

The Modern Synthesis
Genetics and Dystopia in the Huxley Circle
(Aldous Huxley, J. B. S. Haldane, Julian Huxley)

Aldous Huxley's *Brave New World* (1932) has influenced public debates over genetics more profoundly than any other work of literature with the possible exception of *Frankenstein*. Both works have been misremembered, misunderstood, and misused in polemical contexts more often than not. In Huxley's case, the problem arises from readers' failing to admit that his satire cuts in more than one direction. The novelist was witness to the birth of the modern synthesis in biology, and he was a strong advocate of the biological sciences. But he was a moral relativist and a satirist too, and he was always ready to satirize the people he loved and the ideas he embraced. He had the curse of being able to see through everything. To grasp the real meaning of *Brave New World* for society today, we need to understand Huxley's relationship to both the modern synthesis and the art of satire.

To scientists, the "modern synthesis" names the shift in biology that occurred in the years between the two world wars when scientists brought together Darwin's theory of evolution with the new science of genetics. One of the pioneers of the modern synthesis was J. B. S. Haldane, a longtime friend of Aldous Huxley; another proponent was the novelist's older brother, Julian Huxley. Haldane (along with R. A. Fisher and Sewall Wright) demonstrated with compelling mathematical analyses that Darwin was correct to assert that natural selection was the primary cause of evolution. Adding genetics to the theory of evolution supplied one of the key elements missing from Darwin's concept, namely an understanding of how the inheritance of traits actually took place. The result was a powerful consensus, which prevails even today, that the evidence of genetics largely confirms Darwin's original insights.

In the first two decades of the twentieth century, Darwinism was in decline (Bowler, *Eclipse of Darwinism*).¹ Long under assault by religious opponents, Darwin's theory of natural selection came under renewed criticism by scientists too in the 1880s, and this trend only intensified

with the rediscovery of Mendel's work in 1900. Early Mendelians doubted that natural selection alone could account for the clear-cut differences among Mendelian factors that their model described. Additionally, some Mendelians such as William Bateson were saltationists who believed that large mutations, not the small continuous variations Darwin postulated, better explained species change. Evolution was seen as an account of inheritance – of how characteristics were transmitted across time. Genetics, by contrast, was a science of difference: it explained how individuals varied from one another. So pervasive was the impression that Darwin's ideas had been superseded that Haldane twice used the ironic epigraph "Darwinism is dead" for publications that showed Darwin's continuing relevance to modern biology.²

Brave New World represents a modern synthesis of a different sort. Dystopian fiction arises from the fusion of two radically opposed literary genres, naturalism and utopia. In an excellent treatment of contemporary dystopian films, Phillip Wegner proposes that in the early twentieth century, dystopia emerges when naturalism's "thoroughgoing pessimism about the present moment is suddenly transported into the otherworldly space of the utopian fiction" (118). Wegner, like Fredric Jameson before him, notes the historical conjuncture of late-nineteenth-century utopias such as Edward Bellamy's *Looking Backward* (1888) and William Morris's *News from Nowhere* (1890) with the naturalism of George Gissing and others.³ Both Bellamy and Morris explicitly acknowledged that their novels were counterblasts to the pessimism of writers such as Gissing. Dystopia, which dates as a genre from the first decade of the next century, counters utopia's rebuke to naturalism with its own dark reply. Dystopia constructs a model society by extrapolating from the worst, not the best, features of the contemporary world. Its status as a generic synthesis is endorsed by a later giant of the tradition, George Orwell, who told the British publisher of *Nineteen Eighty-Four* that his book was a futuristic "fantasy, but in the form of a *naturalistic novel*" (quoted in Wegner, 122; Orwell's italics).

Aldous Huxley's close association with some of the principal biologists of the day prompts one to ask whether juxtaposing the modern synthesis in genetics with the literary synthesis that resulted in dystopia can reveal something new about each phenomenon. The prominence of evolutionary ideas in naturalism, Victorian utopias, and modern dystopias suggests it might. The role of determinism in both the genetics of the period and the plot structure of dystopian fiction offers another clue. Finally, the dense circuit of literary exchanges in the years 1927–1932 among novelists and

scientists who knew one another well – Haldane, Julian Huxley, and Aldous Huxley in particular, but also Haldane's wife, Charlotte Haldane, who anticipated *Brave New World* with her own novel about the future of genetics, *Man's World* (1926), and Bertrand Russell, whose *The Scientific Outlook* (1931) contains numerous anticipations of *Brave New World* – clinches the case for examining dystopia and early-twentieth-century genetics in tandem, as two modes of “modern synthesis.”⁴

J. B. S. Haldane was a legend among twentieth-century biologists. He was the son of J. S. Haldane, a distinguished physiologist who invented the gas mask worn by British soldiers in World War I and who was famous for conducting experiments on himself in a sealed breathing chamber on his estate. The younger Haldane was such a precocious assistant in his father's research that he published his own scientific paper at the age of twelve. In adult life, he too became famous for experimenting on himself in a decompression chamber, but his most important contributions to science were his mathematical studies of natural selection that established him as one of the founders of population genetics. A committed socialist throughout life, Haldane withdrew from the communist party following the discrediting of the Russian geneticist Lysenko, but he never renounced his support for a world government and rational state.

Julian Huxley was a close friend and early collaborator with Haldane. Descended from Thomas H. Huxley on his father's side and Matthew Arnold on his mother's (as was, of course, his younger brother, Aldous), Julian Huxley spent his early career divided between evolutionary biology and avian ethology, a field that he helped create. During his years as chair of the newly founded biology department at Rice University, he hired Hermann J. Muller, who would soon do the pioneering experiments that demonstrated the effects of X-rays on the genetics of fruit flies, a breakthrough referenced in *Brave New World*. Later in his career, Julian Huxley largely gave up research to write popular science and to engage in political advocacy for environmental causes and the advancement of science. Like Haldane, he was a socialist and internationalist, and he became the first director-general of UNESCO and one of the founders of the World Wildlife Fund.

