origin of Species* Darwin refers to the cow bunting – or brown-headed cow bird – and its instinct to lay its eggs in other species nests, an inherited behaviour similar to that of the cuckoo. Audubon's folio is one of the finest examples of natural history illustration ever produced and was an inspiration to Gould.

Falmouth, having circumnavigated the southern hemisphere; Darwin had suffered seasickness throughout much of journey. Darwin would later write:

The voyage of the *Beagle* has been by far the most important event in my life, and has determined my whole career... I have always felt that I owe to the voyage the first real training or education of my mind...

It was during the course of the voyage that Darwin gradually developed an understanding of the processes by which the world was continually changing and how the life forms upon it were likewise continually changing – physically and behaviourally – in order to survive. The processes had been going on for millions of years and would keep unfolding slowly until the end of time. Darwin's understanding was partly based on his comparison of what he had read in other people's books with his own direct observations of the world around him, and partly through the development of ideas of his own.

Darwin termed the mechanism by which living things adapted to the changing environment 'natural selection' – later referred to as 'evolution' – and this knowledge provided the basis for his landmark book *On the Origin of Species* published in 1859. Natural selection refers to the preservation of useful traits through successive generations, for example, a particular shape of bird beak that suits the availability of insects or a particular thickness of animal coat that suits the climate. There is no human or higher power manipulating the outcome. It happens naturally; birds with the right kind of beak or animals with the right kind of fur are more likely to survive, to inter-breed and to pass on their particular genes than others. In the



nineteenth century, it was highly controversial to suggest that species could change without divine intervention: most people believed everything in life was meticulously planned by God. Consequently, for over 20 years Darwin kept his thoughts to himself as he was aware of the harm they might do to his reputation. He wanted to be absolutely sure of his evidence before presenting his case.

In the meantime, Darwin married his first-cousin Emma Wedgwood on 29 January 1839. Their first of ten children, William Erasmus, was born in December. Darwin was not the typical Victorian father, being close to his children and rarely chastising them. His son Francis wrote: 'He kept up his delightful, affectionate manner towards us all his life.' Because of his health problems – partly the result of tropical fevers suffered during the *Beagle* voyage – Darwin became increasingly reclusive. He and his family left the noise and bustle of London in September 1841 to settle into their new country home at Down House in Kent where Darwin remained for the rest of his life.



Picture of grouse from A Thorburn's *British Birds* (1916) (Bath in Time – Bath Central Library). In *On the Origin of Species* Darwin writes of how the colour of the grouse, by blending with its environment, helps it to survive. Over long periods of time, red-grouse living in the heather, and the black living in areas of peaty earth, would have fared much better than those of other shades who would have gradually died out.

Darwin was kept busy classifying his collections, exchanging correspondence with colleagues, going for daily contemplative walks, writing books and taking various cures for his ailments. As part of his research into how species might change over time, he became an enthusiastic breeder of pigeons. His son George wrote: 'I remember that from time to time there was a pigeon fancying party; the guests struck me as being rather a queer set.' Darwin became convinced that all varieties of pigeons – wild or domestic – had descended from the rock-pigeon, either through natural or artificial selection. Similarly, he believed that humans and modern-day apes were not different in kind, but only in degree, as they shared a distant, common ancestor.

In April 1856, Darwin invited a small group of friends to Down House for a special meeting in which he put forward his ideas on natural selection. Around this time, the geologist Charles Lyell, another of Darwin's colleagues, recommended that he read a paper on the origins of new species by the naturalist-explorer Alfred Russel Wallace who was on an extensive expedition in the Malay archipelago (this is the same Wallace who is referred to in *The Lost World*). Lyell urged Darwin to write up and publish his own theories on the subject.

Darwin began drafting what was then called 'Species Sketch' and would later become the book *On the Origin of Species*, on 14 May 1856. He corresponded with Wallace, still out in the Far East, and on 18 June 1858 received another of Wallace's papers, this one setting out an outline of the transformation of species based on the principle of natural selection. To prevent Darwin's own work being overtaken by that of Wallace, Lyell and Hooker arranged for a paper jointly credited to 'Messrs C Darwin and A Wallace' to be read at the meeting of the distinguished Linnean Society in London on 1 July. It was entitled 'On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection'.

On the Origin of Species was published by John Murray on 22 November and all 1,250 copies sold out that day (the John Murray Archive is in Edinburgh). A second edition quickly went into production. Darwin continued his writing and researches for the remainder of his life, including conducting detailed studies of orchids, climbing plants, variation in domestic animals, the processes of sexual selection, expressions of emotions, insectivorous plants,



First edition of *On the Origin of Species* (University of Bristol Library, Special Collections).

Spotted bower bird from John Gould's *Birds of Australia* (1840-1869) (University of Bristol Library, Special Collections). In *The Descent of Man*, Darwin writes of the bower bird's decorative skills in nest building as an example of how other species, besides humans, have an appreciation of beauty.



and the earth-moving efforts of worms. He also published books on barnacles, coral reefs and volcanic islands.

