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Future Imperfect

Science and technology

The theme park itself is a product of technology, many of its rides a tribute to and celebration of mechanisation, in which the machinery of what was once an industrial working landscape is turned to ludic effect. Mechanical rides at fairgrounds came out of mechanisms originally devised for industrial purposes, and were a source of wonder; roller coasters, water chutes and Ferris wheels all have their roots in industrial technologies. 'Science' has been employed as a signifier of magic and of modernity and progress from the first commercial leisure sites. Science fiction as a genre manifests many of the defining characteristics of the carnivalesque, in its promise of new sensations and extremes, its challenging of the boundaries of time and space, and in its literal inversions of the body.

There is a recurrent use of science fiction narratives in the iconography of the theme park and, more often than not, a specific space devoted to the theme of 'scientific progress'. The biggest white-knuckle rides are most often situated in scientifically themed sites, and named in terms that evoke technology or space travel; in Britain Alton Towers offers 'Oblivion' and the 'Black Hole', Thorpe Park 'X:\No Way Out' and 'Depth Charge'. Almost every theme park site has a futuristic monorail (a regular feature of late twentieth-century World's Fairs); Legoland offers a 'Sky Rider' and 'Space Tower'. Disney parks have the scientifically themed lands 'Tomorrowland' in Los Angeles and Florida and 'Discoveryland' in Paris. Epcot, an 'Experimental Prototype Community of Tomorrow', at Disney World Florida, is an entire park devoted to a 'Futureworld', although its version of the future is hardly new. Victorian ideas of progress, science and technology continue to circulate and to connote the 'modern' in the contemporary carnival site.

The spirit of rational recreation, that leisure should be an educational experience, promoted a congruence of science and entertainment throughout the late eighteenth and nineteenth centuries, which informed the Great Exhibition and World's Fairs and which still lingers at Epcot. In the Romantic period, the scientific and the magical could be conflated, in literature and in popular entertainments. Mary Shelley's 1818 novel, *Frankenstein, or, the Modern Prometheus*, is a tale of scientific experimentation and has a claim to be the first novel in the science fiction genre; Shelley claims in her preface that Erasmus Darwin and other

Figure 9.1 The first Channel crossing by air, 1785

scientists approved the possibility of its scientific claims. The character of Victor Frankenstein is a paradigm of the mad scientist, a perennial figure in the horror genre,¹ but as the monster increasingly became the focus of the story in popular culture, the scientist's name became conflated with his creation. *Frankenstein* came to be positioned as a Gothic novel, in which its discourses about science became less important than the elements of the fantastic.

Displays of technology held the same wonder as conjuring tricks for Romanticism; Wordsworth refers to 'Clock-work, all the marvellous craft/Of modern Merlins' at the fairground in *The Prelude*. Scientific experiments were performed both for magic shows at fairgrounds and as lectures in Mechanics' Institutes, as McCalman and Perkins explain:

Scientific and folk cosmologies could thus find themselves in unlikely couplings. ... New wonders of science claiming to be able to galvanize a body into life with electricity, or magnetize away blockages in the invisible and incorporeal ether, were conveyed throughout the provinces during the early nineteenth century by itinerant lecturers of humble origin. (McCalman and Perkins 1999: 215)

There was a genuine excitement at the novelty of these 'wonders of science', and at the potential of mechanisation, which was shared by both popular entertainments and scientific research; as Richard D. Altick describes it, 'magical and spectacular effects from chemical reactions, gas and rudimentary electrical phenomena' (Altick 1978: 363) were used for the purpose of both scientific lectures and of carnival. The proprietor of the *Mechanics' Magazine* (first published in 1823), John Passmore Edwards, established lecture rooms and reading rooms all over Britain, to bring scientific advances to audiences of working people. The first dedicated Mechanics' Institute was founded in London in 1829, and by 1860 there were over 600 across the country. Displays of technical and scientific progress were brought to public attention in these lecture halls, in exhibitions and in popular publishing. *The Penny Magazine* and *Chambers' Edinburgh Journal* were among the many widely read papers that carried accessible articles on engineering and mechanics.

Mechanics' Magazine was the most successful of these early illustrated magazines for working people; dedicated to the instruction of working men and artisans, the magazine offered illustrated feature articles on contemporary science along with inspirational biographies of inventors. Priced at an affordable threepence, it was published weekly until 1858. The many illustrations included diagrams of new mechanical inventions and scientific discoveries; a regular feature was titled 'New Discoveries, Inventions and Improvements', another, 'Practical Applications of Mineralogy and Chemistry' (quoted in Andersen 1991: 47). *Mechanics' Magazine* offered readers a range of features and articles that it would not be unusual to find in the comic *Eagle*

over a century later. America had its equivalent popular science magazine in *Scientific American*, published (first weekly and later monthly) from 1845; like *Mechanics' Magazine*, it was addressed to a public with no professional scientific expertise.

It is not easy to make a clear distinction between educational purpose and popular entertainment in terms of a popular interest in 'science' in the early nineteenth century. The widespread popular fascination with technology and the mechanical extended beyond dedicated publications, and was a regular feature of pleasure grounds and carnivals. In 1826, the White Conduit House, a London pleasure garden, proudly advertised the 'EXTRAORDINARY AND WONDERFUL PERFORMANCE of entering a HOT OVEN'. While this event, involving fireworks, chemistry and 'natural philosophy' is located in a pleasure garden and clearly an entertainment, the language of the advertisement is framed in 'scientific' terms:

Monsieur CHABERT

The celebrated Phenomenon of Nature, and Skilful Performer of
Unparalleled Experiments
in

Natural Philosophy

Chemistry, Pyrotechnics, &c.

Has the honour to inform the Nobility, Gentry, and Public in general, that he will perform the above Unparalleled Experiment for the Second Time ...

With a Variety of other Extraordinary and Amazing Experiments,
Swallow Phosphorus, Boiling Oil &c. &c. (Flyer for the White Conduit House,
1826, quoted in Rogers 1896: 55)

Showmen, like Monsieur Chabert, who gave demonstrations of escapology, sword swallowing, fire-eating and phrenology were popular public entertainers at fairgrounds, but their skills were frequently articulated in terms of scientific experiment.

The Montgolfier brothers' display of the first hot-air balloon in 1783 was another demonstration of scientific invention and also of showmanship; in Paris, in the presence of Louis XVI and Marie Antoinette, the brothers flew a cockerel, duck and sheep in their new invention. This display was widely illustrated and circulated in magazines and prints; balloons became a standard feature of pleasure gardens across Europe, and are still to be found in carousels. In 1843, Cremorne House in Chelsea advertised:

MR GREEN, THE CELEBRATED ÆRONAUT,

Will ascend from the Lawn, in his

MAJESTIC BALLOON

Taking up with him, and liberating a experimentally, an extensive

ÆRIAL TRANSIT SHIP. (Cremorne Gardens flyer, 1843, quoted in Rogers 1896: 60)

The flying balloon came to be a regular feature of popular entertainments; aerial dioramas and mechanical backcloths that simulated flight appeared in Harlequinades and in pantomimes. The 1814 *Harlequin Whittington* featured a child ascending in a balloon, while the 1823 production *Harlequin and Poor Robin* at Covent Garden included an 'Æronautic excursion' to Paris (Frow 1985: 143). The Tivoli Gardens in Copenhagen continues to have a ride that simulates balloon flights.

