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Julian Huxley, Evolutionism and the History of Transhumanism

Ingrid Dunér



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Humanity is at a crossroads in its history, precariously poised between mastery and extinction. The fast-developing array of human enhancement therapies and technologies (e.g., genetic engineering, information technology, regenerative medicine, robotics, and nanotechnology) are increasingly impacting our lives and our future. The most ardent advocates believe that some of these developments could permit humans to take control of their own evolution and alter human nature and the human condition in fundamental ways, perhaps to an extent that we arrive at the “posthuman”, the “successor” of humanity. This series brings together research from a variety of fields to consider the economic, ethical, legal, political, psychological, religious, social, and other implications of cutting-edge science and technology. The series as a whole does not advocate any particular position on these matters. Rather, it provides a forum for experts to wrestle with the far-reaching implications of the enhancement technologies of our day. The time is ripe for forwarding this conversation among academics, public policy experts, and the general public. For more information on Palgrave Studies in the Future of Humanity and its Successors, please contact Phil Getz, Editor, Religion & Philosophy: phil.getz@palgrave-usa.com.

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Julian Huxley's opinion of theses in the humanities was that they "too often pretended to be scientific, flooding the learned market crammed with unimportant literary or historical details."¹ I can only wonder what he would have thought of this one.

It has been a wonderful but arduous—sometimes even terrifying—process, writing this book. Nearing the finish line, I was inclined to agree with Huxley's opinion of theses in the humanities. I considered scrapping it altogether and never looking back. But then I didn't, and here we are.

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¹Huxley 1971: "The Crisis in Man's Destiny," 414.

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CHAPTER 1

Introduction

“I believe in transhumanism”: once there are enough people who can truly say that, the human species will be on the threshold of a new kind of existence, as different from ours as ours is from that of Peking man. It will at last be consciously fulfilling its real destiny.
Huxley 1957: “Transhumanism,” 17.

1.1 LOOKING BACK AT FORWARD THINKING

Humans have the wonderful and fearsome ability to imagine the future. Through the use of this imaginative power the human mind can create worlds, existences, times to-be. It can, however, only do so from its situation in the present, which is why future visions often reveal more about what is and has been than about what is to come. Human understanding of the future is temporary and ever-changing, and, in that sense, there are many different kinds of futures. This study explores ideas about humankind’s evolutionary future and the longing to overcome human limitations. It delves into ideas about what humanity is, and dreams of what it could be.

On a gloomy February day in 1951, the British evolutionary biologist Julian Huxley (1887–1975) sat down and sketched out an idea for what he called a new religion for the future. He wanted it to convey his evolutionary scientific thinking but retain a spiritually transcendent message.

He wished for it to express some of his felt frustration, but still be optimistically progressive. He chose to call it Transhumanism.

This curious vision was far from a one-time whim on Huxley's behalf. He would use the sketch in a public lecture that same year, and later in a collection of essays in 1957. Huxley gained authority in the professional field in the 1920s and by the 1930s had become a famous statesman of science, whom the readers of *The Spectator* listed above Bertrand Russell (1872–1970) and Ernest Rutherford (1871–1937) in a list of “Britain’s five best brains.”¹ During his lifetime, Huxley wrote hundreds of articles and books on popular science and was well recognized in public settings. He was one of the founders of the modern evolutionary theory and the biologist responsible for *Evolution: The Modern Synthesis* (1942), the book that worked together an organism study of evolution with mathematical population genetics. After the Second World War, he engaged as one of the founders and the first Director General of United Nations Educational, Scientific and Cultural Organization (UNESCO).

Huxley was on a mission to apply an evolutionary perspective on the human past and humankind’s possible future. Through the 1930s to the 1970s, the promotion of a scientific evolutionary humanism and later “transhumanism” became a known characteristic of him. To be sure, he was spinning a worldview. The worldview appeared to proclaim nothing less than that it was humanity’s destiny to be the agent of further evolution.² Humans should be working to contribute to what he referred to as the “creative self-transformation” of human beings.³

While Huxley experienced resistance to his ideas toward the end of his career in the changing social and political atmosphere of the 1960s and 1970s, transhumanism in a new version—here referred to as transhumanism 2.0—developed into an intellectual and social movement. Contemporary transhumanists typically do not refer to Huxley at length when speaking of their history, whereas a few academics have pointed to a connection between Huxley and contemporary transhumanist endeavors. One might say that the history of transhumanism is contested. To be more precise, there are three recurring interrelated problems that can be summarized in the questions: How does Huxley’s transhumanism develop and

¹ Statesman of science is an epithet borrowed from Waters & Van Helden (1992); Kevles (1992, 241); Erlingsson (2009).