Haldane, Julian Huxley, and Aldous Huxley were all prolific essayists for newspapers and monthly magazines both in England and America. Haldane was a superb stylist, who wove personal anecdotes and strong opinions together with vivid imagery and wit. During the years when he was publishing the mathematical articles that were collected as an appendix to his landmark study *The Causes of Evolution* (1932), he also published

two of his finest volumes of personal essays, *Possible Worlds* (1927) and *The Inequality of Man* (1932) (issued the next year in America as *Science and Human Life*). Aldous Huxley's debt to Haldane's youthful essay "Daedalus, or, Science and the Future" (1923) has long been acknowledged by scholars of *Brave New World*. What is not well known is that many of the essays in *Possible Worlds* and *Science and Human Life* respond to or provoke a response from Aldous Huxley's copious essays of the same years, especially those collected in *Proper Studies* (1927) and *Do What You Will* (1929). The two old acquaintances appear to be feeding off one another at a distance, writing on the same topics, picking up ideas for articles, borrowing from one another, responding, and arguing, all mediated by Julian Huxley, whose conversations with his brother about genetics D. H. Lawrence overheard with outraged dissent when the three – Aldous, Julian, and Lawrence – were neighbors in Switzerland in the winter of 1928.⁵

The richness of this multisided exchange has only been remarked in passing by Huxley's biographers. Its significance, in my view, far exceeds the question of where Huxley derived his ideas for *Brave New World*.⁶ It gives us a close-up view of a supremely intelligent novelist who knew more about the biological sciences than any fiction writer of his day. Huxley was fascinated by the biological sciences throughout his life.⁷ His early novels are full of satiric but loving portraits of biologists and physiologists; their ideas, work habits, lab assistants, hobbyhorses, and domestic arrangements are described in comic detail (twice we meet biologists too immersed in their work to notice their wives' affairs). But the prevailing tone is that of affection. Huxley knew scientists well and admired their ways, not only from being around his brother and Haldane, but from Haldane's father, who was paterfamilias at Cherwell, the Haldane estate near Oxford where Huxley spent many a night while at university, and the model for the bumbling scientist Lord Tantamount in *Point Counter Point*. One summer while at Cherwell, Huxley, Haldane, and his younger sister Naomi acted a play that she wrote about genetics – eighteen full years before *Brave New World*.⁸ In contrast to the impression of most casual readers that the author of *Brave New World* was a confirmed opponent of science, he proclaimed in a lovely essay from 1925, "A Night at Pietramala," that he would rather be a scientist like Michael Faraday than even Shakespeare.

The important question about this relationship is not who influenced whom – what matters is Huxley's immersion in a shared discourse about biology.⁹ It often happened that Huxley published his opinion on, say, IQ tests, and Haldane took up the subject shortly thereafter, providing

information about research that Huxley does not consider.¹⁰ In other instances, the two seem to draw on shared life experiences. Both tell stories of how their particular talent was allowed to flourish only because they were lucky enough to escape the Procrustean measures of England's educational system; both write portraits of the frenetic sweating experiments Haldane's father conducted at Cherwell.¹¹ Finally, there are the many occasions when Huxley catches a notion from Haldane and incorporates it in his essays or fiction. Haldane's "Daedalus," of course, is a treasure trove of ideas about pre-implantation genetic screening, artificial insemination, and ectogenesis (growing babies in a bottle), which inspired Huxley's account of the Central London Hatchery in *Brave New World*. Less well known are the many facets of Huxley's writing drawn from elsewhere in Haldane's works. The slow maturation of human children; the distinction between advanced science, which theorizes, and rudimentary science, which merely observes particulars; the potential for developing antiaging technologies; the use of hormones to delay menopause; the importance of nitrogen in agriculture; the need to be the right size for your evolutionary niche; the value of preventative medicine; antivivisectionists as enemies of science – these themes and more are common to both writers.

Attending to this shared discourse opens up important questions about what it meant to be modern in different intellectual spheres and the various functions of synthesis in the scientific and literary domains.¹² This chapter examines the unifying or synthetic mode of thinking that is common to both scientific modernity and Huxley's satire and then demonstrates that Aldous Huxley's satiric mode more closely reflects the views held by his scientific friends than the literary modernists of his day. It ends by turning to *Brave New World* to argue that Huxley's dystopian synthesis has largely been misinterpreted in popular culture as a warning against science when instead its satire unsettles certainties in much the same way that Haldane believed science should. As different as they appear, the modern synthesis in biology and the dystopian synthesis in literature helped define a moment in the early twentieth century when scientific rationality and literary satire felt like a shared response to the modern world.

Synthesis, Science, and Modernity

The neo-Darwinian synthesis, at least insofar as one focuses on Haldane and Julian Huxley, was "modern" in a distinctive way.¹³ In the early

twentieth century, the unification of the sciences was a widely shared goal. Julian Huxley describes the ideal at the beginning of *Evolution: The Modern Synthesis*:

Biology in the last twenty years, after a period in which new disciplines were taken up in turn and worked out in comparative isolation, has become a more unified science. It has embarked upon a period of synthesis, until today it no longer presents the spectacle of a number of semi-independent and largely contradictory sub-sciences, but is coming to rival the unity of older sciences like physics. (26)

Haldane, who attended the Second International Congress for the Unity of Sciences, similarly takes physics as his model, citing the achievements of J. J. Thomson and Ernest Rutherford as evidence that “science is committed to the attempt to unify human experience” (*Causes* 84).

Synthesis did not mean the same thing to modern biologists that interdisciplinarity means to us today. Even though Haldane, Fisher, and Wright were remarkably interdisciplinary thinkers, what they meant by synthesis had to do with the end product of research, not its method. Nor did synthesis require dialectical thinking. The reconciliation of evolution and genetics would not emerge from the clash of thesis and antithesis. Rather, the effort was to discern the underlying unity between the two theories. The goal was to find a common ground, and the ambition was imbued with a sense of idealism and progress.

The impact of the modern synthesis in genetics and the dystopian synthesis in literature are related in important ways. First, they are both examples of the power of an idea to inaugurate a field for further work, to constitute what Foucault termed a discursive formation. The unification of Darwin’s concept of natural selection with Mendelian genetics opened up experimental programs not only for geneticists but eventually for naturalists, morphologists, and paleontologists.¹⁴ The dystopian synthesis was enormously fruitful as well. Yevgeny Zamyatin’s *We* (1921), Huxley’s *Brave New World* (1932), George Orwell’s *Nineteen Eighty-Four* (1949), Ray Bradbury’s *Fahrenheit 451* (1953), Anthony Burgess’s *A Clockwork Orange* (1962), Margaret Atwood’s *The Handmaid’s Tale* (1985) and *MaddAdam* trilogy (2003–2013), Philip Kerr’s *A Philosophical Investigation* (1992), Kazuo Ishiguro’s *Never Let Me Go* (2005), Gary Shteyngart’s *A Super Sad True Love Story* (2010), Chang-Rae Lee’s *On Such a Full Sea* (2014), Gish Jen’s *The Resisters* (2020) – these are just some of the highpoints of a genre that did not exist prior to the twentieth century.