The Adelaide Gallery in London was the site of the 'National Gallery of Practical Science', which mounted displays of ballooning, among other scientific displays, from 1832. This formal title, however, belied its entertainment value; the advertising for the gallery announced its purpose as 'Blending Instruction with Amusement'. Although Altick has described the Adelaide Gallery as 'the first direct English progenitor of the modern science and technology museum' (Altick 1978: 379), it went on to become not a museum, but an amusement hall. William Bullock's Egyptian Hall was another London exhibition hall that balanced its displays between instruction and amusement, often claiming educational purpose to justify exhibitions that would otherwise skirt the boundaries of respectability. In 1842, the Egyptian Hall presented the 'Flying Railway', a mechanical device that could turn a lady or gentleman upside down. The promotional leaflet explains the engineering in great detail. 'The Flying Railway' is a clear forerunner of the loop-the-loop mechanical attractions later found in Coney Island and at Blackpool Pleasure Beach; like them, its pleasures were more to do with the upending of one's companion than with any interest in engineering.

Developments in engineering were also the stuff of shows and spectacle; hydraulic water theatrical displays were a regular feature of the pantomime transformation scene. Sadler's Wells, limited until 1843 by the Drury Lane and Covent Garden theatres' monopoly on spoken drama, had to develop its own specialism. Sadler's Wells became known for its water ballets and spectacles enabled by hydraulic technology, with onstage water tanks. Mechanical innovations were turned to magic across London theatres and to popular spectacle at exhibition halls. The year 1872 saw a display of early robots at the Egyptian Hall; known as 'Automata', they consisted of 'four ingenious mechanical figures, apparently self-acting or automatic', which were widely reported and illustrated in *The Illustrated London News*.

The display of the medical 'freak' at fairgrounds and exhibitions represented another encounter between the scientific and spectacle. Displays of 'native' tribes people had been claimed from the eighteenth century as instructional for ethnographic and geographical purposes; the exhibition of 'freaks of nature' (in Wordsworth's term) made similar claims to 'scientificity'. In Britain and America 'scientific exhibitions' of medical curiosities skated a fine line between scientific curiosity and salacious interest throughout the nineteenth and twentieth centuries. The 'freak' sideshow has a history as long as that of

carnival, but in the early nineteenth century, 'science' was invoked to justify the display of biological freaks and fantasies; as Altick explains:

Aware as the showmen were of the value of the English temper placed upon knowledge, if only by way of lip service, at no time did their publicity wholly lack some promise of instruction; 'scientific' interest was attributed even to exhibitions of palpably contrived mermaids. (Altick 1978: 3)

It was not only the 'English temper' that was fascinated by biological and medical curiosities; in America the conjoined twins Chang and Eng were displayed as the 'original Siamese twins' from 1829. P.T. Barnum established his 'American Museum' in 1841 (the original source of his considerable capital), which was stocked with biological curiosities, both animal and human. Among Barnum's most successful exhibits was Charles Stratton – General 'Tom Thumb' – who was toured around Europe, and performed for Queen Victoria. Barnum's was the first of many 'Dime' museums that offered the public a strange combination of medicine and magic, and which were to flourish across America into the twentieth century. The confusion of science and showmanship² that marked the freak show continued at Coney Island and Blackpool Pleasure Beach into the late nineteenth century and beyond. Blackpool (which itself had become a destination for excursions because of the arrival of the railway) had a flourishing trade in 'freak' shows along the Golden Mile; these were sideshows that had been displaced from the approved sites of the Pleasure Beach and the Winter Gardens (Turner and Palmer 1981: 56).

Into the twentieth century, as medicine developed, the 'freak' show could no longer be the tourist draw that it once had been; as Cross and Walton point out (2005: 125), improved understanding of biology and of genetics made it an uneasy entertainment to marvel at physical malformations. Nonetheless, the freak show continues, if not directly in the theme park, in museums of oddities that are, as their predecessors were in the nineteenth century, situated outside the official sites of entertainment.³ Ripley's 'Believe It or Not!' franchise began as a cartoon strip of 'oddities' in 1918; a Ripley's display was a huge success at the 1933 Chicago World's Fair, and went on to be a regular feature of American State Fairs. Ripley's 'Believe It or Not!' developed into an international group of museums, comic books and now websites, all of which are still going strong.

Ripley's current museums are sited close to theme parks and tourist attractions; Niagara Falls, Atlantic City, the Disney parks in Florida and California, and Blackpool all have a 'Believe It or Not!' 'Odditorium', but it is always sited outside the bounds of the official pleasure grounds. The freak show was always a sideshow, and from the nineteenth century it was the trade of hucksters, sited on the midway at World's Fairs and barred from official and respectable sites of entertainment at Blackpool and Coney Island. It was the

mechanical rides that were the sanctioned attractions at fairgrounds and that were the main draw of World's Fairs. The celebration of mechanics was integral to the Great Exhibition and to the ensuing World's Fairs; these expositions were trade fairs, designed to demonstrate industry and to promote new technologies. The Great Exhibition was flagged as 'The Great Exhibition of the Industry of All Nations'; promoting manufacture and industrial technology was at the heart of Prince Albert's mission, and, as he put it in his opening speech, the exhibition was a celebration of the 'means that modern science has placed at our command' (quoted in Harvie *et al.* 1970: 237).

