



The Modern Synthesis: Genetics and Dystopia in the Huxley Circle

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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

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876 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.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 like 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."³ 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.⁴ Both Bellamy and Morris explicitly acknowledged that their novels were counterblasts to the pessimism of writers like 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 *1984* that his book was a futuristic "fantasy, but in the form of a *naturalistic novel*" (quoted in Wegner, *Life between Two Deaths*, 122).

There is little to link these two episodes in cultural history—little, that is, but Aldous Huxley. His close association with some of the principal biologists of the day compels 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 1927–32 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.”⁵

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 British soldiers used in World War I and who was famous for conducting experiments on himself in a sealed breathing chamber constructed on his estate. The younger Haldane was such a precocious assistant in his father’s researches 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 Lysenko scandal, 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 which 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 1928.⁶

878 The richness of this multi-sided 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*.⁷ 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.⁸ 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* (1928). 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*.⁹ 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.¹⁰ 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 had not considered.¹¹ In other instances, they 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.¹² 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 and Conditioning Centre 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 anti-aging 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; anti-vivisectionists as enemies of science—these themes and more are common to both writers.

Attending to this shared discourse opens up important questions about modernity in different intellectual spheres and the various functions of synthesis in the scientific and literary domains.¹³ This article examines the unifying or synthetic mode of thinking that is common to both scientific modernity and Huxley's satire, then demonstrates that Aldous Huxley's distinctive conception of modernity more closely resembles 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.¹⁴ 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 to-day 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."¹⁵ 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" (*The Causes of Evolution*, 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.

At first glance, the synthesis of two genres in literature—utopia and naturalism—bears little resemblance to the synthesis of two scientific theories, evolution and genetics. There are resemblances, however, and they lie in the relationship of each development to modernity and in the power of each development to inaugurate a field for further work, to constitute what Foucault termed a discursive formation. Both the modern synthesis in genetics and the dystopian synthesis empowered entirely new types of work. 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.¹⁶ The dystopian synthesis was enormously fruitful as well. Yevgeny Zamyatin's *We* (1921), Huxley's *Brave New World* (1932), George Orwell's *1984* (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

880 (2003–13), 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)—these are just some of the highpoints of a genre that did not exist prior to the modern period.

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.”¹⁷ Haldane and Julian Huxley had no patience with metaphysical, religious, or pseudo-scientific 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 of Evolution*, 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.”¹⁸

Finally, everyone in this circle had a close but vexed relationship to another advocate of synthesis, the writer-scientist H. G. Wells. Utopian themes from Wells's novels *A Modern Utopia* (1905) and *Men Like Gods* (1923) are echoed with approval—and elaborated in the direction of genetics—by Haldane in “Daedalus,” “The Future of Biology,” “The Last Judgment,” and *The Causes of Evolution*, and by Charlotte Haldane in *Man's World*. Many of the same themes are portrayed negatively in Russell's *The Scientific Outlook* and Huxley's *Brave New World*, the latter of which, the novelist explicitly says, was begun as a revolt against “the horror of the Wellsian Utopia.”¹⁹

In the early decades of the twentieth century, Wells might justly have been regarded as the public face of synthesis in both science and literature. Wells issued one appeal after another for universities to train people who could synthesize scientific disciplines with art, literature, economics, politics, and more. Only a technocratic elite, scientifically trained but conversant with all aspects of culture, could be the leaders of the World State he advocated. Haldane shared Wells's dream of a world state and frequently engaged with Wells's positions. Julian Huxley found Wells's synthetic vision of the sciences so compelling that he quit his chair at King's College London to join Wells and his son in a project to write a comprehensive synthesis of all the biological sciences. The result was the massive, nine-volume *The Science of Life* (1929–31). (This is the project Julian was working on when Lawrence listened in on the nightly conversations between the Huxley brothers about evolution.)²⁰ The book was a hit, and its success convinced Julian Huxley not to return to the laboratory but to pursue a career as a historian, interpreter, and popularizer of science in the Wellsian mode. Julian found that the project “demanded every ounce of my knowledge and called upon a gift I had never fully exerted before—that of synthesizing a multitude of facts into a manageable whole” (*Memories*, 156). His later book, *Evolution: The Modern Synthesis*, was another fruit of Julian's conviction that people who could synthesize the findings of other disciplines were essential to modern science.