Similarly, both syntheses exhibited a crucial aspect of modernity – a resolutely demystified vision of reality, what Weber just a few years earlier had called the “disenchantment of the world” (Weber 155). Haldane and Julian Huxley had no patience with metaphysical, religious, or pseudoscientific theories that attempted to mitigate the materialist foundation of the evolutionary synthesis. Haldane’s demonstration that the natural selection of purely random mutations was the basis of all evolution, human and otherwise, made no compromise with mystical or idealist notions that postulated a guiding purpose to evolution. He inveighed against the folly of Henri Bergson’s concept of “*élan vital*, or vital force, which pushed organisms forward along the path of evolution” (*Causes* 89). Russell, too, rejected fuzzy-minded ideas in the 1920s such as Arthur Eddington’s postulation of a “mind-stuff” directing evolution or Lloyd Morgan’s “emergent evolution” that suggested a “Divine Purpose underlying the course of evolution.”¹⁵

A third unifying feature of this circle was opposition to the still-vocal proponents of neo-Lamarckism, which I discussed in Chapter 3. The Huxley–Haldane circle was adamant in resisting any attempt to sugarcoat the materialist foundation of the modern synthesis. Haldane could not be more blunt: He declares the mind to be a “by-product or epiphenomenon of certain material systems” (*Causes* 87); the process of evolution “does not suggest the work of an intelligent designer, still less of an almighty one” (*Causes* 85); and natural selection leads to no goal. These attitudes mark a decisive break with the goal-oriented, willed evolution common in neo-Lamarckian fiction of the prior century.

Aldous Huxley writes against neo-Lamarckism as frequently as Haldane or Julian Huxley. In his second novel, *Antic Hay* (1923), Huxley mocks an earnest young biologist who tells his mentor that he has “found a way of making acquired characteristics . . . heritable” (94). Everything in the scene, from the description of the young man’s “dark protruding eyes, and staring, doggy nostrils” (94) to the preposterousness of the experiment that involved injecting pulped eyes of a dead rabbit into a pregnant rabbit, underlines how bogus Huxley finds such pseudoscience. In *Brave New World*, the necessity to genetically reengineer every generation and to reinforce behavioral modifications through lifelong psychological conditioning dramatizes that none of the artificially acquired traits were heritable.

To underline the cultural ramifications of the modern synthesis, Haldane, Julian Huxley, Bertrand Russell, and Aldous Huxley all explicitly attack the writings of Samuel Butler and George Bernard Shaw. Butler’s

Life and Habit (1878) and *Unconscious Memory* (1880) remained touchstones for the neo-Lamarckian cause well into the twentieth century. Shaw's Preface to *Back to Methuselah* (1921) became even more widely known during the 1920s for its championing of neo-Lamarckism. Shaw maintained that humans were capable of developing new traits by willing them into existence. Evolution by "senseless accident" (Shaw xvi) seemed impossible to the playwright. Instead, he maintained (with no evidence whatsoever) that "the will to do anything can and does, at a certain pitch of intensity set up by conviction of its necessity, create and organize new tissue to do it" (xvi). The power of what he called "creative evolution" would be capable of extending the human life span to 3,000 years once we marshaled sufficient will to stimulate this organic change (xvi). Echoing a long line of neo-Lamarckian polemicists, Shaw asserted: "If you like eating the tender tops of trees enough to make you concentrate all your energies on the stretching of your neck, you will finally get a long neck, like the giraffe" (xxi). But he was frank in admitting that he did not have a clue as to why. "Nobody knows how: nobody knows why: all we know is that the thing actually takes place" (xxiii). Hence, the disdainful tone of Haldane's reply is hardly surprising: "[Shaw] admits that Darwinism cannot be disproved, but goes on to state that no decent-minded person can believe in it. This is the attitude of mind of the persecutor rather than the discoverer" (*Causes* 88).

The more interesting question was why serious scientists such as Haldane, Julian Huxley, and Russell felt that scientific amateurs such as Shaw and Butler needed rebutting. The answer lay in the cultural impact literary advocates of neo-Lamarckism continued to have long after its scientific credibility had been eroded. Had science policy committees existed in the 1930s, the importance of countering such distortions of genetics in literature and popular culture would have been evident.

Haldane's comments often have the fervor of a biologist today warring against theorists of Intelligent Design. Like Wells in *The Time Machine*, Haldane situates the nonteleological character of evolution in the context of the species' eventual extinction: "Most lines of descent end in extinction, . . . [which] does not suggest the work of an intelligent designer, still less of an almighty one" (*Causes* 85). Further, Haldane sees the deplorable condition of the human species as a sign that the idea of directed evolution – whether by a creator or by the willed exertion of our faculties – is a sham. "If evolution, guided by mind for a thousand million years, had only got as far as man, the outlook for the future would not be very bright" (*Causes* 88).

In place of the neo-Lamarckian dream of progressive evolutionary time, Haldane develops a modernist rationale for what will become in our own day “genome time.” He confronts the insignificance of the human time-scale with an unblinking gaze, but like many of the poets and artists of his era, he recuperates the experience in aesthetic terms. Where Victorian genre fiction had recuperated Deep Time through problematic teleology and deplorable eugenics, Haldane substitutes self-sufficing beauty:

If I were compelled to give my own appreciation of the evolutionary process . . . I would say this: In the first place, it is very beautiful. In that beauty there is an element of tragedy. On the human time-scale the life of a plant or animal species appears as the endless repetition of an almost identical theme. On the time-scale of geology we recapture that element of uniqueness, . . . which makes the transitoriness of human life into a tragedy. In an evolutionary line rising from simplicity to complexity, then often falling back to an apparently primitive condition before its end, we perceive an artistic unity similar to that of a fugue, or the life work of a painter of great and versatile genius like Picasso Possibly such artistic work gives us a good insight into the nature of the reality around us as any other human activity. To me at least the beauty of evolution is far more striking than its purpose. (*Causes* 90)

In his account of the duality of time, Haldane articulates an aesthetic appreciation of genome time, the simultaneous embrace of both human and geological timescales, one tragic, the other “fugue-like” in its beauty. It is anachronistic, of course, to use a term like “genome time” in conjunction with Haldane, but his perspective is one that will become more widespread once genomics emerges. To value the beauty of evolution more than its supposed goal is to join Darwin (rather than neo-Lamarckians) in celebrating the “endless forms most beautiful” in the cycle of life and death. What unites this pioneer of the modern synthesis with a pioneer of modern art like Picasso is an appreciation of the unity between form and content – the beauty of evolutionary time is that its formal shape reveals a fundamental truth about reality. That is why Haldane suggests that an artistic work might give us as much insight into reality as science.