² Huxley 1957: “Transhumanism,” 13–14.

³ Huxley 1957: “Knowledge, Morality, and Destiny,” 262.

what is Huxley's role in the history of transhumanism? How should the transhumanist project be understood in relation to earlier projects of human enhancement? What is a more precise historical context of transhumanism?

This study proposes to answer these questions by analyzing Huxley's transhumanism, how it develops, and, more importantly, why it does at this particular point in time, by placing it firmly within the context of his specific scientific and sociopolitical milieu, starting roughly in the interwar years and stretching over the Second World War to the 1970s. Continuing, the study will then focus on the new transhumanists of the 1970s, 1980s, and 1990s and investigate possible continuity in mode of thinking. This will contribute to a more coherent understanding of transhumanism, its history and of modern projects of human enhancement.

The working hypothesis is that transhumanism could be regarded as a sociotechnical imaginary that took shape in the mind of Huxley and later gained status as a collectively held and performed vision of the future. The study will argue that transhumanism exhibits the expression of a particular set of key components or ideas that are dependent upon a post-Darwinian evolutionism, experimental biology and medicine, and existential issues raised by Darwinism and modernity.

By examining Huxley as one of the architects of ideas regarding humanity's growing power to shape its own future and evolution, the study draws together scholarship from apparently independent academic spheres, engages with the history of underlying and supporting ideas behind projects of human enhancement, and thus contributes to the fields of history of evolutionary biology, the history of post-Darwinian evolutionism, the history of the future and the history of transhumanism.

1.1.1 *Transhumanism*

Transhumanism today is defined as a philosophy and a social movement that affirms the possibility and desirability of fundamentally improving the human condition by means of science and technology. Transhumanists seek the continuation and acceleration of the evolution of intelligent life beyond its currently human form and human limitations.⁴ A wide range of

⁴ Compare More et al. *Transhumanist FAQ*; Transhumanist FAQ Live; the Humanity+ website; More 2011: "True Transhumanism," 137; Bostrom 2003: "Human Genetic Enhancements," 493.

views falls under its label, but transhumanism generally promotes a modern scientific evolutionary worldview and the idea that human life is not a fixed, immutable essence of humanity. Instead, humanity is in a process of ongoing transformation, and humankind is free to determine its own evolutionary future through conscious evolution and the use of science and technology, possibly reaching a posthuman stage.

Since a transhumanism arose in the mid-1970s, this philosophy, technological pursuit and way of thinking about the human condition have inspired a wide array of individuals, from philosophers and politicians to venture capitalists and cryonicists.⁵ Areas of transhumanist inquiry and pursuit can range from humble but fervent leaps into the “quantified self”-movement, over the incorporation of technology within human bodies or the addition of prosthetic extensions to the body, to general enthusiasm about gene editing techniques and reproductive technologies, all the way to seeking ways of eradicating death.⁶ Transhumanism has been described as a significant sociocultural movement. More importantly, a transhumanist discourse and perspective on human beings affects mainstream thinking in our contemporary technoculture. The transhuman idea of using science and technology for the enhancement of humankind is now part of a much larger cultural imagination.⁷

Contemporary transhumanism has also inspired a lively debate and a growing body of scholarly work. This scholarship and debate has primarily focused on the contemporary philosophical, bioethical, political, and theological significance of the ideas heralded by transhumanism. Perhaps the richest engagement with transhumanism has come from philosophy and theology, because this literature has often discussed the ethical and philosophical implications of the prospect of human self-modification.⁸

⁵Contemporary transhumanist projects and organizations include The World Transhumanist Association (1998, now Humanity+), and the Institute for Ethics and Emerging Technologies. Transhumanist ideas have inspired the founding of the Singularity University at NASA’s Ames Research Center (funded by Google) and Oxford’s former Future of Humanity Institute.