Wells's idiosyncratic vision of modernity, then, is a convenient marker of the way in which many influential scientists, including all those in Aldous Huxley's immediate circle—Haldane, Julian Huxley, and Russell—saw themselves as “modern.” Let me be clear: I do not mean to say that these authors shared specific political beliefs—Wells thought of himself as a socialist, but his vision of a World State ruled by an elite class of scientist-intellectuals seemed to some at the time to resemble fascism; Haldane was fiercely democratic and a socialist throughout his life; Aldous Huxley, during these years, seemed temperamentally opposed to democracy, had severe criticisms of American-style capitalism, and flirted with Mussolini's fascism, but he turned against fascism and composed one of the most memorable indictments of totalitarianism ever written. Nor do I mean that they foresaw the same social consequences from technological advances: Wells, Haldane, and Julian Huxley were largely optimistic about the changes in society that would eventuate; Russell and Aldous Huxley, less so. They shared neither a political nor a social vision. Rather, they shared a demystified vision of reality, a particular kind of scientific viewpoint, and a concern with the role science might come to play in a future world order.

Haldane's “The Scientific Point of View,” the opening essay in *Science and Human Life*, is representative of the common strain: “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.”²¹ The modern note is the instrumental conception of the biological sciences and their application to all domains of existence. Throughout his writing Haldane characterizes the “scientific standpoint” as “truthful and, therefore, impartial. . . . A good scientist will be impartial between Mr. Smith, a tape-worm, and the solar system.” Impartiality “places all phenomena on the same emotional level” (“The Scientific Point of View,” 2). 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, and it lies behind Haldane's ambition to synthesize Darwinism and genetics.²²

In an essay on “Science and Ethics,” Haldane returned to his characterization of the scientific point of view to discuss the ways in which the modern standpoint challenges traditional ethics. He specifies five ways science can impinge upon ethics, only the last of which is not central to the discourse of bioethics today. Science (1) creates new ethical situations, (2) produces unexpected consequences, (3) confronts superstitious and dogmatic beliefs with evidence, (4) awakens us to the relativity of ethical codes across national and ethnic boundaries, and (5) asks us to assess the rationality of practices without regard to our emotional investments. The absence of this last injunction from most contemporary bioethics marks the historical closure of Haldane's brand of modernity. For that reason, it is worth quoting Haldane's account of number five at length:

Finally, ethics may be profoundly affected by an adoption of the scientific point of view; that is to say, the attitude which men of science, in their professional capacity, adopt towards the world. 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. Again, 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.²³

Most of the hallmarks of the Wellsian attitude toward modernity are there: relentless pursuit of truth regardless of the consequences, agnosticism, emotional impartiality, an instrumental attitude, readiness to murder to dissect, class solidarity with scientific workers, and internationalism. The only things missing are pacifism and an attack on the institution of marriage (the latter can be found abundantly elsewhere in Haldane's writings, but Haldane, who was a fierce combatant in World War I, parted company with Wells over pacifism).

Aldous Huxley's satiric vision brought him closer to the scientific attitude toward modernity than to the viewpoint of his modernist literary peers. That he saw satire as his own, distinctive way of being modern is clear both from his letters and from the fiction itself. 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*, one of the enduring critiques 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.²⁴ 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 lie 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"; 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; 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; 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 (Huxley to Leonard Huxley, *Letters of Aldous Huxley*, 224; Lawrence to Aldous Huxley, *The Letters of D. H. Lawrence*, 766; Lawrence to Lady Ottoline Morrell, *The Letters of D. H. Lawrence*, 791).²⁵ These, and other friends, are wickedly satirized in the early fiction, as are the intellectual pretensions, 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 above but 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 an affair with Clive Bell; Aldous and Maria duplicated this arrangement with the woman who would become Huxley's first biographer, Sybille Bedford.²⁶ 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."²⁷ Her attempt to "cure by affairs" his remoteness and intellectuality, she ruefully admits, "hadn't worked so far"; her husband's "infidelities amounted to very little and had had no appreciable effect on him" (*Point Counter Point*, 78).²⁸

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.²⁹ Huxley sought a different approach toward the modern from the kind of formal in-