The Victorian journalist Henry Mayhew described the fascination of visitors to the Great Exhibition on shilling days (the day of the reduced rate), with mechanical exhibits, the mechanisms in themselves enough to produce awe:

But if the other parts of the Great Exhibition are curious and instructive, the machinery, which has been from the first the grand focus of attraction, is, on the 'shilling days' the most peculiar sight of the whole ... round every object more wonderful than the rest, the people press, two and three deep, with their heads stretched out, watching intently the operations of the moving mechanism. (Quoted in Harvie *et al.* 1970: 247)

This fascination with 'moving mechanisms' was also evident at the Paris Exposition Universelle, sixteen years later in 1867. The exposition featured a sea water tank and diving bells, and displays of gas lighting and mechanical engines. Hans Christian Andersen's 1868 tale 'The Dryad' presents an encounter between an ethereal fairy and the material world of the Grand Exposition, and gives a good indication of the sheer excitement of new technologies. At the centre of the exposition and of the tale is an anthropomorphic machine that can reproduce the wonders of nature; a mechanical engine which could produce waterfalls: 'Master Bloodless moves his steel and iron limbs in the great machinery hall' (Andersen 1914: 987). The story tells of a rural tree spirit drawn to the city by the apparently magical wonders of the exposition. A child of nature, the dryad is drawn to a world of artificial lights, scents and textures in the modern city, in a convergence of scientific invention and the magical. Paris in the tale is a city 'shimmering' with gas lights; the exhibition is a fairy tale palace made accessible by the coming of the trains, able to collect the 'new wonders' of the world together because of the fact of new transport systems and technologies:

[T]hrough the whole of the daytime came the trains, and from every one and into every one crowded people from all the countries in the world, a new wonder of the world had called them to Paris. ... An Aladdin's Palace of industry and art. (Andersen 1914: 986–7)

Harper's Weekly was among the many international publications to cover the 1867 Paris Exposition and to devote an article to the experimental submarine floated in a giant aquarium. The exposition celebrated new marine

technologies and engineering with displays of diving suits, a submarine (the first of the French Navy) and plans for the Suez Canal project.

All these elements are to be found in Verne's 1869 novel *Twenty Thousand Leagues Under the Sea*, written in the year after the Paris Exposition. The mysterious Captain Nemo owns a version of a diving suit originally developed for the French Navy. The then unfeasibly technologically sophisticated submarine, Nautilus, owes much to the advertising for new submarine technologies then undergoing trials in Europe and America. The submarine's huge windows (which were repeatedly used in illustrations for the novel) are variations on the shape of the great aquarium displayed at the exposition. Published in serial form, *Twenty Thousand Leagues Under the Sea* was immediately translated, and has never been out of print since. It is the first science fiction film made by Walt Disney; the sets were used to construct one of the earliest attractions at Disneyland, and the attraction and the film were featured in the first episode of the Disneyland television show. Nemo's submarine remains an attraction at Discoveryland in Disneyland Paris, where Verne is particularly celebrated.

Jules Verne has been credited with the invention of the new genre of scientific romance, but as Pierre Macherey notes, his fiction was by no means original, but drew on a stock set of popular stories and images:

We would ask how far these images have been produced by Verne himself ... how far he has taken them from the fund of images which the long history of the narrative of the fantastic placed at his disposal, that reserve from which the language of fiction has progressively elaborated: that general history which has never been written. ... The general project had to be embodied in images which were not original. (Macherey 1978: 168)

If, as Macherey points out, the fantastic voyage and scientific adventure were already well-established romantic genres (especially in France), Verne was the central figure in bringing them together in a popular science fiction. Lofficier and Lofficier have also argued that Verne was reworking a long tradition of scientifically inflected romance, but that he brought it into the cultural mainstream:

It is impossible to overestimate the impact of Jules Verne on modern science fiction ... many of the classic themes had already appeared sporadically in genre literature before Verne started writing; he did not so much create as reshape ... it was Verne who reached the masses, who popularized the concepts of science fiction and gave them their modern form. (Lofficier and Lofficier 2000: 339)

Verne had grown up in the French tradition of *voyages imaginaires*, a particularly French genre of utopian fiction that flourished in the eighteenth century. The unknown islands, flying balloons, sky rockets and sailing craft that were regular features of these romances are reconfigured in Verne's writing with a gloss of scientific explanation. Encouraged in his writing by the Romantic novelist George Sand (who shared the same publisher, Hetzel), Verne would

have been immersed in this fiction, and familiar with other writers who made use of the tropes of the *voyages imaginaires*. Verne was a great admirer of Edgar Allan Poe,⁴ who had in 1844 written 'The Balloon Hoax', a pseudo-scientific front-page story; it was a clear influence on Verne's 1851 tale, *Un Voyage en Ballon*. Verne's 1865 tale, *From the Earth to the Moon*, also indicates Poe's influence; a group of American industrialists attempt to fire a cannon shell from 'Stony Hill', a narrative directly referenced in the gun club and gunpowder details of the Space Mountain ride at Disneyland Paris.⁵ Victor Hugo was also published by Hetzel; his 1860 novel *Les Travailleurs de la Mer* features an encounter with a giant octopus that is much like that in *Twenty Thousand Leagues Under the Sea*. Alexander Dumas, best known for the historical romances *The Three Musketeers* and *The Count of Monte Cristo*, also wrote a novella, *Voyage à la Lune*, that involved spacecraft. Verne's preoccupation with scientific expeditions and with the machinery of travel, air balloons, submarines and space rockets firmly belongs in this tradition of the fantastic voyage.

From 1867, the publisher Hetzel gave Verne his own imprint, which directly referenced the tradition of the *voyages imaginaires*: 'Voyages Extraordinaires' became the title of his collected works. Hetzel produced Verne's tales between 1867 and 1910, first in cheap serialised magazine versions and then as illustrated special edition volumes. Their success led to a series of imprints based on adventure and 'scientific' expeditions. Hetzel was a canny promoter, publishing coloured posters for bookshop displays, and issuing Verne's fiction in several differently priced editions. English translations followed suit; 'Jules Verne's STARTLING STORIES, with Charming Coloured Pictures' were published in shilling and two-shilling volumes in 'The Youths' Library of Wonder and Adventure' by London publishers Ward, Lock & Tyler (*A List of Ward, Lock & Co.'s Illustrated Gift Books, Standard Works and Popular Volumes for Children*, London, 1879). Verne fast acquired a reputation and a set of visuals associated with his fiction that extended beyond the readers of his novels. Hetzel's elaborate covers for the illustrated editions of 'Voyages Extraordinaires' were reconfigured in abridged and pirate versions of the novels; images from Verne appeared on collectors' cards, as children's toys and games and were enacted in panoramas. The Nautilus submarine and the flying balloon became familiar icons of French popular culture.

Verne had first made his living in Paris through journalism and by writing librettos for operettas and short plays. It was inevitable that the success of his fiction would move on to the stage and later find its place in film. Offenbach invited Verne to stage a musical at his theatre Les Bouffes Parisiens,⁶ and later based his 1875 operetta *Voyage à la Lune* on a Verne story. *Around the World in Eighty Days* was first written as a play, and was already a best-selling novel by the time it was staged in Paris in 1874. The production was spectacular, boasting exotic landscapes (including Egyptian pyramids), live animals and mechanical stage effects. It was a huge success, which turned Verne into a

celebrity author, and led to further stage productions of Verne tales. Images of the sets were reproduced as three-dimensional *vues stéréotypiques*, an early form of the Viewmaster.⁷ The lavishness of these sets introduced a style of theatre that was to influence the early film spectacles of Georges Méliès.

