Recent commentators have located the origins of the so-called ‘Post-Human era’ in the literature, painting and sculpture of the early twentieth-century Modernist avant-garde. The ‘post-human’ expresses a powerful cultural conception, however far it falls short of scientific precision. This paper looks at both science fiction and science non-fiction from the early 1920s in the light of the alleged distinction between the human and the post-human. In the year 1923, Karel Čapek’s play *R. U. R.* gave the English language the word *robot*, E. V. Odle published what has been called the first cyborg novel, H. G. Wells portrayed a utopian future in *Men Like Gods*, and J. B. S. Haldane inaugurated the ‘To-day and To-morrow’ series which marks the beginning of the discipline of futurology. Haldane’s *Daedalus* and the novel it influenced, Aldous Huxley’s *Brave New World*, foresee a future of cloned individuals who are at least neo-human if not exactly post-human. Like Wells’s utopians, these products of genetic engineering are felt to be culturally and politically, rather than biologically, alien. For Wells and, especially, Haldane, humanity is still far from fulfilling its potential, and the scientific quest for knowledge symbolized by the mythical Greek hero stands out as a timeless constant linking the past to a barely imaginable future. The role of biotechnology in human history demonstrates our extraordinary capacity to absorb and neutralize what at first seems to be monstrous, indecent and unnatural.

‘Humani nil a me alienum puto’, the Latin writer Terence declared in the second century bc: ‘I am a man, and reckon nothing human alien to me’. Ever since Darwin’s theory of evolution in the mid-nineteenth century, it has seemed possible that the limits of the human might be reached and surpassed as our species develops further. Just as in the very distant past we became human, so one day we may be destined to leave our humanity behind. What does
such a statement mean? The post-Darwinian ‘post-human’ generally has two faces, summing up our hopes and fears about the human condition. There is the bestial face, a relapse into primitivism and savagery, as in H. G. Wells’s *The Time Machine* (1895) and W. B. Yeats’s epitaph for his generation of fin-de-siècle aesthetes, ‘After us the Savage God’ (Yeats, 1955: 349). But there is also the face of the improved human being of the future, anticipated in the Nietzschean Übermensch and popularized by Bernard Shaw’s play *Man and Superman* (1903) and by figures such as Wells’s Samurai in *A Modern Utopia* (1905). Ethical improvement gives way to mechanical improvement in the twentieth-century visions of the cyborg, or technologically transformed human being. It is hard to think seriously about the long-term future without imagining a process of human metamorphosis, a process as startling and also potentially as sinister as that which happens to Kafka’s Gregor Samsa, when he wakes up one morning to find himself transformed into a giant beetle (Kafka, 1961).

Kafka’s story dates from 1916, the time of the first great wave of artistic Modernism. Although the word *post-human* may not have existed then, the literature, culture, and visual arts of the Modernist avant-garde all teem with images of a transformed or mutilated humanity, and it is here that commentators have found the origins of the so-called ‘Post-Human era’ (Pepperell, 1997: 166, 172). Cubism, Futurism, and Vorticism offer geometrical, mechanical, and technological reconstructions of the human figure, such as Jacob Epstein’s ‘Rock Drill’ (1913–14) (see p. 8), where in the original design a full-length, machinelike robot sculpted in plaster was seated on top of an actual pneumatic drill. (Only the torso survives, overhung by a sinister, beak-like visor.) Other forms of Modernism do not so much portray the post-human as inhabit it, looking back at human civilization from a perspective outside civilization, as T. S. Eliot seems to do in ‘The Waste Land’ (1922): ‘These fragments I have shored against my ruins’ (Eliot, 1963: 79).