884 novations in language and structure that these authors emphasized. Huxley wanted to be modern—he was felt 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 *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 (Lady Williams-Ellis, quoted in Watt, *Aldous Huxley: The Critical Heritage*, 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" (L. L., quoted in Watt, *Aldous Huxley: The Critical Heritage*, 63). Huxley's next novel, *Antic Hay*, is a roman à clef too, but not in the Peacockian tradition. Set in the London demimonde, it is just as teeming with ideas and satiric wit, but the form is more disjunctive. Again, the experiment is with genre. Instead of reviving the artificial, enclosed setting of Peacock's satire, Huxley moves toward the looser Menippean form.³⁰ 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). As one character remarks, "It's a question of the point of view. Everyone's a walking farce and a walking tragedy at the same time" (Aldous Huxley, *Antic Hay*, 179).

Writing to his father, who disliked the book, Huxley justified his method both as a reflection of the times 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 for others of his kind; and that it is intended to reflect—fantastically, of course, but none the less faithfully—the life and opinions of 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. (Huxley to Leonard Huxley, *Letters of Aldous Huxley*, 224)

Huxley does not exaggerate. *Antic Hay* is a generic mélange, veering toward the chaotic, but wonderfully smart. In its formal disjunctiveness, the novel participates in one of the durable characteristics of satire, its refusal to be constrained by a unified structure.³¹ 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."³² 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 article) J. B. S. Haldane, Wells, and Russell.³³

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, 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. There is Lord Tantamount, an elderly scientist, endlessly composing his "great theoretical treatise on physical biology," who with his lab assistant, the working-class communist Illidge, experiments with transplanting the tail of a newt onto the stump of its amputated foreleg; Bidlake, a famous aging painter, and his son Walter, who ignores his own mistress to chase after Lord Tantamount's daughter Lucy, another of Huxley's wanton sirens; Burlap, the hypocritical editor of a popular journal; Rampion, the D. H. Lawrence figure; and the diabolical Spandrell, a Baudelairean apostle of degradation (30). The novel also contains a metafictional dimension: Philip keeps a journal about the novel he is contemplating, which manifestly provides a rationale for the book we are reading.

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). She struggles to assist him. "She reported her intercourse with the natives of the realm of emotion and he understood at once" (77). When she tries to discourage him from using their friends' lives as material for his new book, he tells her that their lives are only "a kind of excuse . . . for a new way of looking at things that I want to experiment with" (191).

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, theoretically and with his intelligence" (193). The ability to inhabit other perspectives is the key to his new way of writing, his response to modernity. He sees it as the best way to deal with the heterogeneity of the modern world. In a passage that could be a manifesto for all Huxley's writing in this period, he explains why:

Because the essence of the new way of looking is multiplicity. Multiplicity of eyes and multiplicity of aspects seen. . . . [T]here's the biologist, the chemist, the physicist, the historian. Each sees, professionally, a different aspect of the event, a different layer of reality. What I want to do is to look with all those eyes at once. With religious eyes, scientific eyes, economic eyes, *homme moyen sensuel* eyes. . . . (192, italics and final ellipses in the original)

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 ("The Scientific Point of View," 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). And here is the novelist treating murder in the same dispassionate vein:

Behind the screen lay the body. . . . And meanwhile, from the air, the invisible hosts of saprophytics had already begun their unresisted invasion. They would live among the dead cells, they would grow and prodigiously multiply, and in their growing and procreation all the chemical building of the body would be undone, all the intricacies and complications of its matter would be resolved, till by the time their work was finished a few pounds of carbon, a few quarts of water, some lime, a little phosphorus and sulphur, a pinch of iron and silicon, a handful of mixed salts—all scattered and recombined with the surrounding world—would be all that remained of [the dead politician's] ambition to rule and his love for Elinor, of his thoughts about politics and his recollections of childhood, of his fencing and good horsemanship, of that soft strong voice and that suddenly illuminating smile, of his admiration for Mantegna, his dislike of whiskey, his deliberately terrifying rages, his habit of stroking his chin, his belief in God, his incapacity to whistle a tune correctly, his unshakeable determinations, and his knowledge of Russian. (386–87)

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, co-exist comfortably with—Huxley's rejection of moral certainties.³⁴ 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" (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 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. For that matter, the emotional impartiality that allows Huxley to give Rampion's ideas their due is equally to be distrusted. 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.³⁵

Philip understands his intellectual flexibility as cognate with the modern relativity of values. He sees all sides. At extreme moments, he worries that he becomes all people, all viewpoints, so much so that 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 the eradication of poverty, disease, and suffering, on the one hand, and a society that values free will, art, imagination, scientific inquiry, and spiritual freedom, 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. As a result, the very phrase "brave new world" has become the watchword of those who caution against scientific hubris. The book made Huxley famous. Most people know nothing else about him.