Méliès' most famous film, *Le Voyage dans la Lune* (1902), was loosely based on Verne's novel, and owed much to the sets of the Parisian theatre production. This film, pirated and distributed by Edison across America, produced some of the most enduring images of imagined space travel and rockets, faithfully reproduced in the Space Mountain rocket at Disneyland Paris. Méliès produced *Two Hundred Thousand Leagues Under the Sea; or the Nightmare of a Fisherman Who Saw a Sea Monster* in 1906; as the title implies, this took some liberties with the text, in introducing scenes with young women posing as mermaids and octopi. A later silent film was produced in 1916 with an accompanying book of stills; it included the novel's sequel, *The Mysterious Island*. The novel has since been turned into a number of film and television versions, of which the most familiar is the 1954 Disney version. *20,000 Leagues Under the Sea* was filmed by Disney in Cinemascope and Technicolor in 1954. Verne's success in spectacular fictions was proven; the film was released in a period when the spectacular was required as cinema was threatened with declining audiences. The film was lavishly produced, and won an award for its special effects and art direction. The designs were redeployed as the 'Submarine Voyage' at the first Disneyland and later appeared at Disney World and at Disneyland Paris.⁸

For all his popular success, Verne himself was anxious not to be seen as a writer of fiction for children, despite the fact that his publisher, Hetzel, had based his success on publications for children. Verne insisted that his fiction was based on extensive scientific research; *Twenty Thousand Leagues Under the Sea* begins with much use of technological language, and a first-person narrator with an impeccable academic biography of research into mineralogy, botany and zoology embarks on an expedition that is apparently backed by (real) international scientific institutions. Verne distanced himself from H.G. Wells, whose work he disdained as scientific 'romance' – although it was Wells who was the trained scientist. Verne claimed a 'scientific truth' for his work; his much-vaunted research, however, was based less on scientific knowledge than it was derived from encyclopaedia entries and popular scientific journals. The novels were themselves popularisations of a 'science' that had been filtered through second-hand sources and other researchers, as Michel De Certeau has explained:

According to the terms of the contract drafted by the publisher J.P. Hetzel ... a geographer in the service of the National Library is 'charged with assembling the documents and texts necessary for the publication of Jules Verne's book, *Les Grand Voyages* and *Les Grands Voyageurs*, already begun'; Verne is to 'revise' this preparatory work, and 'modify it to make it his own'. (De Certeau 1986: 137)

The 'science' of Verne's fiction, then, consisted in mediations of scientific developments that he himself only half understood and that were based on a science that was already antiquated. As De Certeau points out, the science in the texts and documents collated for Verne to turn into fictions were not so much contemporary innovations, but dated from the late eighteenth and early nineteenth centuries.

Roland Barthes includes Verne's *Nautilus* as one of his cultural 'myths'. According to Barthes, the journey or expedition in Verne is inevitably a journey of colonisation:

Verne belongs to the progressive lineage of the bourgeoisie: his work proclaims that nothing can escape man, that the world, even its most distant part, is like an object in his hand and that, all told, property is but a dialectical moment in the general enslavement of Nature. (Barthes 1972: 65)

This is a version of Verne that fits neatly with the idea of progress articulated in the World's Fairs, and with their displays of a tamed natural world. The conquest of nature by technology continues in the Disney version of Jules Verne. The Living Seas Pavilion at Epcot (corporate sponsorship provided by United Technologies, a company specialising in technology and aerospace) includes a display of early diving suits, just as in the Paris Exposition. What was once exhibited as cutting-edge science has here become a nostalgic heritage of technological progress; the Living Seas attraction features the diving suit developed for the Disney *20,000 Leagues Under the Sea*, and a model of the *Nautilus* used in the film is also on display. These fictional and cinematic inventions are presented as having the same historical status as exhibits at the nineteenth-century World's Fairs.

The interweaving of Verne with the World's Fairs, theatrical spectacle and early film would be enough to draw him into the Disney project. But he was also a particularly useful figure for the Disney Corporation to reference when the siting of Disneyland outside Paris required Disney to acknowledge French and European cultural traditions. According to one Disney spokesman,

One way we tried to do this ... was to replace Tomorrowland with something called Discoveryland, which was based around the idea of Jules Verne's Discovery Bay. Verne's idea of the future had influenced Walt, yet it remained very European, very French. (Quoted in Finch 2004: 155)

The myth of Verne is used across Discoveryland to magically resolve the tensions between European and American versions of the future and between their different traditions: the Disneyland Paris guidebook invites you to (simultaneously) '[g]o back in time, travel forward to the future' (Walt Disney Company, 2002, p. 69).

Verne appears at the Disneyland Paris sites with the same respectful aura that Perrault occupies at Fantasyland; he is the presiding spirit of the Discoveryland space, and a monument, resonant of the architecture of the Paris 1900 Exposition, stands at its centre, inscribed with Verne's words in

French: 'Tout ce qui est dans la limite du possible doit être et sera accompli'.⁹ Verne is promoted in the site as a scientific visionary and as an entirely uncritical supporter of progress and technology.¹⁰ When the Disneyland park in Paris first opened, it featured a video of Verne and H.G. Wells as Victorian figures admiring the wonders of current technologies at the Grand Palais (built for the 1900 Exposition Universelle). Verne and Wells are both invoked as central and authoritative narrators of 'science' in the Disney parks, although both were markedly equivocal in their writings about the social benefits of scientific progress. The Wells and Verne found in the 'Time Traveller' attraction at Discoveryland, however, have no qualms about the potentials of new technology and enthusiastically embrace the innovations of corporate sponsors Renault and Sony. The Disney version of Wells and Verne presents them as visionaries for whom travel and adventure in time and space would arrive through the commercial development of new consumer products.¹¹

The complexities of Wells's and Verne's fictions are compressed in Disneyland into an unambiguous celebration of new technologies. In the context of Discoveryland, their status as 'classic' writers allows them to be encoded as 'timeless' supporters of a nineteenth-century conviction in the excitement of technology, and the belief that progress could only continue. The referencing to their fiction in the iconography and naming of the attractions, however, owes less to the novels than to the metonymic icons that now connote these stories: the balloon of *Around the World in Eighty Days*, the submarine of *Twenty Thousand Leagues Under the Sea*. The most significant feature of the Nautilus attraction is the giant octopus appearing outside the porthole of the submarine; this is the key image that appeared in the first publicity for the novel, and which has recurred in frontispieces, illustrations, cartoon versions and film posters for the novel ever since. The versions of Verne and Wells found in contemporary popular culture and at the Disney sites have been produced by sets of mediations of their fiction in popular illustration, theatre and film that have now become detached from their writings.