⁶Other important contemporary transhumanist themes include questions regarding space colonization and artificial intelligence, motifs that lie mostly outside of the scope of this study.

⁷Farman (2012, 1071); Burdett (2015, 47); Pilsch (2017, 4); MacFarlane (2020); Huberman (2021, 3); Mercer & Trothen (2021, 21).

⁸Miller & Wilsdon (2006b); Agar (2007a, 2010); Fuller (2011); Hansell & Grassie (2011); Cole-Turner (2011); Blake, Molloy & Shakespeare (2012); Tirosh-Samuelsan & Mossman (2012b); Fuller (2012); Lilley (2013); Fuller & Lipinska (2014); Mercer & Maher (2014); Burdett (2014, 2015); Hauskeller (2016); Hall (2016); Tirosh-Samuelsan &

1.2 PREVIOUS RESEARCH: HISTORIES OF TRANSHUMANISM

“Today has vanished almost completely in our enormous preoccupation with tomorrow,” wrote H. G. Wells in 1939.⁹ It could be added that our preoccupation with tomorrow also tends to make us forget about yesterday. Nevertheless, today’s transhumanism has its antecedents. There is, however, little written about the history of transhumanism. In 2012, intellectual historian Hava Tirosh-Samuels and biologist Kenneth L. Mossman pointed out that a full history of the transhumanist movement was a desideratum.¹⁰ There are still surprisingly few direct attempts to write a history of transhumanism and its relation to any more specific historical context. Considering its impact on contemporary culture, a detailed study of the history of transhumanism is overdue.

Huxley is usually credited for coining the term transhumanism in the English language, but there is a general uncertainty regarding how his transhumanism should be interpreted and how it relates to transhumanism 2.0. Huxley is seldom mentioned as having had influence on a contemporary transhumanist debate. Historian of science Alison Bashford, who is among the very few who have analyzed Huxley’s transhumanism and who has been an important source of inspiration for this study, has rightly pointed out that Huxley is strangely absent from transhumanist scholarship, and from the transhumanist debate at large.¹¹

Huxley is not entirely absent, however. In an article of 2006, writer Greg Klerkx proposed speaking of contemporary transhumanism as transhumanism’s “third wave.” Klerkx summarily identified the first wave of transhumanism in what he alluded to as the “revolution in biological

Hurlbut (2016); Mazarakis (2016); Deretic & Lorenz Sorgner (2016); Mercer & Trothen (2017); Le Dévédec (2018); Evans (2018); Donaldson & Cole-Turner (2018); Lee (2019b); Bayram (2019); Manzocco (2019); Frodeman (2019); MacFarlane (2020); Fuller (2020); Moatti (2020); Blackford (2021); Huberman (2021); Krüger (2021); Mercer & Trothen (2021); Tumilty & Battle-Fisher (2022).

⁹Wells 1939: *Fate of Man*, 66.

¹⁰Tirosh-Samuels & Mossman 2012a: “New Perspectives on Transhumanism,” 29.

¹¹Bashford (2013, 155). The only other direct attempt to examine Huxley’s transhumanism was done by Rafael Monterde Ferrando 2020: “El Transhumanismo de Julian Huxley: Una Nueva Religión Para la Humanidad.” Ferrando’s article can be seen as an introduction to Huxley’s transhumanism essay in the Spanish language. A brief but interesting discussion of transhumanism can also be found in the epilogue of Deese (2015).

science” around the beginning of the twentieth century.¹² Building on Klerkx, Wrye Sententia later proposed that transhumanism’s “first wave” had started with Huxley coining the term but did not explore the issue further.¹³

In *Transhumanism. Evolutionary Futurism and the Human Technologies of Utopia* (2017) the English scholar Andrew Pilsch, who argues that the rhetoric of transhumanism is a relevant rhetoric of utopia today, claimed that Huxley was the first who suggested what Pilsch refers to as “evolutionary futurism” under its modern name, transhumanism.¹⁴ Philosopher Stefan Lorenz Sorgner has referred to Huxley as “the intellectual founder of transhumanism.”¹⁵ Historian Chris Renwick has also mentioned in passing that Huxley may be considered one of the founders of the modern doctrine of transhumanism.¹⁶