As we saw in Chapter 1, Ian McEwan’s neurosurgeon in the novel *Saturday* believed much the same thing. He found beauty in the “unimaginable sweep of time” (McEwan 54) because Darwin’s “creation myth” had “the unprecedented bonus of this story happening to be demonstrably true” (54). McEwan has been called a “metamodernist” for the way he repurposes formal solutions from the modernist period for the twenty-first century (James and Seshagiri). But neither Haldane’s nor McEwan’s

treatment of evolutionary time reflects the autotelic values of the modernists Aldous Huxley rejected. The difference lies in the homology that all three see between form and content.

Ortega y Gasset's classic essay from this same decade, "The Dehumanization of Art" (1925), can help clarify the difference between Haldane/Huxley and other modernists. Discussing what he saw as a modernist tendency to subordinate the content of a work of art to its form, Ortega writes, "That can be done only if the artist repudiates reality" (48). I am not sure that Ortega is correct in thinking that modernist writing repudiated reality, but Aldous Huxley clearly shared Ortega's view.¹⁶ Aldous Huxley was impatient with what he saw as the empty formalism of his modernist peers and emphasized the importance of the "subject-matter" or "content" of his fiction (*Serpenters* 231). Haldane did not parse modernists with the same passion as Aldous Huxley, but he too thought that the artistic quality of evolution came from what its form revealed about reality, not from the repudiation of reality.

Haldane's views about the beauty of evolutionary time take on an additional importance because of the bearing they have on his recommendations for science policy. Haldane opens his 1932 collection of essays, *Science and Human Life*, with a forceful policy statement about the role genetics should play in society:

If we are to control our own and one another's actions as we are learning to control nature, the scientific point of view must come out of the laboratory and be applied to the events of daily life. It is foolish to think that the outlook which has already revolutionized industry, agriculture, war, and medicine, will prove useless when applied to the family, the nation, or the human race. (1)

This forthright advocacy of an instrumental use of the biological sciences on the family, nation, and species echoes attitudes of others in his circle. Here is Russell sounding a similar note: "Science first taught us to create machines; it is now teaching us by Mendelian breeding and experimental embryology to create new plants and animals. There can be little doubt that similar methods will before long give us power, within wide limits, to create new human individuals differing in predetermined ways from the individuals produced by unaided nature" (204). Neither figure shies away from recommending policies that would allow human genetic engineering.

The link between Haldane's views on time and his recommendation that science guide social policy lies in how what I am calling "genome time" enables scientists to put transient creatures and nearly ageless natural

phenomena on the same plane: "A good scientist will be impartial between Mr. Smith, a tape-worm, and the solar system" (*Science* 2). Haldane calls this stance the "scientific point of view" and characterizes it as ethical in distinctive ways:

This attitude includes a high (perhaps an unduly high) regard for truth, and a refusal to come to unjustifiable conclusions which expresses itself on the plane of religion as agnosticism. And along with this is found a deliberate suppression of emotion until the last possible moment, on the ground that emotion is a stumbling-block on the road to truth. So a rose and a tapeworm must be studied by the same methods and viewed from the same angle, even if the work is ultimately to lead to the killing of the tapeworms and the propagation of roses. The scientific point of view involves the cultivation of a scientific aesthetic which rejoices in the peculiar forms of beauty which characterize scientific theory. Those who find an intimate relation between the good and the beautiful will realize the importance of the fact that a group of men so influential as scientific workers are pursuing a particular kind of beauty. Finally, since the scientist, as such, is contributing to an intellectual structure that belongs to humanity as a whole, his influence will inevitably fall in favour of ethical principles and practices which transcend the limits of nation, colour, and class. (*Science* 101)

Scientific impartiality requires the suppression of emotion, but this dispassionate temperament is not incompatible with the pursuit of a particular kind of beauty. Why? Because the apprehension of scientific beauty, in Haldane's view, is cultivated by facing both the insignificance and the grandeur of humanity's place in nature.

The *dispassionate* character of this impartiality will turn out to be a key to understanding the satiric streak in Aldous Huxley's fiction. It is the single most prominent characteristic these writers share. In the next section, I turn to Aldous Huxley's fiction written in the years leading up to *Brave New World* to show that his satiric vision brought him closer to the scientific point of view than to the standpoint of his modernist literary peers. The stance of a disillusioned ironist, seeing through everyone and everything, was his means of fashioning an aesthetic correlative of the scientific viewpoint he shared with Haldane, Julian Huxley, and Russell. When he came to write *Brave New World*, an enduring critique of the *misuse* of science, he did not reject the emotional impartiality that he had cultivated in the twenties. Instead, he turned that emotional impartiality on the scientific viewpoint itself.¹⁷ The resulting satire, so different in tone from his earlier novels, stems from the simplification in style and theme that are the hallmarks of the generic synthesis that we call "dystopia."

Modernism or Satire?

Aldous Huxley was a perilous man to know in the 1920s. Scraps of his friends' lives and habits lay scattered throughout his early novels, particularly *Crome Yellow* (1921), *Antic Hay* (1923), and *Point Counter Point* (1928). Lady Ottoline Morrell felt terribly betrayed by the caricature of her and her husband at their country house, Garsington; Huxley's father was aggrieved by what he called the novelist "botanizing on [his] mother's grave" (A. Huxley, *Letters* 224); Lawrence shrugged off being cast in *Point Counter Point* as the writer Mark Rampion, whom he thought a "boring character" and "a gas-bag," but he worried Huxley's wife Maria might have been hurt by the death of a fictional child modeled on their own son's death (Lawrence, *Letters of D. H. Lawrence* 766, 791); Wells and Russell seemed not to have minded their ideas about a Rationalist State being burlesqued; nor did the Haldanes, father and son, who appeared in separate novels as obsessed biologists with wandering wives;¹⁸ John Middleton Murry couldn't have enjoyed being portrayed as a hypocritical philanderer, and Wyndham Lewis must have gnashed his teeth at his portrait as a bombastic, untalented artist-poet; but Nancy Cunard relished her repeated appearances as a heartless siren in her one-time lover's novels. These and other friends are wickedly satirized in the early fiction, as are the intellectual pretentions, the fashions of the day, prominent politicians, artists, smart society, journalism, advertising, industrialists, urban existence, and above all, the sexual mores of the Bloomsbury set with which the novelist had extensive acquaintance.