Dystopian Synthesis

Brave New World is another of Huxley's experiments in satire. This time the satiric form is closer to that of Voltaire's *Candide* than to the Peacockian or the Menippean forms. It is far more unified in tone and theme than any of his 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

888 between a degenerate present and an ideal future.³⁶ Naturalism, on the other hand, specializes in relentless plots, which grind down the characters under forces beyond their control. As Richard Chase put it in relation to American fiction, “the naturalistic novel took a bleakly pessimistic view when considering the ability of the individual to control his fate.”³⁷ George Gissing, Émile Zola, Henrik Ibsen, and Theodore Dreiser, in very different ways, thought of themselves as writing “scientific” examinations of the ills of society. 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. Dystopia flourished in the twentieth century by merging elements of these opposed genres into a new synthesis. Dystopian novels combine systemic accounts of the workings of an alternative society with a strong narrative line pitting an individual against an oppressive state. 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 in precisely the way Wells’s synthesis of sciences was not. 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 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 *1984* 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.

This rationality at first seems a principal target of satire in *Brave New World*. The famous opening chapter, set in the Central London Hatchery and Conditioning Centre, leavens a heavy burden of exposition about the future with biting irony. The Director of Hatcheries and Conditioning is delivering a lecture to a group of students about the human bio-modifications and behavioral conditioning carried on in the center. The ironies are most blatant at those moments when the Director rebukes students for

asking questions that would naturally occur to present-day readers. Taken as a whole, however, the novel depends on the reader acknowledging the purposeful rationality of its predictions. If we did not believe that the book's future represented a possible extension of contemporary trends, the satire would have no target. The fiction is instrumental through and through—that is why dystopia can seem didactic. The allure of the genre comes more from facing present evils than condemning future ills.

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 anti-aging therapies are provided free to all. Finally, there is hospice care for the seriously ill and euthanasia for the rest 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 pseudo-religious experiences to release disruptive social energies. But biological concerns hold a pre-eminent 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."³⁸

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 wild. 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.³⁹ 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 contemporary clone, 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

890 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. The potential insult to the developing fetus from such harsh treatment is irrelevant to the social planners in Huxley’s future, however, because they only use the process 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 John, 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 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. In any event, the Savage’s repugnance arises involuntarily the first time he sees them, 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.⁴⁰ 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.”⁴¹ 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. Only his sexual self-loathing and flagellation at the end of the novel equals the emotional charge clones carry for the Savage.

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 with her lover after sex, which the novel clearly suggests, then his emotional response to cloning, which also reaches a climax at his mother’s bedside, may be read as similar psychopathology. 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. In its purview, no single policy or practice can be isolated as the root problem, no single aberration can be privileged as the one to be fixed so that life in the enclosed status quo can easily resume" (*Scraps of the Untainted Sky*, 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" (*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 the lesson of his satire. But the fact that the novel has a "lesson" marks its difference from Huxley's earlier satires. Gone are the multiplicity of perspectives, the clashing generic registers, and the unfixed satiric eye. This difference is a function of genre. It is the limitation of dystopia—and the strength, one that made *Brave New World* the most popular work Huxley ever wrote.

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 whom 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 terrible poverty, disease, war, and mental illness was equally unacceptable. Huxley lamented that readers took his message 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" (foreword to *Brave New World*, vii). Perhaps he assumed readers would see through this false opposition. After all, it is the World Controller who insists that these alternatives are the only ones possible: "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. His logic is the either/or that an authoritarian state uses to justify its rule. One does not have to choose between such draconian options, for other alternatives are available. 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" (*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 to *Brave New World*, 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

892 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 to make his point, back then, 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 moralists who want society to draw a line in the sand against particular biotechnologies.