Social philosopher Steve Fuller has pointed to a connection between Huxley and contemporary transhumanist endeavors on several occasions.¹⁷ In their book on the philosophy of transhumanism, Fuller and Lipinska not only provided a comprehensive intellectual basis for transhumanism as a progressive movement today, but also acknowledged Huxley along with other historical names as important for the understanding of the history of transhumanism.¹⁸

¹² Klerkx (2006, 61–63).

¹³ Sententia (2013, 356, 359 note).

¹⁴ Pilsch (2017, 128). Pilsch’s book is a partial rework of his dissertation in English from 2011, see Pilsch (2011). Methodologically, Pilsch views transhumanism as a rhetorical mode that predates the mid-1970s organization of transhumanism into a coherent movement and searches for literary “evolutionary futurist tropes.” He enacts a series of conversations between contemporary transhuman philosophy and what he identifies as a larger, older body of evolutionary futurist rhetoric. Pilsch thus takes earlier thinkers and ideas not classically hailed as transhuman but argues that their ideas are key to the emergence of contemporary transhumanism (11–13, 25). The computer scientist John von Neumann was, according to Pilsch, “involved in the rhetorical work of transhumanism” before transhumanism. He also discusses “Mina Loy’s transhumanism” and “P. D. Ouspensky’s transhumanism,” among others, although they never used that word and could not have been familiar with the concept. Pilsch finds the rhetorical tropes of evolutionary futurism in numerous—and sometimes surprising—places in twentieth-century intellectual history, such as in avant-garde modernism, early science fiction, post structural philosophy and in biology (12).

¹⁵ Sorgner (2020, 40).

¹⁶ Renwick (2016, 162).

¹⁷ For example Fuller (2011); Fuller (2020).

¹⁸ Fuller & Lipinska (2014, 64–65, 91 ff.)

Professor of religious studies Oliver Krüger considered transhumanism in connection to his wider aim to understand and explain how the posthumanist idea of immortality emerged and developed around the turn of the twenty-first century, with an exclusive focus on technological posthumanism.¹⁹ In a chapter discussing contemporary transhumanism, Krüger included Huxley as an intellectual predecessor. Like Bashford, Krüger observed that “a reflected appreciation of his contribution [...] has so far been neglected.”²⁰

On the occasions when historians and historians of science have engaged with transhumanism, the focus has been on pointing out its implied or stated ties to a longer twentieth-century history of eugenics. In these cases, Huxley has been used to enact a conversation between contemporary transhumanism and a historically situated eugenics project.²¹ It is not difficult to see why such an endeavor may be embarked upon. Besides coining the term transhumanism, Huxley was one of the most prominent biologists to participate in the eugenics project, and this involvement endured. He was a Fellow of the Eugenics Society from 1925, on its Council from 1931, its Vice-President 1937–1944, and, finally, its President in 1959–1962.

Historian of medicine Paul Weindling—albeit not writing about transhumanism—remarked on the continuity of eugenics in Britain in the twentieth century and suggested treating Huxley as a crucial bridging figure between older eugenics and new “eugenics” based on molecular biology.²² On a similar note, according to Bashford, the trajectory between eugenics and more contemporary projects of human enhancement has been insufficiently analyzed.²³

In her article on Huxley’s transhumanism, Bashford has argued that there is a clear connection between Huxley’s transhumanism and more contemporary transhumanist projects. She relates this to a continuity of eugenic thought and used Huxley to demonstrate a more complex and divergent view of the history of eugenics, as a project that could take not

¹⁹ Krüger (2021, 20).

²⁰ Krüger (2021, 66), see also 63–64.

²¹ Sparrow (2011); Weindling (2012). For more specific analyses of Huxley’s endorsement of eugenics, see Hubback (1989); Allen (1992); Barkan (1992b).

²² Weindling (2012).