It often surprises readers to learn that Huxley was so immersed in the elegantly bohemian world of Bloomsbury. Huxley knew everyone in the circle – not only the friends named previously but also Virginia Woolf, John Maynard Keynes, Katherine Mansfield, Lytton Strachey, Roger Fry, Dorothy Brett, and more. He met his wife Maria at Garsington just like his brother Julian, who met his wife Juliette there. Aldous and Maria had an intense, secretive ménage à trois with Mary Hutchinson, a married woman who was already having another affair with Clive Bell; Aldous and Maria duplicated this arrangement with the woman who would become Huxley's first biographer, Sybille Bedford (Murray 140–47). It seems Maria would seduce women for her husband and bring them to him, a practice that Huxley records in *Point Counter Point*, where Elinor, the character modeled on his wife, reflects: "[O]n more than one occasion, seeing him look admiringly at some young woman or other, she had gone out of her way to establish for him the personal contact which he would never have been able to establish for himself" (78).¹⁹

Huxley's surprising involvement in the Bloomsbury world is significant for several reasons. First, it alters the image some people have of Huxley, chiefly those who only know him from *Brave New World*. Neither in his personal life nor in his fiction was he the didactic moralist many take him for. Rather, moral relativity is the watchword of his early novels. Second, Huxley knew the British literary modernists well, which accentuates the conscious choice he made to take up an alternative stance toward modernity. During the teens and 1920s, Huxley witnessed the full flowering of what literary historians once confidently labeled "modernism" in the fiction of Richardson, Joyce, Woolf, and Mansfield. Although today this limited canon of writers is regarded as an inadequate account of global modernism with its diverse artistic responses to uneven economic development, colonialism, gender, race, and sexuality, this group of Huxley's immediate predecessors and peers establishes the contrast I am drawing.²⁰ Huxley sought a different approach toward the modern from the kind of formal innovations in language and structure that these authors emphasized. Huxley wanted to be modern, but he wanted no part of the version of modernism he saw around him.

The alternative nature of Huxley's ambition was apparent from the start. An anonymous reviewer of his first novel, the roman à clef *Crome Yellow*, called it "a Cubist Peacock," a nice aperçu, for it captures both the attempt to be modern and the novel's homage to an older satiric tradition (Williams-Ellis 60). *The Nation* grasps the modernity of the novel's scientific views, mentioning Wells's Rationalist State and Freud's concept of repression but is more interested in the book's distance from the works of literary modernists, commenting that Huxley "lives in a different world from that of D. H. Lawrence or James Joyce or Dorothy Richardson" (Lewisohn 63). Of course, Huxley did *not* live in a different world; he just depicted the milieu he shared with the Bloomsbury circle in a very different way.

Huxley's next novel, *Antic Hay*, is a roman à clef too, but its form is more disjunctive. The novel shifts scenes and perspectives at will, cross-cutting a set of stories that range in tone from the ridiculous (a scheme to get rich on inflatable underwear), to the romantic (helpless love for a femme fatale), to the sordid (seducing a friend's wife, then sharing her around), to the bathetic (a failed art exhibition), to the phantasmagoric (a nighttown episode at the burlesque), to the tragic (suicide of one character and manic despair of another). In its formal disjunctiveness, the novel participates in one of the durable characteristics of satire, its refusal to be constrained by a unified structure.²¹ Writing to his father (A. Huxley to

Leonard Huxley, *Letters*), who disliked the novel's satiric tone, Huxley justified his method both as a reflection of the modern world and as an artistic experiment:

I am sorry you should have found my book so distasteful . . . I will only point out that it is a book written by a member of what I may call the war-generation[,] . . . an age which has seen the violent disruption of almost all the standards, conventions and values current in the previous epoch . . . Artistically, too, it has a certain novelty, being a work in which all the ordinarily separated categories – tragic, comic, fantastic, realistic – are combined so to say chemically into a single entity, whose unfamiliar character makes it appear at first sight rather repulsive. (224)

In his next novel, *Those Barren Leaves* (1925), Huxley puts a similar defense of genre mixing in the mouth of a female novelist: "I'm trying to do something new – a chemical compound of all the categories. Lightness and tragedy and loveliness and wit and fantasy and realism and irony and sentiment all combined" (46). The disillusioned irony, the sexual frankness, the lacerating exposure of self-delusion and posturing were above all a way to be modern, Huxley's way, and one that his generation recognized as its own. Isaiah Berlin remembers how the "social and moral courage" of Huxley's fiction galvanized him and his friends: "[M]embers of my generation were assisted to find themselves by novelists, poets and critics," adducing not only Huxley but (beautifully in the context of this chapter) J. B. S. Haldane, Wells, and Russell (144).

Point Counter Point is the masterpiece of this group of novels. Like Huxley's other novels of the twenties, it has an ensemble cast, but a pair of characters, a novelist, Philip, and his wife, Elinor, who are transparent versions of Aldous and Maria Huxley, create a central thread in the narrative. Around the story of their relationship – his writing and affairs, her susceptibility to the abusive sexuality of the rising star of the British fascist party (modeled on Oswald Mosley), and the sudden death of their child from meningitis – other stories about friends are interwoven more plausibly than in any of Huxley's novels to date.

Three points about this novel can help characterize Huxley's stance toward science in the years leading up to *Brave New World*. First, Philip's ironic detachment from the world around him had become, by the time of *Point Counter Point*, Huxley's signature way of being modern. Philip's wife Elinor blames it for an emotional aridity in his fiction: "[F]or the sake of the novelist he might be, she wished he could break his habit of impersonality and learn to live with the intuitions and feelings and instincts as well as with the intellect" (*Point Counter Point* 78).