After a series of seizures, he died on the afternoon of 19 April 1882 at Down House. He had expected to be buried quietly alongside two of his children in the local churchyard but, following the intervention of members of the scientific community, he was given a state funeral with internment at Westminster Abbey on 26 April.

The previous year, Darwin had added a section to his autobiography, which he had written in 1876 as a personal memoir for his children and grandchildren. This included the following words of self reflection:

... my success as a man of science, whatever this may have amounted to, has been determined, as far as I can judge, by complex and diversified mental qualities and conditions. Of these, the most important have been – the love of science – unbounded patience in long reflecting over any subject – industry in observing and collecting facts – and a fair share of invention as well as of common sense. With such moderate abilities as I possess, it is truly surprising that I should have influenced to a considerable extent the belief of scientific men on some important points.

FOSSILS AND DINOSAURS

MUCH OF DARWIN'S THEORY OF EVOLUTION WAS BASED UPON WHAT HE HAD LEARNED FROM HIS STUDY OF FOSSILS DISCOVERED DURING THE BEAGLE VOYAGE.

Fossils can provide invaluable evidence of how the earth has changed over time and how plant and animal life has evolved from its earliest beginnings. They are particularly useful when comparisons can be made between extinct and closely related living species (for example, ammonites and the nautilus, the glyptodont and the armadillo), which is what Darwin had been able to do. Palaeontologists (people who study fossil flora and fauna in order to understand ancient life) need to be both geologists, able to establish the ages of the rocks in which the fossils are found, and biologists, able to work out how the fossilised organisms once lived.

The most common fossil finds are body fossils. These are the remains of the hard parts of long-dead organisms, such as bones, teeth, claws and shells. The likelihood of an organism being fossilised is increased if the body is buried soon after death, as this helps prevent damage to the remains from exposure to the effects of air, the weather or scavengers. It is for this reason that about 90 per cent of finds are in locations that were previously under water and where the remains had quickly been covered by sediment. The soft tissues in the organism decompose while the hard parts are slowly infiltrated by waterborne minerals. The

weight of accumulated layers of mud and sand, along with the passage of time, turn the mineralised remains into a fossil. Trace fossils – such as droppings, footprints, eggs or tooth marks – record examples of animal activity. The oldest known fossils are of bacteria-like cells dating back over 3,500 million years.

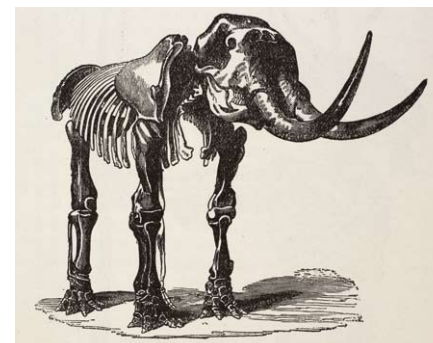
There are records of fossil finds in Ancient Greece and Rome, though few at that time seem to have recognised their significance. In the seventeenth century, the Danish geologist Neils Stensen was among the first to establish that fossils were the buried remains of ancient animals and, in the 1750s, the discoveries of mastodon and mammoth bones in the USA brought the realisation that species could become extinct. Extinction was a contentious subject at this time as it suggested a flaw in what the majority still considered to be a divinely conceived creation. Some Biblical geologists – those who believed in the literal truth of the Bible – explained this by saying there had been several creations and extinctions, and that the book of Genesis only dealt with the most recent one.

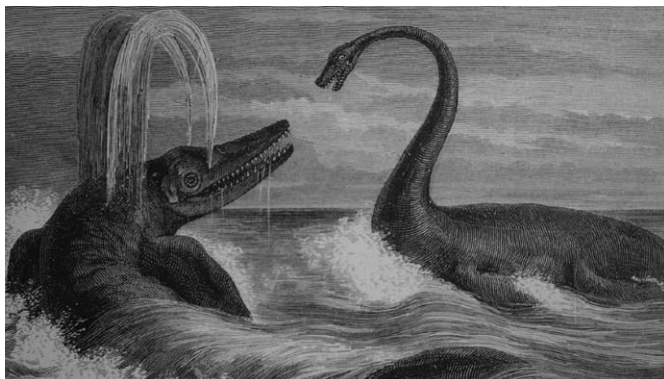
One of the richest locations in Britain for fossil finds is the 95-mile long Jurassic Coast Natural World Heritage Site which runs from Orcombe Rocks, Devon to Studland Bay in Dorset. This was the hunting ground of the most famous female collector of the nineteenth century, Mary Anning, who, from an early age, had helped her impoverished father collect fossil curios from the



Plate illustrating ammonites from *An Atlas of the Fossil Conchology of Great Britain and Ireland* by Captain Thomas Brown (1889) (Bath in Time – Bath Central Library).