²³ Bashford (2013, 153).

only right-wing totalitarian forms but also manifest as a mode of liberal governmentality.²⁴

Bashford's main argument was that a contemporary transhumanist self-story involves eugenics disappearing, but that the (only) real difference between Huxley's project and a contemporary transhumanism is the place of the individual, with transhumanism post-Huxley having veered toward a liberal or even neoliberal stance.²⁵ Bashford's brief comparison between Huxley's transhumanism and modern-day versions of the ideology suggested to her that "there is a long-twentieth-century history of enhancement, eugenics and transhumanism waiting to be written, book-ended by the work of two philosophers, Nietzsche's *Übermensch* and Nicholas's *Liberal Eugenics*."²⁶

In contrast to Bashford, Pilsch (whose abovementioned book otherwise did not focus on Huxley) has instead claimed that Huxley's "transhumanism essay" is the first moment at which the individual becomes the central unit of transhuman evolution.²⁷ Pilsch argued that Huxley is partly responsible for what to Pilsch is the elitist and "ego-driven, hyperindividualist model of transhumanism that functions in the hedonism of [philosopher David] Pearce or the neoliberal Singularitarianism of Raymond Kurzweil."²⁸

Tirosh-Samuelsón has claimed that the origins of the idea of transhumanism can be traced back to the 1920s and 1930s and proposed that transhumanism was a key concept of a new intellectual framework for Huxley. She suggested calling Huxley, J. B. S. Haldane (1892–1964), and J. D. Bernal (1901–1971) the three "prophets of transhumanism." By doing so, she implied that they articulated ideas in the 1920s that have become prominent in a contemporary transhumanist movement.²⁹

²⁴ Bashford (2013, 166); see also Paul (2005, 125–26).

²⁵ Bashford (2013, 162 ff.)

²⁶ Bashford (2013, 153). More recently, Ferrando—much like Bashford before him—again suggested that Huxley's philosophy was continued by the first founders of the transhumanist movement and pointed out similarities between the eugenics movement and today's transhumanism, in a short article in Spanish, see Ferrando (2021).

²⁷ Pilsch (2017, 128–30).

²⁸ Pilsch (2017, 132). Unfortunately, Pilsch did not elaborate to further support these claims. Pilsch refers to Huxley's essay "Transhumanism" (1957) and to Huxley's foreword to Teilhard de Chardin's *Phenomenon of Man*, see Pilsch (2017, 114 ff.)

²⁹ Tirosh-Samuelsón (2011, 20–21).

Tirosh-Samuelsan's point was not, however, to analyze Huxley's transhumanism in and of itself, nor to write a history of transhumanism.³⁰

Whereas a few accounts have thusly insisted that there are connections between Huxley and contemporary transhumanism, and several have claimed that this connection concerns eugenics, other interpretations question Huxley's role. Rhetorician Nasser Zakariya, in tracing some of the conceptual genealogies attested to transhumanism, has emphasized that there are varied possible meanings of transhumanism. He suggested that the "trans-" Huxley had in mind in relation to his transhumanism did not, in contrast to modern versions, refer to a desire to reach a posthuman stage, but instead "tended to signal transcendence of national, cultural, and ethical boundaries of disciplines of knowledge and specialization, [...] transcending stymieing constraints, though without celebrating endless human plasticity or the death of individual death."³¹ Similarly, the article on transhumanism in *Encyclopedia Britannica* states that Huxley's transhumanism was principally concerned with advancing the human condition through social and cultural change, in contrast to modern versions.³²

Philosopher Nick Bostrom has stated that transhumanist themes were discussed and analyzed chiefly in science fiction literature after the Second World War. Bostrom consistently credits Huxley for having coined the term but has made no further effort to explore Huxley's ideas.³³

Transhumanist philosopher and pioneer Natasha Vita-More only briefly mentions Huxley in her article "History of Transhumanism," since she has claimed that Huxley's transhumanism has little or nothing to do with modern transhumanism.³⁴ Elsewhere she has called the suggested connection between Huxley and the contemporary philosophy of transhumanism a "misunderstanding" and a "misconception."³⁵ In Vita-More's and Max More's *Transhumanist Reader: Classical and Contemporary Essays on the*

³⁰Tirosh-Samuelsan has written considerably about contemporary transhumanism and its relation to eschatology, environment, philosophy, and religion. She approaches the subject from a predominantly critical perspective and has emphasized what she views as transhumanism's eugenic and eschatological heritages for the purpose of engaging in a contemporary debate. See also Tirosh-Samuelsan & Hurlbut (2016).