Second, Philip compensates for his emotional impersonality by relying on his protean intelligence. Like a chameleon, he can sympathize with any position. His analytic gifts allow him to grasp the logic of the most extreme attitudes and beliefs: "It was so easy for him to be almost anybody" (193). The ability to inhabit other perspectives is the key to his new way of writing and his response to his age. Huxley achieves this multiplicity of perspectives by relying on the emotional impartiality that was the hallmark of the scientific viewpoint. It is what allows him to skewer himself and his friends with equal impartiality. What Haldane says about the scientist scrutinizing "Mr. Smith, a tape-worm, and the solar system" with the same impersonal gaze, regardless of whether the scientist wants to improve the life of one, eradicate the other, or understand the astronomical behavior of the third, describes Huxley's satiric method too (*Science* 2). Here is the novelist treating a fetus growing inside the womb with the same emotional impartiality that one might use for a tapeworm:

A cell had multiplied itself and become a worm, the worm had become a fish, the fish was turning into the foetus of a mammal Fifteen years hence a boy would be confirmed. Enormous in his robes, like a full-rigged ship, the bishop would say: "Do ye here in the presence of God, and of this congregation, renew the solemn promise and vow that was made in your name at your baptism?" And the ex-fish would answer with passionate conviction: "I do." (*Point Counter Point* 147)

Third, Rampion's frequent attacks on emotional impartiality and modern science, reminiscent of Lawrence's impatience with evolutionary theory, do not cancel out – in fact, coexist comfortably with – Huxley's rejection of moral certainties.²² Rampion is a writer turned artist who celebrates instinct, the life of the emotions, and "noble savagery." In one diatribe, Rampion denounces two of the bugbears of Huxley's later dystopia, Alfred Mond and Henry Ford. Those apostles of "science, progress, and human happiness" will destroy "initiative and creativeness" and replace "all the vital and fundamental things in human nature" with "ready-made and unindividual amusements" (*Point Counter Point* 298–99). These are the Savage's objections to Mustapha Mond, the World Controller in *Brave New World*, and the similarities between Rampion and the Savage's attitudes should be a clue that Huxley does not unequivocally endorse the Savage's position. This parallel is not surprising when we remember Huxley's winking allusion to Lawrence in that later novel: the Savage comes from a reservation near Taos, New Mexico, the place where Lawrence lived near the end of his life. What Rampion wants instead of progress and industrialization is to live instinctually and to trust in one's physical and emotional being. The emotional

impartiality that allows scientists to examine humans and tapeworms with the same neutral objectivity is anathema to him. Huxley agrees with Rampion about Mond and industrialization, disagrees with his rejection of evolution and modern biology, yet the novelist satirizes both positions with equal glee.²³

Philip understands his intellectual flexibility as cognate with the modern relativity of values. He sees all sides. At extreme moments, he wonders if the “essential character of the self consisted precisely in that liquid and undeformable ubiquity; in that capacity to espouse all contours and yet remain unfixed in any form” (*Point Counter Point* 194). If this is the satiric self, it is also how the Haldane–Huxley set understood the modern scientific self, a viewpoint that can see all sides objectively and eviscerate them all with emotional impartiality.

Brave New World, Huxley’s next novel, represents a radical paring down and distillation of Philip’s urge to see all sides of an issue. In this story, the sides have been reduced to two stark opposites: a world state that bestows universal peace, stability, and freedom from poverty, disease, and suffering, on the one hand, and a society that values free will, art, imagination, scientific inquiry, and the human spirit, on the other. Huxley tries to give each side its due in the chapters where the Savage debates the World Controller, but the contest is uneven and most readers have taken the Savage’s side as their own. As a result, the very phrase “brave new world” has become the watchword of those who caution against scientific hubris. But that was not Huxley’s point, and an oversimplification of the book has made Huxley famous. Most people know nothing else about him.

Dystopian Synthesis

Brave New World is another experiment in satire, but it is far more unified in tone and theme than any of Huxley’s earlier novels. It no longer juxtaposes discordant genres but blends its multiple satiric intentions into a powerful gestalt. It combines the simplicity of a moral tale for the young with the force of a jeremiad against contemporary society. The resulting satire has more affinities with scientific modernity than with literary modernism.

The gestalt owes much of its success to the dystopian synthesis of utopia and naturalism, to return to Wegner’s insight. *Brave New World*’s limitations and strengths both stem from this source. Utopia, a common vehicle for satire, is totalizing and narratively static. There is little to propel the story other than the critical comparison it draws between a degenerate

present and an ideal future.²⁴ Description is its *métier* . . . and its Achilles heel. The protagonists are often flat characters, naïfs like the Savage, and the denizens of the new world – typically a guide, a love interest, and an opponent – serve transparent narrative purposes. The intellectual clarity of its message depends on this kind of simplification.

Naturalism, on the other hand, specializes in relentless plots, which grind down the characters under forces beyond their control. As Richard Chase puts it, “the naturalistic novel took a bleakly pessimistic view when considering the ability of the individual to control his fate” (186). Émile Zola, Henrik Ibsen, George Gissing, and Theodore Dreiser, in very different ways, thought of themselves as writing scientific examinations of the ills of society.²⁵ External forces – poverty, sexual oppression, syphilis, alcoholism, drug abuse, racism, and other forms of injustice – often seem to determine the fate of their protagonists. Social Darwinism was an important component of this “scientific” understanding of fiction’s purpose. Description is grittily realistic, far more so than in utopian fiction. Characterization also relies on realistic conventions. The protagonist is trapped within the belly of the beast, not a visitor from another world. The tormented response of the characters produces the effect of an agonized inward life, although at times the protagonist can seem so fully under the control of external forces as to be little more than a miserable puppet of fate. The power of the work also depends on a vast simplification of human experience, but the desolate depiction of reality sometimes masks how much has been simplified.

Dystopia flourished in the twentieth century by merging elements of these opposed genres, utopia and naturalism, into a new synthesis. The genre combined accounts of a future, alternative society (utopia) with a strong narrative line that featured an individual struggling against overwhelming conditions (naturalism). The inequality of this struggle enhances our sympathy with the solitary rebel, lending realism to the protagonist’s desperate subterfuges, especially since we fear that these rebels are doomed to failure.