But if it is very easy to talk about the post-human as a modern cultural metaphor, it is also somewhat deceptive. In scientific and philosophical terms, the post-human is a doubtful and slippery concept, based on what can seem a deliberate confusion of different meanings and definitions of the ‘human’. For example, the ‘Post-Human Condition’ outlined by Robert Pepperell in his 1995 book of that title entails both ‘the general convergence of organisms and technology’ and the supersession of ‘humanism’ as a philosophical and ideological attitude (Pepperell, 1997: I). But there is no logical or necessary connection between ideological ‘post-humanism’ (as evidenced, for example, in the worldwide revival of forms of fundamentalist religion) and the biological or biotechnological post-human. At the same time, while humanism may turn out to have been a transient mental outlook, it would be wrong to suggest that the biological definition of humanity is absolutely fixed. It cannot be fixed, since it is a mode of self-understanding, a statement of our own perceived identity in a biological context. To call something or someone post-human is to say that our self-perceptions are challenged, but only time will tell if the perception is to be adjusted or, conversely, a decisive break with the human has occurred.
Terence’s *humani nil a me alienum puto* is in many ways a prescriptive statement, an ethical injunction to us to spread our human sympathies as widely as we possibly can. It implies a sturdy scepticism, if not outright resistance, towards the journalistic shock-value of the ‘post-human’ label. Such overexcited labelling may be little more than a confession of our own ethnocentricity, of temporal and spatial provincialism. It should be added that *homo*, the root of the idea of the human, is the scientific name not of a sub-species, not even of a biological species, but of a genus. We speak not only of *homo sapiens* but of *homo neanderthalis*, Neanderthal Man; we speak of Prehistoric Man; and the implication is that the word ‘post-human’ should ideally be confined to a metamorphosis of the human race that finally ruptures the long chain of continuity leading from the earliest human ancestors to us. It is, of course, much too late to ring-fence the term in this way. The post-human expresses a powerful cultural conception, however far it falls short of scientific precision. The rhetoric of post-humanity has evident connections with earlier ideological constructs, notably postmodernism with its much-heralded ‘end of grand narratives’. (As with postmodernism, the post-humanist ‘end of grand narratives’ is itself a somewhat flimsier grand narrative.) For example, as Pepperell writes in his ‘Post-Human manifesto’, ‘Questions arise in the Post-Human era that would not have troubled us in the humanist one — What is a human? Is there such a thing?’ (Pepperell, 1997: 191). To debate these questions seriously, we need to put aside the absurd notion that they are not ‘humanist’ questions and, indeed, have only just been discovered. Terence’s statement from the second century BC is a direct answer to them.

In this paper — the reverse of a manifesto — I will assume not that there is a post-human condition but a post-human perplex, based on the following questions which differ only very slightly from Pepperell’s. What exactly is the post-human? What is the human? And how could the two be distinguished? Is there a ‘Turing test’ which would infallibly show us the difference between an authentic human being and an alien post-human creature, between the human of today and our possible post-human successors? I shall look for an answer in early twentieth-century literature of the Modernist period, and in particular a series of remarkable texts published in the year 1923. It was in this year, on February 4, that J. B. S. Haldane’s essay on *Daedalus, or Science and the Future* was delivered as a lecture in Cambridge, thus effectively launching the To-day and To-morrow series which marks the beginning of the discipline we now know as futurology. In April 1923, Karel Čapek’s play *R. U. R.* opened at St Martin’s Theatre in London, giving to the English language the word *robot*. The same month saw the publication of what has been called the ‘first major cyborg novel’, *The Clockwork Man* by E. V. Odle (Clute and Nicholls, 1995: 290). In January, two titles by H. G. Wells had been released, the first being the ‘definitive edition’ of his *Outline of world history* which ends with a section devoted to ‘The Next Stage in History’, and the second his utopian novel *Men Like Gods* (Hammond, 1999: 85). Together with Haldane’s *Daedalus*, these works offer a spectrum of human and technological
possibilities which still serves to define the biological idea of the post-human. We can sum up these possibilities in the figures of the robot, the android, the cyborg, the clone or genetically modified neo-human being, and the fulfilled and fully developed member of our own species — the inhabitant, that is, of utopia.

* * *

The ‘Turing test’ question must surely have been in the minds of the To-day and To-morrow authors, since the series includes such titles as Anthony M. Ludovici’s Lysistrata, or Woman’s Future and Future Woman (1924), F. C. S. Schiller’s Tantalus, or the Future of Man (1924), H. S. Jennings’s Prometheus, or Biology and the Advancement of Man (1925), Garet Garrett’s Ouroboros, or the Mechanical Extension of Mankind (1926) and H. S. Hatfield’s Automaton, or the Future of the Mechanical Man (1928), not to mention John Rodker’s The Future of Futurism (1926). The last book, a celebration of artistic Modernism, begins with an account of ‘Possible Changes in the Make-Up of Humanity’ drawing initially on H. G. Wells (Rodker, 1926: 15–34). The implication is that the arts are already responding to these possibilities, although Rodker understandably fails to observe that the flood tide of post-human representations in Modernism was already receding when his book was published. By the early 1920s, Picasso, Epstein and other avant-garde artists were reverting to a kind of classicism, the Russian experiments in art were being closed down by the Soviet dictatorship, and literary Modernism had reached its peak with the publication of Ulysses and ‘The Waste Land’. The Surrealist Manifesto of 1924, the principal announcement of a new art movement at this time, is comparatively inward- and backward-looking (Breton, 1965: 66–75). From now on, post-human perspectives would not be associated with new avant-garde art in general but rather with one increasingly specialized cultural form, the embryonic and much-despised literary genre of science fiction. It is to science fiction, therefore, that we owe the classic popular representations of the post-human: robots, androids, cyborgs and clones.