Verne and Wells have competing claims to being the founder of contemporary science fiction; while Verne rejected the phrase, Wells was happy to identify himself with the 'scientific Romance'. Wells clearly acknowledges the appropriation of technological knowledge for the fairground and recognises the alliance of science and carnival. In his *The Time Machine* (1895) the inventor is well aware of the entertainment potential for his machine, and fully expects 'the distinguished honour of an offer from Mr. Barnum to exhibit him ... in all the principal cities in the United States!' (Wells 1976: 184). The Time Traveller's journey offers the reader an intensification of experience and sensation, and evokes in its description the intense colours and shapes of a carnival attraction. It is described as 'a kind of hysterical exhilaration', and explicitly in terms of a fairground ride:

I cannot convey the peculiar sensations of time travelling. They are excessively unpleasant. There is a feeling exactly like that one has upon a switchback – of a helpless headlong motion! (Wells 1976: 24)

Raymond Williams has cited Wells as an example of a Victorian science fiction writer who does not offer a sentimentally utopian vision of progress. He argues that Wells's constructions of a technological future are a means of articulating a social critique, rather than an unquestioning endorsement of scientific advance. Like the 1898 *The War of the Worlds*, *The Time Machine* is a Darwinian moral fable, a dystopian warning of the consequences of inequality. George Orwell has described his own excitement at the discovery of Wells's science fiction, and suggests what a subversive writer he was:

Back in the nineteen-hundreds it was a wonderful experience for a boy to discover H.G. Wells ... here was this wonderful man who could tell you about the inhabitants of the planets and the bottom of the sea, and who *knew* that the future was not going to be what respectable people imagined. (Orwell 1961c: 165)

The Wellsian future, however, is presented at Disneyland as entirely what respectable people imagine. H.G. Wells, like Verne, is safely relegated to the past, and his version of the future constructed as quaint. Verne and Wells are no longer seen as relevant to discussions of scientific progress, but have become 'heritage' authors, known largely through images and abridgements.¹²

Both Wells and Verne were widely published as short stories in European and American journals. While Wells's radicalism and atheism did not endear him to the Christian founders of the *Boy's Own Paper*, many of Verne's stories were first read in English there. Verne's combination of adventure and rational recreation made him entirely fitted to the paper's moral purpose; presented to readers as a heroic figure, he featured as a portrait of '[b]oys who became famous' in 1880. Verne published in the *Boy's Own Paper* from its beginning, contributing stories and then a serial each year, illustrated with full-page prints. *Boy's Own Paper* was keen to demonstrate its modernity not only through fiction but also with educational articles to keep readers up with contemporary inventions. In the spirit of *Mechanics' Magazine* and of rational recreation it regularly published articles on the construction of gadgets, featuring the latest innovations. From the 1890s, electricity featured in instructions for the construction of bells and home telephones; the 1920s saw a series on building wireless sets. In 1897, readers were instructed on 'How to Take a Photograph of the Moon'. Verne's story 'The Master of the World' (which featured a flying saucer) was published in 1914 with spectacular illustrations of flying machines, and his work was continually republished in the paper well into the twentieth century.

While imaginative fiction and popular science in magazines speculated about and illustrated fantasies of new scientific innovation, the potential was actualised in mechanical inventions at the World's Fairs. 'Progress' was affirmed in architectural innovation at the sites; the Great Exhibition had stressed new industrial technologies, and subsequent host cities were keen to display their national inventiveness. A 'Machinery Hall' was a standard element of the World's Fair, displaying new technologies; the mechanics for many now

familiar theme park rides were first seen at World's Fairs.¹³ The Philadelphia Centennial Exposition of 1876 featured an elevated railway, the forerunner of the monorail that has become an established attraction of amusement parks. The 1893 Chicago World's Columbian Exhibition was largely organised around the new excitement of electricity and lighting; it featured an Electricity Hall, which housed demonstrations of Edison's kinetoscope.¹⁴ The 1889 Exposition Universelle in Paris displayed cutting-edge engineering with the specially built and controversial Eiffel Tower.

The Eiffel Tower inspired plans for a series of similar towers at British seaside resorts, of which Blackpool's Tower was the only one to be built. Along with the tower itself, Blackpool Tower featured many other technological innovations seen at World's Fairs, including a hydraulic lift, an aquarium and spectacular water effects. The tower also housed the 'Dome of Discovery', an early 'scientific' playground (and precursor of Disney's Tomorrowland) that has been there since the tower was first built in 1894. Blackpool's Pleasure Beach also invested in spectacular mechanical rides (often based on American technology) and trumpeted their 'scientific' and technological claims; 'Sir Hiram Maxim's Captive Flying Machine' was built in 1904 (and is the oldest surviving carnival attraction in Britain).¹⁵

The most extravagant rides at Blackpool's Pleasure Beach came from a financial arrangement with America and largely from Coney Island. The latest attractions at Coney Island had themselves often first been seen at World's Fairs. There was a constant exchange between the new technologies displayed at World's Fairs and the showmen skills of carnival entrepreneurs. Frederic Thompson (who went on to develop Luna Park on Coney Island), like Disney, learned his trade as a carnival showman at World's Fairs, beginning as a demonstrator at the 1893 Chicago Fair. Thompson designed an elaborate 'Trip to the Moon' attraction for the 1901 Buffalo Fair, which was later taken to Luna Park.

It was claimed that 'Trip to the Moon' was inspired by an H.G. Wells short story (recently published in America), but it is also clearly inflected by Verne; it was much admired by visitors, including Thomas Edison. The attraction featured some devices that derived from eighteenth-century panoramas and others that Disney and other theme parks now continue to use. 'Trip to the Moon' was based on a cyclorama, which produced the effect of flying through space towards the moon, an illusion that contemporary flight simulator attractions replicate with film. Visitors were welcomed by a guide who claimed professional expertise from the Aerial Navigation Company and who used cod-scientific language to talk them through the experience (see Cross and Walton 2005: 86). This is a device that continues in 'scientific' attractions across theme parks, from the 'Star Tours' attraction¹⁶ at Disney parks to the Blackpool 'Space Invader' ride. The 'Trip to the Moon' was later replaced at Luna Park by 'A Trip to Mars by Aeroplane' and a submarine ride, 'Twenty Thousand Leagues Under the Sea', more directly based on Verne and a precursor of the

Disney attraction. 'Under and Over the Sea' was another Thompson attraction developed for the 1904 St Louis Fair, which managed to make use of several Verne plots and icons; it featured a submarine that travelled to Paris and then returned its passengers to the fair by airship.

The wonders of mechanical engineering, the airship and submarine could not be upheld as images of scientific progress for long into the twentieth century. Although these would all survive as nostalgic icons of a nineteenth-century faith in technology and science, they had become an iconography of a historical science as twentieth-century modernity looked to the future. The 1933 Chicago Exposition was titled 'A Century of Progress'; in celebrating the centennial of the city, it was concerned to demonstrate how far technology had come since the nineteenth century. Determinedly modernist in its displays and architecture, the attractions continued to feature fantastic voyages, but now in streamlined versions; an elevated tram system, the Sky Ride, ferried passengers in 'rocket cars'. While insisting on contemporaneity, the exposition could still present the entirely optimistic view of technology and science of its nineteenth-century counterparts.