Mastodon skeleton from Alfred Russel Wallace's *The World of Life* (1910) (Bath in Time – Bath Central Library).





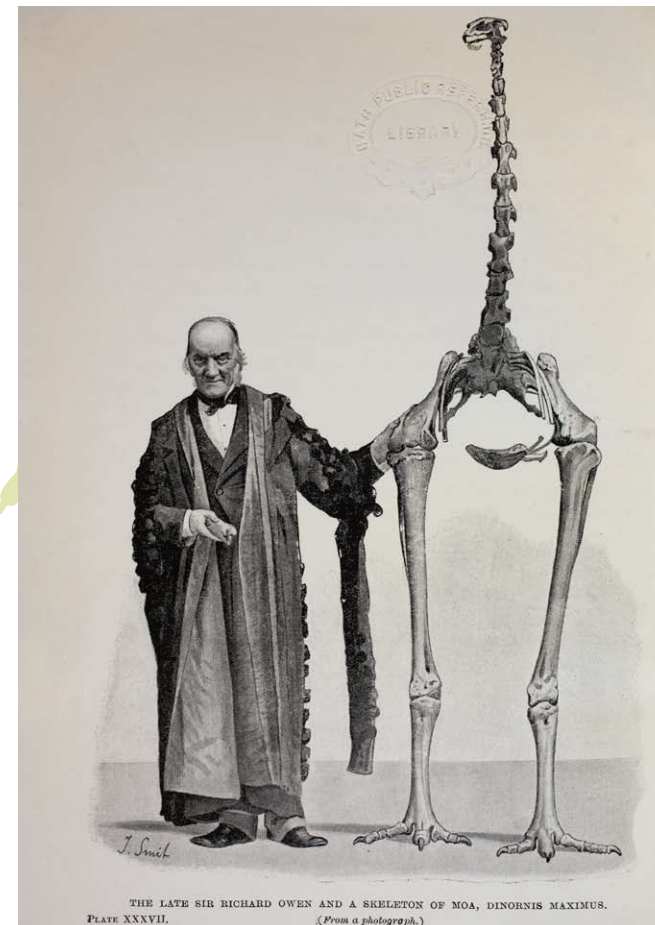
Artist's impression of encounter between ichthyosaur and long-necked plesiosaur from Louis Figuier's *The World Before the Deluge* (1865) (Bristol Libraries).

beach and cliffs at Lyme Regis to sell to tourists. These included gigantic pointed teeth, like those of an enormous crocodile, and fragments of backbones, as well as ammonites and belemnites. In 1812, Anning uncovered the first complete skeleton in Britain of an ichthyosaur, a five-metre long marine reptile that resembled a large dolphin. She also found Britain's first complete plesiosaur skeleton (a long-necked fish-eating aquatic reptile), and the first pterosaur (a winged lizard).

The fossil finds that elicit the greatest interest among the general public are those of the dinosaurs, which dominated the earth from around 200 million years ago until their extinction at the end of the Cretaceous period, 135 million years later (humans first appeared on earth long after this, around three millions years ago). The first fossilised dinosaur remains identified in Britain were discovered by the physician and geologist Gideon Algernon Mantell in a quarry at Cuckfield, Sussex, in the early 1820s. These were the teeth and bones of a gigantic plant-eating reptile comparable to a modern-day iguana, hence the name Mantell coined in 1825 to describe it, 'iguanodon' or 'iguana tooth'. This was the second dinosaur find to be officially named. The first was the megalosaurus ('big reptile'), a name given in 1824 by the geologist William Buckland to a collection of large bones acquired by the Ashmolean Museum from quarries in Stonesfield, Oxfordshire.

The name 'dinosaur' first appeared in print in 1842 in the published version of Richard Owen's 'Report on British Fossil Reptiles' which had been presented at a meeting of the British Association for the Advancement of Science in August 1841. Owen had once been a close colleague of Darwin and had been entrusted with Darwin's

Sir Richard Owen with skeleton of a moa from the Rev H N Hutchinson's *Extinct Monsters and Creatures of Other Days* (1910) (Bath in Time – Bath Central Library).



fossil mammals from the *Beagle* voyage, but he became one of Darwin's fiercest critics following the publication of *On the Origin of Species*, a reaction Darwin attributed to professional jealousy. The word 'dinosaur' was derived from the Greek, meaning 'terrible or fearfully great lizard'. It was used by Owen to describe what he had identified as a distinct species of large, advanced, extinct reptiles.