Robot is the English version of the Czech robota, meaning, in effect, forced labour, but invariably applied to machines which take the place of human labourers. Robots in industry are self-propelled labour-saving devices, but in science fiction they characteristically take a human or rather quasi-human form. This makes them hard to distinguish from androids, or automata in human form. The word android, meaning ‘manlike’, was first used in 1727, referring to attempts by the medieval alchemist Albertus Magnus to create an artificial man. Nowadays it usually denotes an ‘artificial human being of organic substance’, something that Čapek’s robots seem to exemplify (Clute and Nicholls, 1995: 34). On the one hand, the robots in R. U. R. are mass-produced by a secret industrial process, but on the other hand, they are represented by actors and can easily be confused with human beings, producing a certain amount of stage farce. As the play proceeds, not only are robots mistaken for people but people are mistaken for robots.
Androids are thus not intended as post-human beings but as para-human beings, as replacements for the real thing. The ‘Turing test’ question became central in some of Philip K. Dick’s novels from the 1950s onward, especially Do Androids Dream of Electric Sheep? (1968), which was filmed by Ridley Scott as Blade Runner fourteen years later. But the fear of machines taking over from humankind is a very old one, which acquired a new complexion after Darwin’s Origin of Species when Samuel Butler, for example, argued that machines might take on and defeat humanity in the evolutionary struggle for existence.1 This war between human beings and robots or androids is central to the plot of Čapek’s play, where it also serves as a metaphor for the class struggle between capitalists and proletariat, taking us back to the original meaning of robota as forced labour.

An android, as a replacement or substitute human being, is therefore fundamentally different from a cyborg, or man-machine hybrid. The word is a contraction of ‘cybernetic organism’, and in its simplest form, it refers to people with artificial implants, such as a prosthetic limb or pacemaker (Clue and Nicholls, 1995: 290). The ‘Clockwork Man’ of E. V. Odle’s novel is a being with a clockwork brain who has time-travelled back to the world of 1923 from the year 8000. If the android is a para-human, the cyborg is a power-assisted human being, an idea that can seem trivial or profound according to taste. The future of cyborgs probably depends on the development of nanotechnology leading to ‘greater interaction between machines and organic tissue’, so that ultimately the distinction between the human and the mechanical would lose its meaning (Pepperell, 1997: vii–viii). This goes together with greater understanding of the human cerebral ‘mechanism’ using advanced computer modelling, a process explored in novels such as Richard Powers’s Galatea 2.2 (1995).2 Indeed, recent science fiction (particularly cyberpunk) suggests that the competition between human and post-human will inevitably be replaced by that between advanced android and advanced cyborg.