³¹Zakariya (2016, 277).

³²Ostberg (2023).

³³Bostrom (2005c), "A History of Transhumanist Thought," 7.

³⁴Vita-More (2019, 51).

³⁵Vita-More (2013), "Aesthetics," 25 note.

Science, Technology, and Philosophy of the Human Future (2013), Huxley's essay "Transhumanism" was not among the 40+ essays in the book.

In transhumanist philosopher Max More's paper on the history of the movement of transhumanism, More has credited Huxley for having been one of the first to use the term "transhumanism." More continued, however, by claiming that "[Huxley] did not develop this evolutionary view into a philosophical position [...]"³⁶

In her history of transhumanism, which includes a detailed account of the transhumanist personages of the 1980s and 1990s, modern historian Elise Bohan considered contemporaries of Huxley—such as J. B. S. Haldane and J. D. Bernal—but chose not to discuss Huxley. According to Bohan, Huxley may have been the first thinker to use the word transhumanism in something akin to its modern sense, but Huxley did not develop or outline any core ideas of the modern transhuman ethos. The suggested link between Huxley's use of the term transhumanism and the emergence of modern transhumanist movements and ideas is, Bohan wrote, an "error" and "definitely not the case."³⁷

Besides the uncertainties revolving around Huxley's transhumanism, his role in the history of transhumanism, and the relationship between eugenics and transhumanism, there appears a general problem of emergence and of historically situating transhumanism.

When a historical perspective has been brought to transhumanism, many accounts have tended to be broad and sweeping, emphasizing the old, at times close-to eternal nature of the transhumanist quest. Establishing that the core idea of transhumanism concerns an age-old and universal effort of expanding the boundaries of the human condition (be it toward immortality, supreme health, or happiness) opens the possibility of a very, very long chronicle of events and predecessors. With such a broad definition, a history of transhumanism could—and often does—include everything from King Gilgamesh and ancient burial practices to Renaissance humanism, the Enlightenment, Shelley's *Frankenstein*, and science fiction.³⁸

³⁶ More 2013: "The Philosophy of Transhumanism," 8.

³⁷ Bohan (2018, 90, 351–52). Bohan builds this conclusion on More's and Vita-More's remarks.

³⁸ The mythical figure of Prometheus is another frequently claimed forefather of transhumanism. See, for example, Hughes (2004); O'Connell (2017); Manzocco (2019); Fillard (2020, 4).

This approach is favored especially in popular as well as in internalist accounts of the history of transhumanism. Sociologist James Michael MacFarlane has aptly noted that literature written by contemporary transhumanists reveals a strategic use of narrative in histories of the movement, claiming antecedents which vastly predate transhumanism's formalization into an organized movement.³⁹

In the article “A History of Transhumanist Thought,” Bostrom emphasized transhumanism's roots in rational humanism. Many transhumanists further highlight the connection between their project and the humanism of the Renaissance, the Scientific Revolution, and the Enlightenment.⁴⁰ Indeed, Max More has suggested dropping the Western traditional but outdated Christian calendar for a new one in which year zero would be the year in which Francis Bacon's *Novum Organum* (1620) was published.⁴¹

Several (non-transhumanist) academic accounts of transhumanism have also utilized the long-durée perspective. Bohan has traced the roots of transhumanism back to what she refers to as “proto-transhumanist thinking,” found during the Scientific Revolution and within the Enlightenment project: “Transhumanist projects of human enhancement are arguably continuous with all past forms of technological innovation, and the many transcendental aspirations in human history that are apparent in pursuits like art, religion, and alchemy.”⁴²

From a posthumanist perspective, English scholar Cary Wolfe was skeptical of transhumanism on the grounds that he saw it as directly derived from ideals of human perfectibility, rationality, and agency inherited from Renaissance humanism and the Enlightenment.⁴³ Sociologist Paul Jorion has suggested calling transhumanism “the Enlightenment recovered.”⁴⁴

Historian of science Roberto Manzocco has claimed that transhumanist ideas have existed “since the very beginning of written history.”⁴⁵ In anthropologists Alan and Josephine Smart's account, the earliest hominids that adopted fire and tools were engaged in a kind of “ancient

³⁹ MacFarlane (2020, 25–26).