Owen's work thrilled the general public, as well as attracting the attention of the scientific community, and he was generally recognised as Britain's leading authority on palaeontological classification. He had the ability to deduce the appearance of an animal on the basis of a single fragment of bone. One of his most



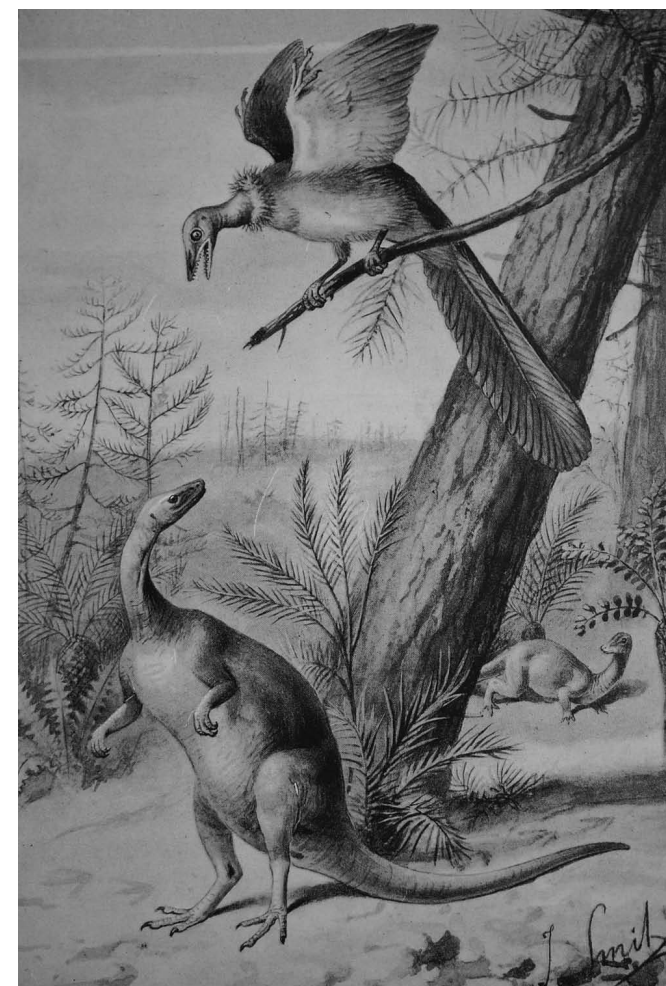
Illustrated London News' depiction of the dinner in the iguanodon (University of Bristol Library). Owen thought the dinosaur was a sturdy, four-legged beast, whereas Mantell had correctly concluded that the creature's forelimbs were smaller than the back ones, and used to grasp objects.

impressive feats of deduction was based on a six-inch section of marrow bone originating from New Zealand that was given to him by a sailor in 1839. Owen decided the fragment must belong to a large, extinct flightless bird. He was proved right when he received a box containing a collection of bones from a New Zealand missionary in 1843 from which he could partially reconstruct a skeleton. The bird became known as the moa or dinornis.

Owen's moa prediction was brought to the attention of Prince Albert, who, contemporary reports say, led the rush of society people eager to see the remains. Owen served on the committee that planned the Great Exhibition of 1851, a project that had been largely instigated through the prince consort's efforts. When it was decided that the Crystal Palace complex should be relocated to a permanent site at Sydenham after the exhibition closed, Owen was invited to design a prehistoric park to be erected in the grounds. The dinosaurs were built out of reinforced concrete by Benjamin Waterhouse Hawkins from Owen's designs. As a publicity stunt, a celebratory dinner for 21 distinguished guests was held on New Year's Eve 1853 inside a life-size reconstruction of an iguanodon. When Owen's 'Mausoleum to the Memory of a Ruined World' was officially opened on 10 June 1854, the dinosaur sculptures were a sensation and proved a major attraction. It was exhilarating to think such creatures had once walked upon the earth.

In 1863, a lizard-bird fossil was discovered in Solenhofen, Germany, and Owen arranged to buy it for the British Museum, naming it *Archaeopteryx*; it has proved to be one of the most

important fossils ever found. For Darwin and his supporters, this fossil provided the evidence of a transitional stage between species – a missing link from the dinosaurs to modern birds – that supported Darwin's theory of evolution. Owen himself seems to have been unaware of the significance of the find, and might have been less keen to give it publicity if he had. Although he was not against the principle of evolution, he was firmly against Darwin's interpretation of it, convinced that there was a divinely ordained limit to the degree by which a species could adapt and change. Fossil hunting had proved to be a dangerous business, as it could reveal knowledge that shook such long-held beliefs.



Artist's impression of *Archaeopteryx*, the earliest known fossil bird, and *Compsognathus*, a small dinosaur, from Henry R Knipe's *Nebula to Man* (1905) (Bristol Libraries). Some creationists are now suggesting that *Archaeopteryx* was a fake.

EVOLUTION AND SCIENCE FICTION

WITH ITS STORIES OF STRANGE EVOLUTIONARY MUTATIONS AND ITS SPECULATIONS ON FUTURE FORMS OF SPECIES, BRITISH SCIENCE FICTION HAS FOR MUCH OF ITS HISTORY BEEN DRIVEN BY THE SAME QUESTIONS THAT WERE RAISED IN DARWIN'S WORK: WHERE DID WE COME FROM? WHERE ARE WE GOING? WHAT WILL WE HAVE CHANGED INTO WHEN WE GET THERE?