The New York World's Fair of 1939 followed the modernist principles of the Chicago fair with a futuristic theme: 'Building the World of Tomorrow'. Science and technology were central to the vision of 'Tomorrow'; attractions featured a time capsule holding writings by Einstein, and a planetarium was at the centre of the site. The emblems of the fair were the futuristic Geometric Trylon and Perisphere, and it was the first to exhibit the new medium of television. The advertising poster for the New York Fair, featuring skyscrapers and geometric modernity, clearly borrowed from contemporary science fiction covers. The Blackpool Pleasure Beach was also redesigned in the 1930s in modernist guise, with architecture from the Modern Movement.¹⁷ The sleek lines of modernism were now the style that connoted 'science' in entertainment sites. The newly modelled Pleasure Beach was one of many contemporary amusement parks to resemble illustrations in contemporary science fiction magazines.

The American *Amazing Stories*, published from 1926 onwards, was the first dedicated science fiction magazine. Its publisher Hugo Gernsback has been claimed as 'the father of modern American science fiction' (Lofficier and Lofficier 2000: 339). Gernsback, however, was born in Luxemburg and so had been brought up on Verne, and his publishing empire began with translations of Verne; his first published magazine, *Modern Electrics* (1908) was in the tradition of *Mechanics' Magazine*. Gernsback described the fiction in *Amazing Stories* as 'The Jules Verne, H.G. Wells and Edgar Allan Poe type of story – a charming romance intermingled with scientific fact and prophetic vision. ... They supply knowledge in a very palatable form (quoted in Martin 1981: 37). The 'palatable' scientific education came in the form of comic book illustrations and luridly coloured covers, images that gave the science fiction genre its own distinctive look. These in turn went on to inform the conventions for the *mise*

en scène for versions of Wells's and Verne's fiction and other popular science fiction films, and so shaped an iconography of the 'scientific' for twentieth-century popular culture.

Writing in 1939, George Orwell identified science fiction as a new theme in boy's weeklies: 'The one theme that is really new is the scientific one. Death-rays, Martians, invisible men, robots, helicopters and interplanetary rockets figure largely' (Orwell 1961a: 106). By 1953, there were almost forty science fiction magazines published in America alone. According to Mike Ashley,

If ever there was a real Golden Age of science fiction it was 1950–54, when *Galaxy*, *Astounding Science Fiction*, *If*, *Thrilling Wonder Stories*, *Startling Stories*, *Amazing Stories*, *Fantastic* and a dozen or more magazines published some of the best work ever seen. (Ashley 2005: viii)

Like Gernsback, many of these magazine publishers made their profits by printing tales from the science fiction archives (including Verne and Wells), so avoiding copyright fees. Paperback novels emulated the same lurid covers and illustrations of the magazines; the 1942 publisher Popular Books was founded by the management of the magazines *Thrilling Wonder Stories* and *Startling Stories*. Popular science is one of the categories that Richard Hoggart explores in *The Uses of Literacy*. While he cannot acknowledge that 'the newer mass art' of paperbacks and magazines was just as likely to publish 'literary' as pulp fiction,¹⁸ he does recognise the combination of magic and science that characterised the genre:

Science. Here the titles ring the changes on, 'Science', 'Space Science' and 'Spaceways' with adjectival support from 'Startling', 'Weird', 'Future', 'Astounding', 'Fantastic', 'Super', 'Thrilling' and 'Authentic'. ... This is the sort of science fiction which preceded, and presumably goes on unaffected by, the elevation of some writing on similar themes into a subject for serious discussion in the literary weeklies. (Hoggart 1957: 206)

Contemporary comic book heroes featured these same adjectives in their names and are clearly shaped by the language and iconography of the science fiction genre. Superman first appeared in America in 1938 in the first issue of *Action Comics*. Superman may have worn the costume of a circus strongman, but his superpowers had a (vague) scientific explanation, which became more pronounced in the 1950s. 'Dan Dare: Pilot of the Future' was a British answer to Superman, the leading serial in the British children's comic strip magazine *Eagle*, first published in 1950. Dan Dare's exploits were not unrelated to the heroic adventures found in nineteenth-century magazines such as the *Boy's Own Paper*. *Eagle* was developed as a Christian alternative to the perceived corrupting influence of the American comic, and Dan Dare offered a twentieth-century version of muscular Christianity. If Dan Dare was a reconfiguration of a nineteenth-century muscular Christian hero, his environment was emphatically modern. The futuristic settings of Dan Dare's adventures were,

like Blackpool's Pleasure Beach, modelled on modernist architecture. Dan Dare's illustrator, *Eagle's* art editor Frank Hampson, used model sets for the regular backgrounds, in order that they could be drawn from many angles. The style was easily adaptable for the *mise en scène* of cinema science fiction, and could be recreated for three-dimensional attractions.

Dan Dare was a moral anchor and an acceptable conduit into the strange new world of science and technology that was becoming increasingly alarming in a Cold War context of atomic science. *Eagle's* features supported Dan Dare in his moral confidence and optimism about the new Space Age. *Eagle's* centre spread was devoted to diagrams showing the workings of machinery, both historical and contemporary, which assumed that readers would be as amazed and impressed at the new mechanical inventions as visitors had once been at the Great Exhibition and World's Fairs. In the spirit of rational recreation and the pages of *Mechanics' Magazine*, models of steam engines, trains, cars and space machines were illustrated in heavily captioned diagrams.

In response to the domestic technology of the television screen in the 1950s, Hollywood developed innovative techniques for cinema screens, such as Cinemascope, first shown in 1953. The fantastic sets required by the science fiction genre fitted the new widescreen formats, and answered the cinema's need for spectacle that the small screen could not reproduce. The 1956 film *Forbidden Planet* introduced 'Robby the Robot'.¹⁹ The poster, and the *mise en scène* of the film, owed a great deal to the lurid front covers of *Amazing Stories* (an association that is confirmed by the inclusion of the word 'amazing' before the title) in its use of acidic colours and the array of astronomical planets and stars. With Disneyland's origins in the World's Fairs, and with the ubiquity of the science fiction genre in America in the 1950s, it was inevitable that 'Tomorrow' should be one of its central themes.