The synthesis of utopia with naturalism is dialectical. The pessimism of the naturalist genre dialectically negates the idealism of utopia as it generates a nightmare vision of what the future might hold. Yet, as Jameson emphasizes, dystopia carries forward the revolutionary energies of utopia in that very negation. In this respect, the dystopian synthesis might seem to differ fundamentally from the modern synthesis in biology. The connection, however, comes from the particular form that dialectic takes in *Brave New World*. Huxley’s novel incorporates and sublates the

emotional impartiality that characterized the modern conception of science for the Haldane–Huxley circle and generalizes it to the entire totalitarian future. In doing so, Huxley establishes a convention that the genre will frequently honor – the internalization of this emotional impartiality in the novel’s antagonist (the World Controller in *Brave New World*). The debate between the impassioned Savage and the dispassionate World Commander in chapters 16 and 17 of *Brave New World* (which was itself modeled on the Grand Inquisitor chapter in Dostoyevsky’s *Brothers Karamazov*) has become paradigmatic of the didactic core in much dystopian fiction: think of the debates between Winston and O’Brien in *Nineteen Eighty-Four* or Montag and Captain Beatty in *Fahrenheit 451*. Witnessing the hypocrisy of characters like the Controller is infuriating, which means that the overall tone of novels in the genre is anything but emotionally neutral. All the same, emotional impartiality contributes formally as well as thematically to the genre because the impact of the totalitarian future depends on the cold logic of extrapolation from contemporary trends. There is an instrumental rationality in the prophetic gaze that the novelist turns on the present.

The biological nightmares of *Brave New World* span the entire human life cycle from conception, maturation, and adulthood to death. Conception relies on entirely artificial means: eugenic selection of parents, pre-implantation genetic screening, *in vitro* fertilization, embryo sorting, selective sterilization, the Bokanovsky Process (or cloning), ectogenesis, and chemical and x-ray assaults on the embryo. From the nursery through the end of one’s school days, the child receives extensive behavioral conditioning in accordance with the theories of Pavlov and J. B. Watson, author of *Behaviorism* (1924). In adulthood, daily doses of mood-altering drugs and antiaging therapies are provided free to all. Finally, there is hospice care for the seriously ill and euthanasia for everyone at the age of sixty. Of course, other aspects of the world state are objects of satire too: advertising; commercialism; industrialization; films that border on virtual reality; the erasure of history, art, and literature; the attack on the family and romantic love; the suppression of authentic science; and the use of sexuality and pseudoreligious experiences to release disruptive social energies. But biological concerns hold a preeminent place in Huxley’s mind. In the “Foreword” he wrote for the 1946 reprinting of the novel, he notes: “The only scientific advances to be specifically described are those involving the application to human beings of the results of future research in biology, physiology, and psychology. It is only by means of the sciences of life that the quality of life can be radically changed” (ix – x).

Huxley's dystopia has had enormous cultural impact. Every one of the biotechnologies Huxley described has been held up by subsequent commentators as an emblem of science run amok. Procedures that are today routine, such as pre-implantation genetic screening, *in vitro* fertilization, and hospice care, were greeted by their critics as heralding a "brave new world." So too, today, are interventions such as psychotropic and performance-enhancing drugs, and euthanasia for the terminally ill. The most severe condemnation has been reserved for some of the biotechnologies that remain on the horizon, such as human reproductive cloning and ectogenesis.²⁶ All have been accused of being examples of a "brave new biology."

The most viscerally disturbing of the genetic marvels described in the book is cloning. Bokanovsky's Process involves the artificial budding of the developing embryo to produce multiple identical twins, anywhere from eight to ninety-six from a single fertilized cell. The public today associates cloning with the technique of somatic cell nuclear transfer used in animal cloning and stem cell research. This was the procedure employed to create the most famous cloned animal, Dolly the sheep. But embryo splitting, which is how identical twins occur in nature, is another method of producing a clone. When induced in the lab, it involves manually dividing the embryo at the eight-cell stage into two separate embryos of four cells each. Bokanovsky's Process can be thought of as an early vision of how embryo splitting might be induced. Huxley imagines a procedure in which the eight-cell embryo is subjected to successive treatments with radiation and alcohol, which cause the embryo to split in two (or "bud") multiple times. The process Huxley describes can be used to induce embryogenesis in some plants, but it sounds unthinkable brutal when applied to the human embryo. But the potential insult to the developing fetus from such harsh treatment is irrelevant to the social planners in Huxley's future because they use the process only on the lower echelons of society.

The results of Bokanovsky's Process are large cohorts of identical humans, suitable for all the menial tasks an industrial society requires. These clones repel the Savage more than any other aspect of biology in the world state – only female sexuality provokes an equally emotional response. The fact that Huxley opposes sexual repression – in his own life and in society too – might suggest that he is treating the Savage's instinctual revulsion from clones with similar irony and that Huxley actually favors a more impartial assessment of the technology. Both Russell and Haldane did. The Savage's repugnance arises involuntarily the first time he sees the clones when he is so repelled he becomes physically ill.

Thematically, it serves the interest of the novel's attack on mechanization; Huxley associates cloning with a Fordist model of production.²⁷ In the Central London Hatchery, clones are produced on a conveyor belt, like cars rolled off an assembly line. The linkage with mass production has proved so powerful that in subsequent years the notion of cloning has become synonymous with "manufacturing" a human being.

The Savage's response goes far beyond objecting to the procedure. He is overwhelmed with loathing and fear. His emotional response is akin to xenophobia or racism. The imagery evokes mindless drones, the horror of hive societies. Observe his reaction in this description of cloned children:

Twin after twin, twin after twin, they came, a nightmare. Their faces, their repeated face – for there was only one between the lot of them – puggishly stared, all nostrils and pale goggling eyes In a moment, it seemed, the ward was maggoty with them. They swarmed between the beds, clambered over, crawled under, peeped into the television boxes, made faces at the patients. (137)

They are not human beings but insects meant to evoke all the repulsion of maggots. Twice more, in a passage as full of irrational repugnance, the Savage compares them to maggots, and a third time he calls them lice. These are human beings, however, and cloned humans, even if intentionally impaired as these are, would deserve the same respect for persons accorded to twins today. Only the Savage's sexual self-loathing and flagellation at the end of the novel equals the excessive emotional charge he feels toward these clones.