Cyborgs are not born but made, or if we prefer they are not manufactured genetically but by a process of surgical extensions. This is how they differ from clones or the products of genetic engineering, such as the future human beings created by ectogenesis in Haldane’s Daedalus and in the novel that it directly influenced, Aldous Huxley’s Brave New World (1932). Genetic modification is a far more controversial topic than cybernetic implanting, perhaps because it is seen as challenging the status of the human in a way that implants do not. Haldane, who delights in shocking his readers, throws out the suggestion that we might choose to breed our great-grandchildren with prehensile tails: ‘We can already alter animal species to an enormous extent’, he says, ‘and it seems only a question of time before we shall be able to apply the same principles to our own’ (Haldane, 1924: 69). Is this a vision of the post-human? Haldane is no longer here to answer this question, but I suspect his reply would have been a firm ‘No’. Perhaps the word neo-human would be better than post-human in this context, since the purpose of genetic engineering for Haldane is not to replace the human with the alien but to create utopian human beings.
Admittedly, utopians do not have prehensile tails; but they do invariably differ from humanity in one striking physical respect, being taller, healthier, better-formed, younger-looking and, above all, more beautiful than the current human average. This eugenic aspect is characteristic of almost all utopias from Plato’s Republic to Brave New World and beyond (Parrinder, 1997). In Huxley’s novel, beauty and athleticism are a sign of caste — ‘smallness was so horribly and typically low-caste’, as one character reflects — and the ugliness of the Alpha-Plus Bernard Marx is the result of an accident in the Central London Hatchery when ‘somebody . . . thought he was a Gamma and put alcohol into his blood-surrogate’ (Huxley, 1964). Traditionally, however, human improvement in utopia is the result of a natural process, a visual manifestation of happiness, social welfare and inner harmony. This is emphatically the case in Wells’s Men Like Gods, where the first impression that Utopia makes on its Earthling visitors is summed up in the phrase ‘The Beautiful People’ (Wells, 1923: 1.3). Proud of their splendid physique (not to mention their achievements in climate and temperature control), they go around naked. The allusion to the Garden of Eden and to our mythical first parents is clearly deliberate, driving home the point that the Utopians are super-human beings, human beings par excellence. In all but one respect (to be mentioned later), they share an improved version of our common biology, yet culturally and politically they are felt to be somewhat alien, in a way that will take us to the heart of the post-human perplex.

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Thanks to the spread of science fiction in pulp magazines, paperbacks, cinema and television, by the later twentieth century, robots, androids, cyborgs and clones had become ubiquitous in the more future-oriented areas of popular culture. What had been avant-garde in 1923 quickly ceased to be avant-garde, at least in SF circles. For example, between 1940 and 1950, the US pulp fiction writer Edmond Hamilton produced the ‘Captain Future’ series starring a ‘super-scientist’ protagonist and three sidekicks, a robot, an android, and a brain in a box (Clute and Nicholls, 1995: 290, 538) — the latter being both an extreme example of the medical cyborg, and a form of intelligent life foreshadowed in J. D. Bernal’s The World, the Flesh and the Devil (1929), a work of scientific non-fiction originally written for the To-day and To-morrow series. Bernal envisaged that our present body structure might be replaced by a ‘whole framework of some very rigid material’:

In shape it might well be rather a short cylinder. Inside the cylinder, and supported very carefully to prevent shock, is the brain with its nerve connections, immersed in a liquid of the nature of cerebro-spinal fluid, kept circulating over it at a uniform temperature. The brain and nerve cells are kept supplied with fresh oxygenated blood and drained of de-oxygenated blood through their arteries and veins which connect outside the cylinder to the artificial heart-lung digestive system — an elaborate, automatic contrivance. (Bernal, 1970: 39)
Bernal goes on to suggest that two or more brains might be electrically connected together, making telepathic communication a reality. Nevertheless, ‘The minds would always preserve a certain individuality, the network of cells inside a single brain being more dense than that existing between brains’. Only at a much later stage, Bernal predicts, would consciousness itself end or vanish ‘in a humanity that has become completely etherealized, losing the close-knit organism, becoming masses of atoms in space communicating by radiation, and ultimately perhaps resolving itself entirely into light’ (Bernal, 1970: 43, 46).

Bernal’s vision, arguably based on an extreme version of the Cartesian mind-body dualism, remains controversial even among today’s most ardent advocates of the post-human. (Pepperell, for example, regards it as axiomatic that ‘In order to function the brain must be connected to a body, even if the body is artificial’. (Pepperell, 1997: 181)) It is instructive, however, that Bernal speaks of a ‘humanity that has become completely etherealized’ (emphasis added); and there is no midpoint in his chain of reasoning at which we can definitely say that the link to biological humanity has been broken. A comparable route from the surgically modified human being to the post-human is mapped out in a more mystical fashion in Olaf Stapledon’s epic outline of two billion years of future history, Last and First Men (1930). Stapledon’s influence on later science fiction has been widely acknowledged, while the works of his immediate predecessors have been somewhat neglected. But the later variations on the para-human, the neo-human and the power-assisted human were all foreshadowed in the post-human conceptions and debates of the year 1923, when the To-day and To-morrow series was launched.