Although some trace the origins of science fiction as far back as Thomas More's *Utopia* (1516), it was in the nineteenth century that the genre began to really take shape, developing in a period when science was making dramatic advances, challenging long-established beliefs. The book most frequently cited as the first true science fiction novel is Mary Shelley's *Frankenstein* (1818), which shows the terrifying consequence of taking scientific discovery to extremes and marks one of the earliest fictional appearances of the irresponsible scientist. However, it was not until English translations of the works of Jules Verne were published from the 1860s onwards that the genre really took off.

It was H G Wells who did most to establish "home-grown" science fiction – or, as it was referred to at the time, 'scientific romance' – as part of the literary landscape. Wells' work reflected the emotional and intellectual upheaval brought by the startling new knowledge of how the world worked and what lay ahead for humankind. Despite

the efforts of Charles Lyell and other modern geologists, until the mid-nineteenth century most people were still convinced that the earth had been formed around 4000BC, having calculated back through the ages of the prophets to the time of Genesis. Breakthroughs in geological research and in evolutionary theory undermined this confidence. Now came the astounding news that the earth was in fact millions of years old. What was more unnerving, it was a place of continuous environmental, behavioural and biological change in which decay and death, rather than glory, were the inevitable end result: it was hard to reconcile 'evolution' with that much loved Victorian concept, 'progress'. Once humanity had reached the end of its particular branch on the tree of life, another species would supplant it.

Cover of *Amazing Stories* featuring a story by H G Wells (Special Collections and Archives: University of Liverpool Library). This edition of the magazine contains a story by Julian Huxley, the grandson of Darwin's colleague T H Huxley.



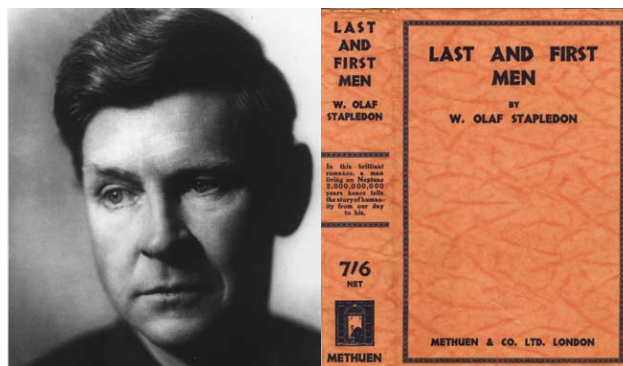


Herbert George Wells,
British writer (c 1930)
(Science and Society
Picture Library/NMPFT
Daily Herald Archive).

One of Wells' most popular novels, *The Time Machine* (1895), moves forwards and backwards through time, revealing different evolutionary stages. In 802,701 AD, the time traveller encounters a world inhabited by the refined, beautiful, surface-living Eloi and the reverted, subterranean Morlocks. The shock is that it is not the physically perfect Eloi who are in the ascendant, as convention might suggest. Their evolutionary path has turned them into simplistic, ineffectual creatures with the sensibility of sheep, providing a passive food supply for the bestial Morlocks. In the book's final sections the traveller moves 30 million years into the future. It was a commonly held belief that by this time the sun would be much cooler as it would have burned off most of its energy. Wells presents the reader with an austere vision of a silent, cold earth where the only living things appear to be the lichens on the rocks and the strange creatures that

Olaf Stapledon (Special
Collections and Archives:
University of Liverpool
Library).

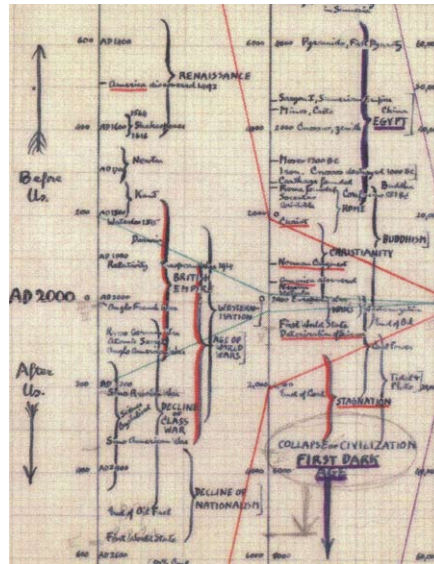
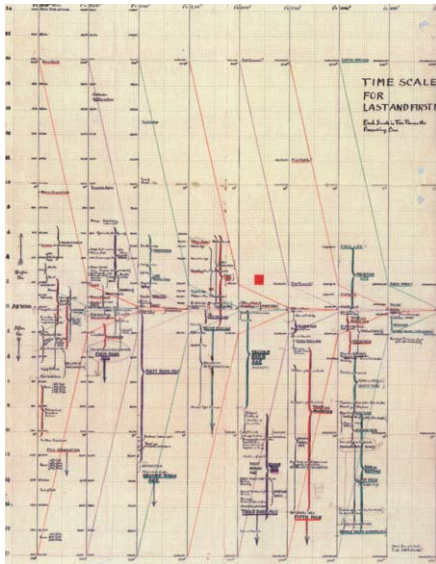
Cover of first edition
of *Last and First Men*
(Special Collections and
Archives: University of
Liverpool Library).