Leon Kass has urged that public policy should listen to this feeling of revulsion toward genetic creations like chimeras and clones. In his much-cited article, "The Wisdom of Repugnance," Kass specifically invokes *Brave New World* as an example of how instinctive or spontaneous repugnance should guide us in deciding whether to allow genetic engineering of humans (18).²⁸ Steven Pinker, in a powerful rejoinder, inveighs against Kass's "disconcerting habit of treating fiction as fact" (29). The problem, Pinker continues, is that "*Brave New World*, a work of fiction, is treated as inerrant prophesy. Cloning is confused with resurrecting the dead or mass-producing babies. Longevity becomes 'immortality,' improvement becomes 'perfection,' the screening for disease genes becomes 'designer babies' or even 'reshaping the species'" (31). Pinker is right. Fiction is not inerrant prediction, and if it is to play a role in bioethics, it must be to enrich our understanding of complex problems, not simplify them into a one-dimensional moral.

The Savage's horror at the repeated faces of twin after twin constitutes more of a critique of mass production in Huxley's day than of future

reproductive technologies. It resembles Rampion's (and Lawrence's) irrational condemnation of biology rather than Philip's emotional impartiality. If the Savage's sexual repression is attributable to the primal scene in his youth of witnessing his mother in bed with her lover, as the novel clearly establishes, then his emotional response to cloning, which also reaches a peak at his mother's bedside, should be read as psychopathology too. In any event, it should not be taken as a warning about advances in genetics, as so many commentators have done. Tom Moylan identifies this kind of misreading as a violation of the spirit of the genre itself. "Formally and politically . . . the dystopian text refuses a functionalist or reformist perspective. . . . No single aberration can be privileged as the one to be fixed so that life in the enclosed status quo can easily resume" (xii).

Huxley would agree. "Science in itself is morally neutral," he said in the same year as *Brave New World* was published; "it becomes good or evil according as it is applied" (rpt. in Bradshaw, *The Hidden Huxley* 114). To use the power of science to produce a society such as the World Controller's future is a more far-reaching evil than any practice or technology that can be isolated as problematic. That is how Huxley's satire complicates our understanding – not by warning against new reproductive technologies but by dramatizing how science could be misused by a society in search of safety and stability.

Satire is a capricious weapon, however. Its sharp edges cut in many directions. Huxley kept rediscovering this point throughout his career. His early novels wounded friends that he had not expected to hurt. The thrust of *Brave New World* surprised him in a different way. The dystopian synthesis narrowed the options it presented to two choices, neither of which he meant to be acceptable. Science without a conscience was unacceptable; a world with art, literature, family, and God, but at the price of poverty, disease, war, and mental illness was equally unacceptable. Huxley lamented that readers took his novel's simplifications so much to heart. They accepted the choices they were given as the only available options: "The Savage is offered only two alternatives," Huxley commented in his 1946 "Foreword," "an insane life in Utopia, or the life of a primitive in an Indian village, a life more human in some respects, but in others hardly less queer and abnormal" (vii). Perhaps he assumed readers would see through this false opposition. After all, it is the World Controller who insists that these options are the only possible alternatives: "God isn't compatible with machinery and scientific medicine and universal happiness," Mustapha Mond claims. "You must make your choice" (*Brave New World*, 159). Mond is wrong, however. Society does not have to choose

between such draconian options. Mond's logic is the either/or that an authoritarian state uses to justify its rule. But other alternatives exist beyond the covers of a dystopian novel. The wise use of technology is the option Huxley preferred: "It rests with us and our descendants to decide whether we shall use the unprecedented power which science gives us for good or bad purposes. It is in our hands to choose wisely or unwisely" (rpt. in Bradshaw, *The Hidden Huxley* 114).

In 1932 Huxley the satirist was pleased by the prospect of a novel that offered its protagonist an impossible choice. "At the time the book was written," Huxley recalled, "this idea, that human beings are given free will in order to choose between insanity on the one hand and lunacy on the other, was one I found amusing and regarded as quite possibly true" ("Foreword," vii–viii). The moral relativist of the twenties lives on even when the dystopian synthesis mandates a despairing end. "At the close, of course," Huxley continued, the Savage's "native *Penitente*-ism reasserts its authority and he ends in maniacal self-torture and despairing suicide. 'And so they died miserably ever after' – much to the reassurance of the amused, Pyrrhonic aesthete who was the author of the fable" (viii). A Pyrrhic victory is an engagement won at horrific cost. When Huxley calls himself in retrospect a Pyrrhonic aesthete, he acknowledges that there was no earth he would not scorch for his art, no person or idea he would not sacrifice on the altar of satire. It is ironic to realize that the moral relativism and emotional impartiality of an amused, Pyrrhonic satirist has become the touchstone of present-day moralists who want to halt some forms of genetic engineering.

Commentators who invoke the specter of *Brave New World* to argue against one biotechnology or another (and they are legion) are offering the counsel of Mustapha Mond. They suggest that if we go down a particular path, it will inevitably lead to the kind of dehumanized world Huxley depicts. This rhetorical tactic gains power from one of the key features of the dystopian synthesis: the determinism of its plots. The solitary rebel is doomed from the start. Hence, the argument that we must not go down a certain path gains added force not only from Huxley's powerful imagery but also from our sense that this kind of story (dystopia's story) rarely ends well. The allusion to dystopia by commentators on science supports a slippery slope argument with cultural evocations that few readers will spend the time to analyze. By invoking *Brave New World* as if its message were simple and unambiguous, commentators either show their ignorance of literature or rely on their audience's inability to see through a devil's bargain.

At the outset of his career as a satirist, Huxley predicted that his age would produce a new synthesis, which would look to irony, the comedy of Rabelais, Goya, and Daumier, to produce an artistic whole out of the ruins of the modern world. “The new synthesis that will reassemble, in an artistic whole, the shattered values of our post-war world, the synthesis that will reflect the disintegration in an artistic unity, will surely be a comic synthesis. The social tragedy of these last years has gone too far and in its nature and origin is too profoundly stupid to be represented tragically” (“The Modern Spirit” 33). The synthesis that unified the field of biology, in one quarter, and gave birth to the genre of dystopia in another, was modern in ways that twenty-first-century readers do not always understand. The unflinching honesty, the confidence that a unified vision would emerge from rational scrutiny, demystification, and emotional impartiality, was strangely hopeful. It forms a striking contrast to the method of some of his modernist compatriots who shored up fragments against the ruins. Both types of modern synthesis – Haldane’s and Aldous Huxley’s – offered “resources of hope” for their time, to use Raymond Williams’s resonant phrase, modes of thinking and being in the world that had not previously been available.