'Tomorrow' is, however, a difficult concept to visualise and to actualise in theme park attractions, as the Disney World souvenir guide acknowledges:

Simply by definition, Tomorrowland poses one of the Magic Kingdom's greatest challenges to designers. Because the future is a moving target, Tomorrowland must undergo continual updating. (Walt Disney Company 1986: 54)

The history of the designs, however, suggests less a 'continual updating' than a return to the past in Tomorrowland. Tomorrowland was the last of the Disneyland 'lands' to be built, but it appears in the early drawings for Disneyland under the title 'Land of Tomorrow', a reference to the New York Exposition of 1939. Walt Disney's 'Academy Award-winning film' *Twenty Thousand Leagues Under the Sea* had come out the year before, and became one of the earliest attractions of the site, based on the very expensive set designs for the film. 'Jules Verne's science-fiction classic' (in the words of the Disney advertisement for the film) remains still the dominant representation of science in Tomorrowland.

Disney was not prepared to take on board the dystopian features of much of the science fiction that was contemporary to his theme park, and so took refuge in the much safer view of technology found in nineteenth-century fiction and in the World's Fairs. Another attraction in the first Disneyland was 'Rocket to the Moon', an improved version of the 'Trip to the Moon', first seen in 1901, now updated with advice from NASA. Tomorrowland did make some concessions to the 1950s, and the celebration of the motor car in 'Autopia' was another of the earliest attractions. But even the contemporary attractions referred back to earlier World's Fairs; the 'StarJets' recall the 'rocket' cars of the 1933 Chicago Fair, as does the monorail train.

Tomorrowland in its first incarnation also recycled the modernist architecture of the 1933 and 1939 American fairs. In 1966 Tomorrowland was remodelled to make use of the gleaming technology of contemporary innovations. The Florida 'Space Mountain' is a sleek modernist version of travel, which opened in 1975, the year before Concorde first took flight. The 'Tomorrowland' sites were reconfigured again in 1998, in a 'retro-future' style (closely based on the modelling of the space at Disneyland Paris), and once again, relied heavily on Verne and Wells for the representation of 'science'.

If the American Disney parks did make some use of twentieth-century technology and design and referenced the modernist World Exhibitions of Chicago, New York and Brussels, in the plans for their counterpart space in Paris, 'Discoveryland', the 'future' is coded almost exclusively as nineteenth century. The architecture of Discoveryland evokes the Grand Palais built for the 1900 Paris Exposition, and the Crystal Palace of the Great Exhibition, with monumental verdigris ironwork and visible engineering. The promotional material for the Paris 'Space Mountain' invites the visitor to '[b]race yourself as you're blasted to the moon on Space Mountain. This high speed thrill at Disneyland Paris is light years from anything you've ever known!' (Walt Disney Company 1997: 11).

In fact, while Space Mountain may be the most visible attraction at the Disneyland Paris site, unlike its modernist American equivalents, the Paris attraction is entirely familiar and antique. The space rocket directly references Méliès' 1902 film *Voyage to the Moon*; the ride's narrative is drawn from a Verne tale, and the mechanics of the ride are derived from Thompson's 1901 'Trip to the Moon' attraction. The vision of the future world at Discoveryland is entirely contingent on ideas and images of science that come from the past.

The Disneyland Paris brochure presents its Discoveryland site as a 'land of the future', but simultaneously situates that future as envisioned from the past. Verne (along with Leonardo da Vinci who is also cited) here becomes a visionary thinker, written into Disney's history in much the same terms as Walt:

Well before his contemporaries imagined it could be possible, Jules Verne dreamed ... that man could defy the laws of gravity, free himself from the atmosphere, travel beyond the galaxy. ... Go back in time, travel forward to the future. (Walt Disney Company 2002: 69)

Disney's version of science and the future is in Discoveryland, like the park itself, presented as one of boundless possibility, but while Discoveryland and Tomorrowland claim to envision the future, their attractions are rooted in the technology of the past and offer a version of science and progress that belongs to the nineteenth century. 'Tomorrowland' is much less about tomorrow than it is about the yesterday of Verne, Wells and the World's Fairs.

The World's Fairs of the 1950s and early 1960s, like Disney, had to negotiate the fact that science and technology, in the context of two world wars and of the Cold War, were less a source of wonder than of fear and anxiety. Nonetheless, the World's Fairs located in Brussels, Seattle and New York continued to promote a determinedly optimistic version of the future of science. The 1958 Universelle et Internationale de Bruxelles featured at its centre the Atomium, a steel molecule magnified 150 billion times, which became the symbol of the fair, and still stands on the site.²⁰ The Atomium embodied a firm endorsement of atomic energy and power; the same unequivocal embrace for the atom had been found in Walt Disney's *Our Friend the Atom*, an animated film issued as a book in 1956.

The Seattle Century 21 Exposition of 1962 moved away from the atomic age into the Space Age with the theme 'Man's Life in the Space Age' and attractions that centred on space travel. NASA had its own pavilion, and displayed the Friendship 7 space capsule that had launched astronaut John Glenn. The attractions of earlier fairs were still present, but now Space Age-themed, as in a monorail with rocket capsules. 'The Bubbleator' took visitor through panoramas, 'Man's Past Futures', 'Century 21 City' and 'Your Future Today', which made use of the technology of eighteenth- and nineteenth-century rides, while their narratives denigrated the past in an affirmation of the contemporary. 'The Carousel of Progress' has the same story of quaint technologies superseded by progress, and employs the same panoramic devices. The Carousel was designed by Disney for the General Electric Pavilion at the 1964 New York Fair and is now to be found in Tomorrowland in Florida, where it is displayed as a 'heritage' attraction.

'The Bubbleator' and its panoramas are direct forerunners of the rides to be found at the Epcot Center at Disney World. 'Spaceship Earth', 'The Living Seas' and 'Journey to Imagination' (all titles that owe something to Verne) transport visitors through panoramic displays designed to tell a story of progress. Epcot is in a direct line of descent from nineteenth-century World's Fairs. Epcot is the Disneyland site that is most given over to a celebration of science and technology, being dedicated to 'dreams for better tomorrows', but those dreams are less those of late modernity than they are those of a Victorian past. The 'World Village', with pavilions from around the world, is derived from the ethnological displays that exhibited ethnic groups in 'Native Villages' at nineteenth-century World's Fairs. The shopping outlets at Epcot display goods from the exhibiting nations in much the same way that the Great Exhibition

exhibited the products of its trading partners. The Epcot site also boasts spectacular architecture, designed to show off its innovative engineering. The Geodesic dome is a version of the dome designed by Buckminster Fuller for the 1967 Montreal Universal and International Exhibition (it also evokes the Geometric Trylon of the 1939 New York Fair), but at Epcot it is renamed 'Spaceship Earth'. As in the Great Exhibition and every World's Fair since, the promotional material for Epcot is filled with statistics and figures claiming its attractions as the largest, the newest and at the cutting edge of technology.