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.⁴² 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 the protagonist's increasing sense of being trapped. The allusion to dystopia 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 literary satire 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."⁴³ 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.⁴⁴

Notes

I profited from illuminating conversations about Haldane and ecology with Cari Hovanec. Thanks also to Craig Smyser and George Bradley for their tough-minded readings of an early draft and to the two anonymous readers for this journal.

1. See Peter J. Bowler, *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades around 1900* (Baltimore: Johns Hopkins University Press, 1983).

2. See J. B. S. Haldane, "Darwinism Today," in *Possible Worlds and Other Essays* (1927; rpt., New Brunswick: Transaction Publishers, 2002), 27, where the words are ascribed to Henri Belloc, and J. B.

S. Haldane, *The Causes of Evolution* (1932; rpt., Princeton: Princeton University Press, 1990), where they are flippantly attributed to “[a]ny sermon” (1).

3. Phillip Wegner, *Life between Two Deaths, 1989–2001: U.S. Culture in the Long Nineties* (Durham: Duke University Press, 2009), 118.

4. See Fredric Jameson, *The Political Unconscious: Narrative as a Socially Symbolic Act* (Ithaca: Cornell University Press, 1981). In *Life between Two Deaths*, Wegner nominates Jack London’s *The Iron Heel* (1908) as the first dystopian fiction. Tom Moylan, in *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia* (Boulder: Westview Press, 2000), calls London’s work a “proto-dystopia” and proposes E. M. Forster’s short story “The Machine Stops” (1909) as the founding text of the new genre.

5. Susan Merrill Squier is one of the few literary critics to have discussed this circle. Her *Babies in Bottles: Twentieth-Century Visions of Reproductive Technology* (New Brunswick: Rutgers University Press, 1994) perceptively explores the fiction of Charlotte Haldane and Naomi Mitchison (Haldane’s sister) in relation to modern biology and has valuable readings of Julian Huxley’s story “The Tissue Culture King” and *Brave New World*. See also Judith Adamson, *Charlotte Haldane: Woman Writer in a Man’s World* (London: Macmillan, 1998).

6. We know Aldous Huxley was still reading Haldane’s work from Huxley’s review of Haldane’s essay collection in the *Week-End Review*, December 10, 1932, 694. For Lawrence’s arguments with the Huxley brothers, see Sybille Bedford, *Aldous Huxley: A Biography* (New York: Knopf, 1974).

7. Critics of the novel have done an excellent job recording Aldous’s intellectual debts to Haldane’s “Daedalus” as well as to numerous other important sources. For the influence of Haldane’s “Daedalus” (1923), see Peter Edgerly Firchow, *The End of Utopia: A Study of Aldous Huxley’s “Brave New World”* (Lewisburg: Bucknell University Press, 1984), 40–45. For Bertrand Russell’s *The Scientific Outlook* (1931), see Philip Thody, *Aldous Huxley: A Biographical Introduction* (London: Studio Vista, 1973), 50–51; for E. A. Burt’s *The Metaphysical Foundations of Modern Physical Science* (1924), see Nicholas Murray, *Aldous Huxley: A Biography* (New York: St. Martin’s Press, 2002), 175; for J. B. Watson’s *Behaviorism* (1924), see Firchow, *End of Utopia*, 45–46; for Henry Ford’s *My Life and Work* (1922) and Ford’s vocal critics, see Robert S. Baker, “*Brave New World*”: History, Science, and Dystopia (Boston: Twayne Publishers, 1990), 85–87; and for Sir Alfred Mond’s *Industry and Politics* (1927), see James Sexton, “*Brave New World* and the Rationalization of Industry,” in *Critical Essays on Aldous Huxley*, ed. Jerome Meckier (New York: G. K. Hall, 1996), 93–100.

8. Peter Edgerly Firchow observes that Aldous Huxley “knew a great deal about science and about scientists, as the genuine respect with which these and other eminent scientific friends and acquaintances treated his scientific knowledge makes clear. As June Deery points out, his reading included not merely popularized science, but material drawn directly from journals such as *Nature* and *The Lancet*, to both of which he subscribed, as well as scientific textbooks, especially in the areas of biology and psychology” (“Aldous and Julian: Men of Letters, Men of Science,” *Aldous Huxley Annual: A Journal of Twentieth-Century Thought and Beyond* 4 [2004]: 205–30, 218).

9. For her memories of this episode, see Naomi Mitchison, *As It Was: An Autobiography (1897–1918)* (Glasgow: Richard Drew, 1988), 44–46.