⁴⁰ Bostrom (2005c); Dustin (2014); More 2013: “The Philosophy of Transhumanism.”

⁴¹ More 2011: “True Transhumanism”; see also Vita-More (2019).

⁴² Bohan (2018, 13). Bohan argues that true transhumanism came into existence in the 1980s, 147 ff.

⁴³ Wolfe (2009, xiii).

⁴⁴ Jorion 2022a: “Introduction,” 13.

⁴⁵ Manzocco (2019, vii).

transhumanism.”⁴⁶ Science and Technology Studies scholar Sheila Jasanoff, who on this occasion used posthuman and transhuman interchangeably, has claimed that “humanity’s dreams of the future have always been posthuman.”⁴⁷

Theologian Michael Burdett, who has written a short history of how something like transhumanism could have come about, chose a somewhat more restricted but still broad approach. He traced the origins to figures such as Francis Bacon and N. F. Fedorov, to themes such as science fiction and technological imaginations in general.⁴⁸

MacFarlane’s sociological study of transhumanism as a social movement gives an excellent account of the organization of transhumanism in the 1980s and going forward. MacFarlane observed that modern-day transhumanism positions itself as “essentially an intensification of Renaissance humanist ambitions for the cultivation of human virtue, coupled with an unwavering faith in Enlightenment values such as self-determination, rationality and progress.” Examining transhumanism as a social movement, MacFarlane himself holds that explicit programmatic renderings for what should constitute transhumanist-type activity did not occur until the closing decades of the twentieth century.⁴⁹

In summarizing this review of previous research on the history of transhumanism, it is possible to identify three recurring interrelated problems. The first problem concerns Huxley’s contested role in the history of transhumanism, stemming in part from uncertainties regarding what Huxley’s transhumanism was and how it should be interpreted. The second problem concerns the relationship between eugenics and transhumanism, where an older historically situated eugenics project is often brought to a modern debate in order to criticize contemporary transhumanism, even though the connection between transhumanism and eugenics is not clearly established. The third problem, finally, regards the question of emergence and the historical context of transhumanism: Many accounts have taken

⁴⁶ Smart & Smart (2017, 3).

⁴⁷ Jasanoff (2016, 73).

⁴⁸ Burdett addresses the question of technology and the future from a Christian tradition and discusses transhumanism in relation to a Christian understanding of the future. He asks how Christians have thought about and constructed the technological future. Among the individuals Burdett has studied is Teilhard de Chardin, see Burdett (2015, 1, 11); see also Burdett (2011).

⁴⁹ MacFarlane (2020, 27–28).

the shape of overviews and claim antecedents that vastly predate both the coinage of the term transhumanism and its formalization into a contemporary movement.

1.3 QUESTIONS, PROPOSITION, AND AIM

The three problems identified in the summary of previous research above can be reformulated into questions: How does transhumanism develop in Huxley's thinking and what is Huxley's role in the history of transhumanism? How should the transhumanist project be understood in relation to earlier projects of human enhancement? What is a more precise historical context of transhumanism?

This study aims to historicize transhumanism and proposes that these questions can be answered by analyzing Huxley's transhumanism, how he developed it, and why he would see the need to create and promote it at this particular point in time. It is not only the event itself that is of interest ("Huxley coined the word transhumanism"), but why the event took place in light of context. And not only why, but how what was said was meant and what it came to mean. Historicizing transhumanism will, by extension, make transhumanist ideas discernible across time. Additionally, this will enable answering the question of how transhumanism 2.0 relates to earlier projects of human enhancement. The working hypothesis is that Huxley not only coined the word transhumanism but played a role in fashioning the mode of thinking that is transhumanism, or what will here be referred to as a sociotechnical imaginary.