Admittedly, there is nothing obviously avant-garde about E. V. Odle’s The Clockwork Man, which for all its pioneering subject-matter is a conventional, rather whimsical scientific romance. In literary terms, it is more or less a pastiche of Wells’s stories The Wonderful Visit (1895) and The Invisible Man (1897), written by an author who may have known Wells personally; he was the brother-in-law of Wells’s close friend the novelist Dorothy Richardson (Clute and Nicholls, 1995: 886). Odle’s ‘Clockwork Man’ comes from a multiform, six-dimensional world in the year 8000 to disrupt the life of a typical English country village in 1923. He is, the local doctor thinks, ‘the realisation of the future’, ‘the supreme marvel of human ingenuity’ and an embodiment of scientific prophecies of future evolution — in effect, he is the future human being of the To-day and To-morrow series made flesh (or, at least, flesh and metal). But all is not quite as it seems, since his clockwork brain has to be wound up, making him, in some respects, no better than a toy or a performing monkey. We gradually discover that the Clockwork Man is sexless, that he (or is it she?) cannot reproduce and is therefore made not born, making him a true cyborg. In fact, he is an experimental creature produced by the scientists of the future, in other words by ‘real’ human beings whom we cannot see. The fact that the novelist merely shows us the machine or clockwork toy, but not the ghosts behind it, means that the
problem of post-humanity is continually mooted but never resolved. Does the visitor from the future represent ‘a new sort of relativity’, as one character suggests? (Odle, 1923: 173) Since the clock is compared to a ‘keyboard’ (177), is the visitor simply a computer which has taken some six millennia to develop? The Clockwork Man disappears before he can answer these questions, while Dr Allingham reflects that ‘If it is true that in the future man has come to this, then the whole of history is a farce and mockery’ (171). But Allingham refuses to believe that the Clockwork Man represents humanity’s final destiny, and Odle neatly avoids any hint as to what this destiny might be.

Although Karel Čapek’s R. U. R. is hardly ever performed today, its robots (or androids) are much better remembered than Odle’s clockwork cyborg. Čapek like Bernard Shaw is a dramatist of ideas, and we learn from his factory manager that the robots are bio-engineered according to a secret formula discovered by the physiologist Rossum, whose researches beginning in 1922 led to the perfection of a protoplasmic substance ‘which behaved exactly like living matter, although its chemical composition was different’ (Čapek, 1961: 5). The remote island on which the play is set was once the scene of Rossum’s laboratory. Now it is the headquarters of Rossum’s Universal Robots (RUR), a company enjoying monopoly rights in robot manufacture and development. By 1962, when Acts Two to Four apparently take place, Rossum’s robots have become so ubiquitous as to form a universal proletariat, staffing not only the world’s factories but the world’s armies. Their economic advantage over human labour is manifest, since each robot possesses two and a half times the productivity of the average man. Nevertheless, the original design has certain flaws which RUR’s design team is anxious to correct. The early robots were nerveless and could not feel pain, making them incapable of avoiding physical danger and consequent self-destruction. But if the first generation was excessively oversimplified, their more advanced successors are too human for comfort. No longer accepting their subordination to human beings, they start organizing for mutual defence and finally seize power in a violent revolution. Robots of the world unite! This parody of the Communist International seems doomed to failure, however, since, like the Clockwork Man, the robots are unable to reproduce.

In Act Four we see them begging Alquist, the Clerk of the Works — the last human left alive — to tell them the secret of life, but Alquist maintains that only human beings can procreate. For him, ‘Robots are not life. Robots are machines’, but Radius, the robots’ spokesman, replies that they are machines who have developed souls (Čapek, 1961: 95). What he does not yet know is that the next generation of young experimental robots are driven by the same urges as human adolescents and, therefore, capable of finding out the secret of life for themselves. The play ends with Alquist opening the Book of Genesis to read out God’s blessing to the new Adam and Eve: ‘Be fruitful and multiply and replenish the earth’ (104). Are they true post-humans, or simply para-humans rediscovering the beginning of life and setting out to recreate
the whole tragic and ultimately futile human story? Fascinated as he was by the idea of metamorphosis, Čapek is not so much a prophet of the post-human as a master of the grotesque, ending his play not with the whimsy we found in *The Clockwork Man* but on a note of full-blown romantic irony.