10. Julian Huxley records that conversations with Aldous about biology were mutually beneficial: Aldous knew a great deal about “biological facts and ideas . . . from his miscellaneous reading and from occasional discussions with me and a few other biologists, from which we profited as much as he” (*Aldous Huxley 1894–1963: A Memorial Volume*, ed. Julian Huxley [New York: Harper and Row, 1965], 22).

11. Compare Huxley’s “Measurable and Unmeasurable” (1927) and “Varieties of Intelligence” (1927) with Haldane’s “The Inequality of Man” (1932). Huxley argues that IQ tests cannot measure the varieties of talents found in people; Haldane agrees that individuals have special talents, but cites Spearman’s concept of “g,” the sum of special and general abilities, as a possible way around Huxley’s objections.

12. See the last chapter of Aldous Huxley’s *Antic Hay* (1923; rpt., Normal: Dalkey Archive Press, 1997) and Haldane’s *Possible Worlds*, 78.

13. The historian of science Vassiliki Betty Smocovitis notes that almost no work has been done on placing the modern synthesis within the larger context of modernity: “Outside of the few studies on Julian Huxley (the most obvious politically and publicly engaged of the architects) no one had examined how . . . the movement toward a progressively secular and liberal worldview, and other cultural move-

894 ments including 'internationalism,' 'modernism,' and the drive to create a unified global community" affected the effort to unify biology (*Unifying Biology: The Evolutionary Synthesis and Evolutionary Biology* [Princeton: Princeton University Press, 1996], 50–51).

14. Among historians of biology, a divide exists between those who follow William Provine, who stresses the mathematical work of population geneticists such as Fisher, Wright, and Haldane in the 1920s and early-30s, and those who follow Ernst Mayr in also attending to the contributions of naturalists, paleontologists, and systematists such as himself, from the mid-1930s and 40s. The debate is summarized in Ernst Mayr and William Provine's co-edited volume, *The Evolutionary Synthesis: Perspectives on the Unification of Biology* (Cambridge, MA: Harvard University Press, 1980). I do not mean to take a position on this controversy. My exclusive focus on the earlier group merely reflects the article's concern with Aldous Huxley's relationship to Haldane and Julian Huxley.

15. Julian Huxley, *Evolution: The Modern Synthesis* (New York: Harper and Brothers, 1942), 26.

16. See Peter J. Bowler, *Evolution: The History of an Idea* (1983; rpt., Berkeley: University of California Press, 2009), 333–35.

17. Max Weber, "Science as a Vocation," in *From Max Weber: Essays in Sociology*, ed. H. H. Gerth and C. Wright Mills (1922; rpt., London: Routledge and Kegan, 1970), 155.

18. Bertrand Russell, *The Scientific Outlook* (1931; rpt., New York: Norton, 1962), 129. Russell's dismissal of Bergson is amusing: "The metaphysic of Bergson . . . is undoubtedly pleasant: like cocktails, it enables us to see the world as a unity without sharp distinctions, and all of it vaguely agreeable, but it has no better claim than cocktails have to be included in the technique for the pursuit of knowledge" (76). See also Huxley, *Evolution*, 568.

19. Aldous Huxley to Mrs. Kethevan Roberts, May 18, 1931, in *Letters of Aldous Huxley*, ed. Grover Smith (New York: Harper and Row, 1969), 348. The best treatment of Aldous Huxley's relation to the "Wellsian Utopia" is chapter 4 of Baker's *"Brave New World": History, Science, and Dystopia*, 21–35. David Bradshaw documents Huxley's extensive connections with Wells during this period, but Bradshaw's conclusions about Huxley's political sympathies are too one-sided. See David Bradshaw, "Open Conspirators: Huxley and H. G. Wells 1927–35," in *The Hidden Huxley: Contempt and Compassion for the Masses 1920–36*, ed. David Bradshaw (London: Faber and Faber, 1994).