Epcot is presented in Disney promotional literature without any reference to this history of World's Fairs (with the exception of the 'Carousel of Progress', which is constructed as part of Walt's heritage). Instead, Walt Disney's 'greatest dream' is presented as a 'Future World', and its displays are governed by the trade and technologies of global corporations. As one of the Disney designers explains, 'it had to keep its foundations rooted in Walt Disney's goal of marrying the technological know-how of American free enterprise (that is, corporate sponsors) with Disney storytelling' (Sklar 1997: 16). An alliance of corporate capital and 'imagineering' is structured into the financing and attractions of the Disney sites. The Epcot Center was financed, and continues to be funded, through the sponsorship of multinational corporations. It was the New York Trade Fair of 1964 that secured Disney's relationship with corporate sponsors, as Alan Bryman has explained:

[T]he Fair acted as a catalyst since he persuaded major corporations to sponsor attractions for the Fair. These attractions were subsequently incorporated into Disneyland. The attractions and their sponsors were: Progressland (General Electric); It's a Small World (Pepsi-Cola); Magic Skyway (Ford); and Great Moments with Mr Lincoln (the Worlds Fair Committee). (Bryman 1995: 13)

Like the Great Exhibition, Epcot's vision of the future was explicitly coded with commerce and technology, in its planning and its realisation. It can be understood as the first permanent World's Fair, although it was originally designed to be inhabited. Disney originally planned Epcot as a place for people to live, an 'Experimental Prototype Community of Tomorrow', in a utopian future that would be funded by and promote American corporate technology.

Epcot was designed to display the products and inventions of consumer capitalism, in an affirmation of newly available technologies, as Walt declared: 'EPCOT will be a showcase to the world for the ingenuity and imagination of American free enterprise' (quoted in Walt Disney Company 1986: 11). Walt Disney's official biographers explain Walt's vision of a 'Futureworld':

Twenty Thousand people would rent homes in EPCOT. Everyone would work. ... Large companies would have the opportunity to try out their latest inventions. In exchange for acting as guinea pigs, residents of EPCOT could experience the newest and most exciting creations before anyone else. Walt and his small band toured the usually classified research departments of major corporations like General Motors, General Electric and Xerox. (Greene and Greene 1991: 158)

Epcot's 'Future World' reassures the visitor that the multinational corporations who have sponsored the exhibits are responsible guardians of the planet's future. The attractions of Epcot promote a version of the future in which capital, technology and science are working together towards a future that will have tamed and controlled the environment. Epcot, more than any other Disneyland attraction, attempts to reconcile cultural and historical difference into a hegemonic account of 'progress'. By the late twentieth century it was becoming more and more difficult for the large corporations who control new technologies to present their products to an audience as protecting the environment and as entirely beneficent.

The optimism and faith in the progress of industrial technologies displayed at the Great Exhibition, at the World's Fairs and in Disney's Epcot became difficult to sustain in a late modern world increasingly suspicious of science and technology. It is no coincidence that Tomorrowland was redesigned in 1966, and that the contemporary refashioning was unsuccessful. According to Mike Ashley, 'around 1960 science fiction lost its way' (Ashley 2005: viii). The wonder of technology that had fuelled the science fiction magazines of the 1950s had given way to anxiety about its potential for destruction, and most of the successful science fiction comics and magazines closed.

J.G. Ballard, the writer who has perhaps problematised the science fiction genre more than any other, dates this mistrust to the 1960s, and has argued that any contemporary version of the future is now too frightening to contemplate:

Sadly, at some point in the 1960s our sense of the future seemed to atrophy and die. Over-population and the threat of nuclear war, environmentalist concerns for our ravaged planet and unease at an increasingly wayward science together made everyone fearful of the future. Like passengers on a ship blown towards a rocky coast, we retreated to our cabins and drew the curtains over the portals. (Ballard 1982: 3)

It was at that 'point' in the 1960s when Epcot was first conceived and planned by Disney and his 'imagineers'. Epcot finally gave up the project of a futuristic community, and instead modelled itself on the Great Exhibition and the World's Fairs. Like Discoveryland, and Tomorrowland, it took refuge in a nineteenth-century past.

The nostalgic construction of science in the theme park can be understood as one of Ballard's *Myths of the Near Future*, in its emptying out of any history, conflict or damage. The theme park version of science fiction now depends on two historical moments when an undisguised celebration of science and technology seemed possible; the 1850s and 1950s were periods when technological innovation could be seen as a source of wonder and excitement, rather than fear. Disney's Tomorrowlands shroud 'science' in a safe nostalgia for those times when scientific progress was felt to be unassailable. Science is

represented in the contemporary theme park in terms of what Fredric Jameson has called the 'nostalgia mode'. Jameson, like Ballard, sees the retreat into nostalgia as a symptom of an inability to confront contemporary experience:

[A]s though, for some reason, we were unable today to focus our own present, as though we had become incapable of achieving aesthetic representations of our own current experience. But if that is so, then it is a terrible indictment of consumer capitalism itself – or at the very least, an alarming and pathological symptom of a society that has become incapable of dealing with time and history. (Jameson 1985: 117)

It is no coincidence that Jameson uses the 1977 film *Star Wars* as the text to explore his concept of pastiche; science fiction is the genre that now most depends on nostalgia, and *Star Wars* is a film that knowingly makes great use of traditional genres. George Lucas (as befits a scholar of myth and legend) employs all the genres embedded in the popular imagination in his film: elements of chivalric romance, the Western, fairy tale, adventure and Gothic horror are all contained within a framework of an ostensibly futuristic science fiction package. Disney was quick to harness the success of the *Star Wars* franchise, with its 1987 attraction 'Star Tours', designed by Lucas; while it

Figure 9.2 Balloons, Legoland, 2010

uses film rather than painted scenery, it is based on the same mechanics as the panoramic simulated rides of the nineteenth-century World's Fairs.

Tomorrowland has notoriously been the most difficult area for the Disney Corporation to manage; it remained unfinished at Disneyland's opening in 1955, and is the themed land that has most frequently been redesigned. Cross and Walton have argued,

The Disney package worked especially well for evoking the imagined 'past' and 'timelessness' but less so for the future, as witnessed by the need to renovate Tomorrowland numerous times and then to increasingly stress science fiction fantasy rather than future technology. (Cross and Walton 2005: 184)

Tomorrow could not be perpetually displaced at Disneyland and other theme parks, and so has settled in a nineteenth-century version of science fiction fantasy. To be magical, 'science' depends on a lack of technical understanding, and to preserve its mystique it has to be unfamiliar. While visitors to the Great Exhibition and the World's Fairs could marvel and celebrate at the power and magic of new technology, by the late twentieth century innovations that would once have amazed are now available at home. The London Millennium Dome also attempted to show its visitors the excitements of new technology, which most could access through their home computer. In the twentieth-first century, 'science' has become both dangerous and domesticated. The science fiction of the theme park continues to promote technology, but can only preserve an optimism in progress by retreating into a historical past when scientific invention was not potentially terrifying, but could be wonderful.