H. G. Wells's *Men Like Gods* is a characteristic late-Wellsian mixture of adventure story, political allegory, and ‘discussion novel’ or novel of ideas, beginning as a mildly comic romance in which a party of terrestrial politicians, including a very recognisable caricature of Winston Churchill, find themselves transported to a utopian world in another dimension of space. The Utopians have a history parallel to ours, but are two to three thousand years ahead of us in their historical development. Where in *R. U. R.* the robots rose up against their human masters, here the Earthlings, led by the Churchillian Rupert Catskill, stage an abortive revolt against Utopia. To them, this world of naked super-humans is decadent, immoral, and degraded, while to Wells’s hero, the liberal journalist Mr Barnstaple who finds himself caught up with Catskill’s party, Utopia represents a ‘nobler humanity’ (Wells, 1923: 89). (Among other things, it embodies political principles which Wells would outline in later propaganda works such as *The Open Conspiracy* (1928) and *The Rights of Man* (1940).) But while Earthlings and Utopians largely resemble one another in outward appearance, they feel instinctively alien to one another, and this sense of alienness is increased by the gaps in their mutual communication. These are not caused by a crude language barrier, since the Utopians (by a mental development that Wells does not explain) have acquired telepathic powers. ‘They’ understand ‘us’ much more than we are able to understand them. Barnstaple comes to perceive that in Utopia ‘all that found no place in his terrestrial circle of ideas was inaudible to his mind. The gulfs of misunderstanding might be wider and deeper than he was assuming’ (Wells, 1923: 239). At the same time, Barnstaple alone among the Earthlings is able to bridge these gulfs sufficiently to appreciate the Utopians’ humanity.

The Utopians are ‘Beautiful People’, thanks in part to eugenic measures but not, as Wells emphasizes, to genetic engineering. They are not neo-humans but ‘the same flesh and nature as we are’ (245). Wells portrays the improvement of the species as a gradual and incremental process, directed but not forcibly imposed by ‘Utopian science’, although his language no doubt edges too close to compulsory eugenics for modern tastes:

For centuries now Utopian science has been able to discriminate among births, and nearly every Utopian alive would have ranked as an energetic creative spirit in former days. There are few dull and no really defective people in Utopia; the idle strains, the people of lethargic dispositions or weak imaginations, have mostly died out; the melancholic type has taken its dismissal and gone; spiteful and malignant characters are disappearing. The vast majority of Utopians are active, sanguine, inventive, receptive and good-tempered. (73–4)

This is after all a utopia, and by definition we are not at the mercy of stupid, malicious or bad-tempered people in a utopian world. But what of Wells’s
claim that his Utopians share our own human nature? This is validated not so much by the reactions of the Earthlings as by the Utopians’ haunting sense of imperfection and spiritual discontent. Like present-day humanity, they are dissatisfied with their current existence and do not regard it as a perfect state. Instead, they are dedicated to increasing scientific knowledge and using that knowledge to further improve their lives.

In a favourite trope both of Wells himself and the To-day and To-morrow authors, the Utopians represent not the culmination of human achievement but rather its beginnings. They belong to a human race which is still in the throes of development, to a civilization still in its childhood. The utopian, far from being defined as post-human, is simply a more advanced stage of the ‘pre-human’ or at least the immature human. This means that the unregenerate Earthlings of Men Like Gods, who reject utopia as post-human and stage a revolt against it, fall culpably short of the humanism recommended by Terence. Only Wells’s hero Mr Barnstaple attains to the true humanistic standard. For Barnstaple as for Wells, so long as these utopian descendants of humanity survive there is no need for a concept of the post-human.

I would suggest that J. B. S. Haldane, the inaugurator of the To-day and To-morrow series, essentially shared this Wellsian perspective. In the middle of Daedalus, or Science and the Future, he introduces a science-fictional technique, quoting some pages from an essay on the history of biology written in the year 2073, a mere one hundred and fifty years ahead. Genetic engineering has not yet led to any wholesale remodelling of the human species, although ‘ectogenesis [reproduction outside the body, often seen as a synonym for cloning] is now universal, and in this country less than 30 per cent of children are now born of woman’ (Haldane, 1924: 65). In Brave New World, similarly, the World Controller tells a group of students that ectogenesis, though technically feasible, was held back by ‘something called Christianity. Women were forced to go on being viviparous’ (Huxley, 1964: 37). All this was subsequently changed by the Fordist revolution and the adoption of Bokanovsky’s process of cloning.