20. In his *Memories*, Julian Huxley recalls: "Lawrence often exploded with a snort of impotent rage when we talked about scientific matters. Aldous and I discussed evolutionary and physiological ideas, including the possibility of mankind's genetic improvement. This particularly infuriated Lawrence, who believed that more power exercised by 'the dark loins of man,' greater freedom for our instincts and our intuitions, would solve the world's troubles. His anger was specially directed against myself, as a professional scientist" (*Memories* [London: George Allen and Unwin, 1970], 160). Aldous took his brother's side. "I remember in particular one long and violent argument on evolution, in the reality of which Lawrence always passionately disbelieved," Aldous wrote in the introduction to his edition of *The Letters of D. H. Lawrence*. "'But look at the evidence, Lawrence,' I insisted, 'look at all the evidence.' His answer was characteristic. 'But I don't care about evidence. Evidence doesn't mean anything to me. I don't feel it *here*.' And he pressed his two hands on his solar plexus." See Aldous Huxley, introduction to *The Letters of D. H. Lawrence*, ed. Aldous Huxley (New York: Viking, 1932), xv. Aldous Huxley's distance from Lawrence signals one of the ways his view of the modern differed from some of his fellow novelists.

21. J. B. S. Haldane, "The Scientific Point of View," in *Science and Human Life* (New York: Harper and Brothers, 1933), 1.

22. The scientific viewpoint of Haldane and Russell is related to what Lorraine Daston and Peter Galison have described as the "changing contours of the scientific self" in the early decades of the twentieth century (*Objectivity* [New York: Zone Books], 325). In *Objectivity*, they argue that "a new kind of scientific self" relied less on *mechanical objectivity*, their term for the imperative to purge scientific observation of all traces of the will, and more on *trained judgment*, which blended impersonality with "protocol-defying expertise" (325, 313). The result was "a newfound confidence among scientists in the twentieth century, a confidence born in professional training . . . that left them far from self-abnegation" (313). Daston and Galison's portrait of this new kind of scientist nicely captures

Haldane's combination of confidence (even swagger) with an insistence that scientific training produced emotional impartiality.

23. J. B. S. Haldane, "Science and Ethics," in *Science and Human Life*, 101.

24. This is Charlotte Haldane's criticism of *Brave New World*: "It is throughout a parody of the scientific point of view" ("Review in *Nature*," in *Aldous Huxley: The Critical Heritage*, ed. Donald Watt [London: Routledge and Kegan, 1975], 208).

25. Haldane *files* only demurs at the implication that his fictional avatar was unsuccessful in his own extramarital affair. See Ronald W. Clark, *JBS: The Life and Work of J.B.S. Haldane* (New York: Coward-McCann, 1968).

26. See Murray, *Aldous Huxley: A Biography*.

27. Aldous Huxley, *Point Counter Point* (1928; rpt., Normal: Dalkey Archive Press, 1996), 78.

28. May Sarton in an interview describes the process more forthrightly: "Maria Huxley, you know, tamed women for Aldous. The young tigress, you know, she broke them in" (quoted in Murray, *Aldous Huxley: A Biography*, 148).

29. For an analysis of current approaches to the "new modernist studies," see Douglas Mao and Rebecca L. Walkowitz, "The New Modernist Studies," *PMLA* 123, no. 3 (2008): 737–48, and Susan Stanford Friedman, "Planetarity: Musing Modernist Studies," *Modernism/modernity* 17, no. 3 (2010): 471–99. For global modernism, see *The Oxford Handbook of Global Modernisms*, ed., Mark Wollaeger, with Matthew Eatough, contributor (New York: Oxford University Press, 2012).

30. Satire is a capacious term. As a mode, it is more of a tone of ridicule directed at the world's folly, and it can be present in any genre: poem, drama, novel, or essay. Even as a genre, its form is notoriously protean. The principal theorists of satire in the twentieth century—Northrop Frye, Alvin Kernan, Ronald Paulson, Gilbert Highet, and Dustin Griffin—emphasize satire's open form, its difficulty with closure, and its digressive, episodic, parodic, or rhetorical impulses. Most distinguish among formal verse satire, Peacockian satire, and the learned Menippean satire, which Northrop Frye calls "encyclopedic" satire or "anatomy" (*Anatomy of Criticism* [1957; rpt., New York: Atheneum, 1968]). According to Ronald Paulson, "Satire enjoys the episodic forms, the collection of stories or anecdotes, the list, the large dinner party or the group conversation, the legal brief, the projector's pamphlet, the encyclopedia, and the calendar. When it assumes a less accommodating form it always exploits only those aspects that serve its own end; when it does not find those aspects in the form parodied it superimposes them" (*The Fictions of Satire* [Baltimore: Johns Hopkins University Press, 1967], 5). For good treatments of Huxley as a satirist, see Peter Edgerly Firchow, *Aldous Huxley: Satirist and Novelist* (Minneapolis: University of Minnesota Press, 1972) and Jerome Meckier, *Aldous Huxley: Satire and Structure* (London: Chatto and Windus, 1969).