the traveller sees dragging themselves out of the ocean and on to the shore, marking the start of another evolutionary cycle. Like Conan Doyle, Wells was a friend of Edwin Ray Lankester who advised him on what the potential stages of evolutionary degeneration might be like. Lankester and Wells later collaborated on the book *Outline of History* (1920).

Wells' *War of the Worlds* (1898) shows the cruel nature of evolutionary competition in the form of the superior alien invader attempting to destroy or colonise inferior beings. Over many generations, limbs and organs that have proved of little use to the Martians have shrunk or been lost, while those that are of most value have become bigger or multiplied in number. The Martians have big heads and shrivelled arms as on their planet brains are more important than brawn. The Martians are in nearly all respects more advanced than humans, but their fatal flaw is that they have not evolved to a level where they can withstand earth's infectious diseases. In the final pages Wells seems sympathetic to the keening of the last dying Martian, the death being presented as a tragedy. It is interesting to note that as a student Wells had attended lectures by Darwin's friend and colleague T H Huxley whose speculative essay 'The Man of the Year Million' suggested that humanity may evolve towards something not unlike Wells' descriptions of the Martians. Although *The Lost World* is essentially a light-hearted book, like *War of the Worlds* it *does* show the potential cruelty of natural law, this time in the conflict between the ape-men and the Indians, and can also be read in terms of imperialism, with the ape-men comparable to native peoples being exterminated by colonialists.

Wells presented his readers with a godless universe spinning towards its inevitable end. By contrast, the philosopher Olaf Stapledon, one of the great British science fiction writers of the interwar years, offered a more spiritual journey, although the potential outcome for humans might be considered equally bleak. For his 1930 novel *Last and First Men: a story of the near and far future*, Stapledon drew up detailed plans for the projected history of humankind up to the point of extinction. The book moves from the present day to two billion years into the future, describing 18 distinct human species, evolving through a cycle of ascents and falls. One of the species incorporates Martian genes into their bodies to produce descendants that have huge heads and telepathic powers. This raises the question of whether humans might be able to control or direct



their own evolution and thus disrupt the process of natural selection by artificial means. Stapledon's *Star Maker* (1937) also provides a detailed projection of man's future evolutionary forms, going on a mental voyage into the upper most reaches of the cosmos in search of the ultimate ruler, who is revealed as a kind of blind, indifferent watchmaker tinkering with events.

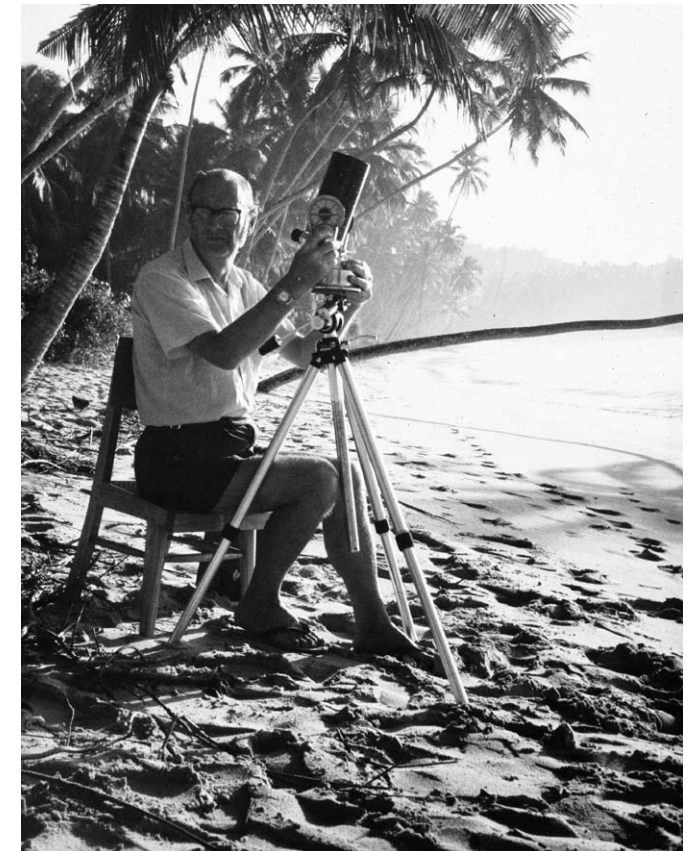
Arthur C Clarke was one of the many authors who acknowledged the influence of Stapledon upon their own writing. In his work Clarke used aliens as benign forces intervening at critical moments along the evolutionary path. In *Childhood's End* (1954), for example, the aliens trigger humankind into a bold evolutionary leap and the last of the old-style humans watch as the new, superior beings ascend to the stars. *2001: a space odyssey* (1968), developed concurrently with Stanley Kubrick's film from an earlier short story, is an account of the shaping of human evolution by an outside force from the remote past to the distant future. Like the work of Stapledon, this journey can be seen as a spiritual quest although Clarke in interview said he did not believe in 'mystical nonsense'. It also hints at intelligent design; a logical, self-contained entity at work in the universe – the 'Overmind' of *Childhood's End*. Further examples of speculations on what humans might evolve into can be found in the fiction of Stephen Baxter, Greg Egan, Charles Stross and Justina Robson, among others. By contrast, in *The Lost*