While Huxley’s New Worlders have done everything possible to break their links with their human past (which nevertheless comes back to haunt them), in Daedalus, a degree of historical continuity is assured by the figure of the experimental biologist, whom Haldane treats almost as a timeless constant in human affairs. The first experimental biologist was the ‘fabulous artificer’ of classical myth whose engineering skills enabled Queen Pasiphaë to mate with the white bull of Poseidon, thus giving birth to the Minotaur: hence the title of Haldane’s short book. What Haldane calls Daedalus’s ‘only recorded success in experimental genetics’ (Haldane, 1924: 48) becomes the prototype for every subsequent advance in biological science: ‘If every physical and chemical invention is a blasphemy, every biological invention is a perversion. […] The biological invention […] tends to begin as a perversion and end as a ritual supported by unquestioned beliefs and prejudices’ (44, 49). Here Haldane takes for granted the extraordinary capacity of human culture to
absorb and neutralize what at first seems to be monstrous, indecent and unnatural, like the Minotaur. Echoing what Wells had said of humanity, for Haldane ‘science is as yet in its infancy, and we can foretell little of the future save that the thing that has not been is the thing that shall be; that no beliefs, no values, no institutions are safe’ (87). Humanity, however, is safe so long as the scientific process continues, and in his sweeping dismissal of present-day norms, Haldane makes a silent exception for the beliefs, values and institutions of science. In the concluding passage of Daedalus, he identifies the ‘scientific worker of the future . . . as he becomes conscious of his ghastly mission, and proud of it’ with ‘Homunculus’, the emergent human spirit celebrated in some lurid verses by the nineteenth-century mystic Robert Buchanan:

‘Black is his robe from top to toe, . . .
But in his eyes a still small flame
Like the first cell from which he came
Burns round and luminous, as he rides
Singing my song of deicides’.5

Haldane, as is his custom, does not give the source of his final quotation, nor does he say that the speaker is the Devil. Nevertheless, it is through the figure of the scientific worker that the supposedly alien and as yet unimaginable constantly becomes humanized. In other words, Haldane’s future scientist is at the forefront of the post-human perplex, the riddle as to what the limits of the human may turn out to be. He is eternally dedicated to going beyond the ‘human’ and challenging the gods, yet his vision and determination mark him out as quintessentially human.

Whether the remorseless iconoclasm of the early twentieth-century scientific futurologists has helped to bring this ideal any nearer is another question, which can only be answered positively by an act of faith. The argument still goes on. In the most general terms, the study of post-human and related conceptions in the early 1920s reveals the paradox of futuristic thinking which on closer inspection refuses to sever its ties both with the contemporary scientific ethos and with the age-old tradition of humanism as represented by Terence. The Wellsian ‘childhood of the human race’, the return to the Book of Genesis at the end of R. U. R., the inconclusive philosophical discussions of The Clockwork Man and Haldane’s final specimen of Satanic verse all remind us that To-day and To-morrow are, in several senses, unthinkable without Yesterday.

Notes

1 See Butler (1923: 208–13). The argument of this essay was later incorporated into Butler’s satirical novel Erewhon (1872).
2 See Brain (1927); Galatea was a title in the To-day and To-morrow series.
3 Odle (1923: 156, 161). Odle makes no attempt to explain how a six-dimensional world could be chronologically continuous with ours.
4 Wells (1923: 252–5). Notable in this respect are Utopia’s ‘Five Principles of Liberty’, including the
rights to privacy, freedom of movement, and freedom of speech and publication, foreshadowing the campaigns for human rights which began in 1933 with Wells's appointment as President of International PEN.

5 Haldane (1924: 92–3). Haldane is quoting from Buchanan’s The Book of Orm (1870). See www.robertbuchanan.co.uk [accessed 27 January 2009].

Bibliography


Notes on Contributor

Patrick Parrinder grew up in London and north-west Kent and has had a lifelong interest in H. G. Wells. He is a past Chairman of the H. G. Wells Society, and his books on Wells include Shadows of the Future (1995). More recently, he has been general editor of the Wells texts published in Penguin Classics. He has written on science fiction and many other topics in modern literature, and is the author of Nation and Novel: The English Novel from its Origins to the Present Day (Oxford University Press, 2006). He is also General Editor of the forthcoming multi-volume Oxford History of the Novel in English. He is an Emeritus Professor of English at the University of Reading.

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