31. Dustin Griffin describes this feature of the satiric tradition, calling the genre "open-ended" and "resistant to formal closure" (*Satire: A Critical Reintroduction* [Lexington: University Press of Kentucky, 1994], 5).

32. Aldous Huxley, *Those Barren Leaves* (1925; rpt., Champaign, IL: Dalkey Archive Press, 1998), 46.

33. See Isaiah Berlin, "Isaiah Berlin," in *Aldous Huxley 1894–1963: A Memorial Volume*, ed. Julian Huxley (New York: Harper and Row, 1965), 144.

34. Huxley denied that Rampion was a portrait of D. H. Lawrence, writing to a correspondent: "Rampion is just some of Lawrence's notions on legs. The actual character of the man was incomparably queerer and more complex than that" (Huxley to Mrs. Mabel Dodge Luhan, *Letters of Aldous Huxley*, 340). Insofar as it is Rampion/Lawrence's ideas about science that are our concern, the accuracy of the sketch of Lawrence's character is of secondary importance.

35. Some commentators have seen Rampion's values as the touchstone of *Point Counter Point*. See David Bradshaw, "Modern Life: Fiction and Satire," in *The Cambridge History of Twentieth-Century English Literature*, ed. Laura Marcus and Peter Nicholls (Cambridge: Cambridge University Press, 2012); and Michael Rosenthal, "Isherwood, Huxley, and the Thirties," in *The Columbia History of the British Novel*, ed. John Richetti (New York: Columbia University Press, 1994). This notion is belied both by Huxley's comments on Lawrence's ideas and the portrayal of Rampion as blustering and dogmatic.

36. Fredric Jameson is only the most prominent recent critic to focus renewed attention on the genre of utopia and its relationship to dystopia. In *Archaeologies of the Future*, Jameson urges the importance of utopia as a “meditation on radical difference, radical otherness, and on the systemic nature of the social totality” (*Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* [London: Verso, 2005], xii). Following Moylan, he distinguishes between critical dystopias, dystopias, and anti-utopias, the last of which (typified by Orwell’s 1984), he sees as “informed by a central passion to denounce and to warn against Utopian programs in the political realm” (199).

37. Richard Chase, *The American Novel and Its Tradition* (Garden City, NY: Doubleday Anchor, 1957), 186.

38. Aldous Huxley, foreword to *Brave New World* (1946; rpt., New York: Bantam, 1955), vii–xiv, ix–x.

39. Squier traces the concept of ectogenesis to the trio of Haldane, Julian Huxley, and Aldous Huxley, and she assesses its positive and negative implications for women (*Babies in Bottles*).

40. James Sexton points out that the name Bokanovsky is most likely an allusion to Maurice Bokanowski, a “high-profile advocate of the rationalization of industry” like “his counterpart [Alfred] Mond in England,” the source for name of the World Controller, Mustapha Mond (“Aldous Huxley’s Bokanovsky,” *Science Fiction Studies* 16 [1989]: 85).

41. Aldous Huxley, *Brave New World* (1932; rpt., New York: Bantam, 1955), 137.

42. Two of the most prominent opponents of cloning—Leon Kass and Francis Fukuyama—devote much of the first chapters of their respective books about the dangers of biotechnology to simplistic, historically uncontextualized readings of *Brave New World*. See Leon R. Kass, *Life, Liberty and the Defense of Dignity: The Challenge for Bioethics* (San Francisco: Encounter Books, 2002), and Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (New York: Farrar, Straus and Giroux, 2002).

43. Aldous Huxley, “The Modern Spirit and a Family Party,” in *Complete Essays*, ed. Robert S. Baker and James Sexton, vol. 1, 1920–1925 (Chicago: Ivan R. Dee, 2000), 33.

44. See Raymond Williams, *Resources of Hope: Culture, Democracy, Socialism* (London: Verso, 1989).

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