Time chart (with detail) prepared by Olaf Stapledon for *Last and First Men* (Special Collections and Archives: University of Liverpool Library).

World, Conan Doyle is looking back to where his present-day "civilised" human beings have come from: the cave-dwelling Indians and before them the brutal ape-men.

John Wyndham began writing science fiction in the 1930s but made his commercial breakthrough with *The Day of the Triffids* (1951). In this novel the reader is presented with an imaginative take on the theory of natural selection by which those species best suited to the surrounding environment can survive and thrive, while others die out (in evolutionary theory life is an endless competition, temporarily won by the 'fittest' of the moment).

A meteor storm has rendered most inhabitants of earth blind. The triffids, genetically modified carnivorous plants that have been farmed for their valuable oil, are now in the ascendant. Prior to the disaster, the hero, Bill Masen, worked for a triffid-oil company where



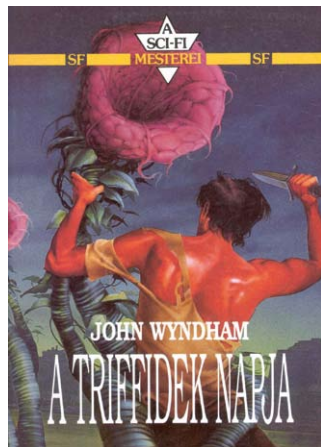
Arthur C Clarke with telescope, Sri Lanka (1970s) (Science and Society Picture Library/ Rocket Publishing).

his colleague Walter had observed signs of intelligence in the plants. Walter thinks it is significant that a high proportion of triffid victims have been stung across the eyes. He says:

Take away our vision, and the superiority is gone. Worse than that – our position becomes inferior to theirs because they are adapted to a sightless existence, and we are not.

In the overall scheme of things, Bill believes that 'It's an unnatural thought that one type of creature should dominate perpetually' and that 'life has to be dynamic and not static'. However, he will not let humanity go the way of the dinosaur without a fight and the book follows his struggle for survival against the odds.

Like Wells and Wyndham before him, the novelist John Christopher described in his fiction how a once comfortable, familiar environment can become strange and threatening. He placed ordinary people in extraordinary circumstances and focused on how successfully they – and the wider society – adapted to the change. His protagonists must make difficult moral decisions, and draw on previously unused skills and mental resources, in order to survive. In *The Death of Grass* (1956), for example, a viral strain kills off much of the planet's vegetation, and anarchy soon sweeps a world faced with starvation. The narrator takes his family from London to the North of England in the hope of finding safety on his brother's isolated farm. Christopher was writing during the Cold War period, when the world seemed to be on the brink of a terrible cataclysm. Who knew what lay beyond this man-made apocalypse and who would be the fittest to survive?



Foreign language editions of *The Day of the Triffids* (Special Collections and Archives: University of Liverpool Library).

RESOURCES

For a comprehensive bibliography of the works of Arthur Conan Doyle visit www.sirarthurconandoyle.com/index.htm

Among the biographies of Conan Doyle consulted in writing this guide were Michael Coren's *Conan Doyle* (1995) and Andrew Lycett's *Conan Doyle: the man who created Sherlock Holmes* (2007).

Among places to visit associated with Conan Doyle and his work are the Sherlock Holmes statue, Picardy Place, Edinburgh; the Conan Doyle exhibition at the Royal College of Surgeons of Edinburgh; the Conan Doyle pub, York Place, Edinburgh; the Conan Doyle statue, Crowborough; the Sherlock Holmes Museum, London; and Conan Doyle's grave, Minstead. A map of Edinburgh locations linked to Conan Doyle is available from Edinburgh UNESCO City of Literature Trust.

For a comprehensive bibliography of the works of Charles Darwin visit <http://darwin-online.org.uk>

Among the biographies of Darwin consulted in writing this guide were Francis Darwin's *The Life and Letters of Charles Darwin including an Autobiographical Chapter* (1887), Julian Huxley and H B D Kettlewell's

Charles Darwin and His World (1965), and Janet Browne's *Charles Darwin: voyaging* (1995) and *Charles Darwin: the power of place* (2002).

Among the places to visit associated with Darwin and his work are St Chad's Church and the Darwin statue, Shrewsbury; Christ's College, Cambridge; Down House, Kent; the John Murray Archive, Edinburgh; and Westminster Abbey, London.

Conan Doyle and Darwin are included in the *Oxford Dictionary of National Biography*, which is available from most library services.

For an intriguing, 21st-century spin on *The Lost World*, go to The Lost Book at www.thelostbook.net where you can explore, contribute a story and help solve a whodunit through a series of online animations.



A more detailed list of resource material and suggestions for places to visit is available on the *Lost World* Read 2009 website at www.lostworldread.com.

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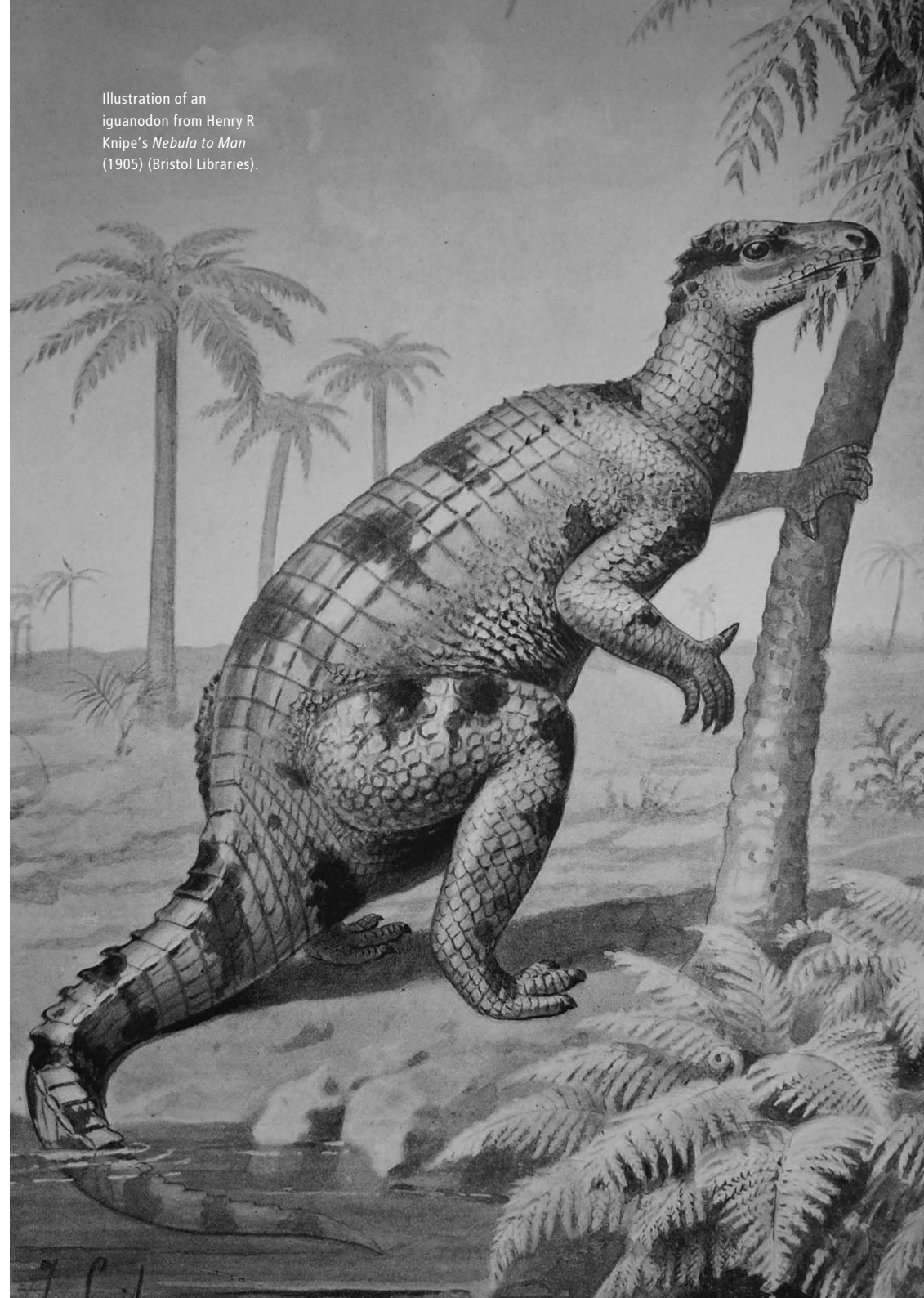
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Illustration of an
iguanodon from Henry R
Knipe's *Nebula to Man*
(1905) (Bristol Libraries).





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