1.4 THEORY AND METHOD

1.4.1 *Sociotechnical Imaginaries and Vanguard Visions*

This study proposes to view transhumanism as a sociotechnical imaginary. Sociotechnical imaginaries are "collectively held and performed visions of desirable futures."⁵⁰ They are given life through shared understandings of forms of social life attainable through, and supportive of, advances in science and technology.

Sociotechnical imaginaries capture how scientific and technological development in relation to society and social order shapes images and

⁵⁰ Jasanoff 2015a: "Future imperfect," 19.

expectations of the future and of what future is desirable. Equally important, sociotechnical imaginaries also express worries and fears about the social, technological, and scientific development. Visions of desirable futures can correlate with the obverse—fears of the adverse effects of science and technology or fear of the failure to innovate.⁵¹

Imaginaries exist in the minds of people, but that does not mean they are “unreal” or “illusory.” They can be associated with action and with materialization through technology, and in that sense covers the coproduction of ideas, technoscientific projects, social constellations and politics.

Viewing transhumanism as an imaginary thus enables, in the first, historically situating it and, in the second, capturing the multi-faceted nature of transhumanism in a way that other epithets perhaps cannot. Characterizing it as a philosophy risks missing some of the material and practical aspects of transhumanism, while referring to it as an ideology may exaggerate its political connotations and connections to power. Viewing it as a social movement suggests a focus on group action and on the organizational side of things, and to speak of a transhumanist discourse implies a focus on language. Additionally, viewing transhumanism as a sociotechnical imaginary also enables a tracing of origins, as will be explained below.

Originally, STS scholars Sheila Jasanoff and Sang-Hyun Kim developed the concept of sociotechnical imaginaries to focus on nation-states and how “they” envision technoscientific developments.⁵² Later, the concept was expanded to include imaginaries articulated and enacted by corporate actors, research communities, civil society, and other organized groups.⁵³

In 2015, Jasanoff—otherwise not inclined to advocate traditional intellectual history—claimed that “sociotechnical imaginaries *can originate in the visions of single individuals or small collectives*, gaining traction through blatant exercises of power or sustained acts of coalition building.”⁵⁴

A year later, Jasanoff appeared to revoke her previous invitation for the individual to play a role within the sociotechnical imaginary. She now wrote that it was of key importance to note that imaginaries are collectively held. They, she wrote, “cannot be the brainchild of a single

⁵¹ Jasanoff 2015: “Future imperfect,” 4–5.

⁵² Jasanoff & Kim (2009).

⁵³ Mager & Katzenbach (2021).

⁵⁴ Jasanoff 2015: “Future imperfect,” 4. My italics.

individual or small group” but “must reach beyond individual minds and sufficiently permeate through society to motivate collective projects for making these visions practicable.”⁵⁵

This statement introduces unnecessary vagueness to the concept. It raises the question of origins. Where do sociotechnical imaginaries come from if they cannot be the brainchild of a single individual or small group? The imaginary had to be gaining traction before becoming collectively held. As Jasanoff herself had stated earlier, individual dreams can acquire collective force, in particular when key actors mobilize the resources for making their visions durable.⁵⁶

Previous scholars have shown that analyzes of individual visions in relation to or as originators of sociotechnical imaginaries can be conductive. They have shown that a persuasive vision of the future, originating in the mind of an individual, can take hold in other minds and become a collectively held reference point and anchor for future projects.⁵⁷ Sociologist Stephen Hilgartner has suggested calling them “vanguard visions.” Individuals with vanguard visions not only have a vision but act intentionally to realize this particular sociotechnical vision of the future. When a vanguard vision becomes more communally adopted, it rises to the status of an imaginary. During this process, the vision may be subtly adjusted or changed through an ongoing process involving many actors.⁵⁸

Huxley had a vision, and if such vision can be “vanguard” and then rise to the status of collectively held objectives, it is of interest to clearly define it and trace Huxley’s method of argumentation, his use of symbolic, scientific, and cultural resources. As analytical concepts, the vanguard vision and the sociotechnical imaginary encourages inquiries into meaning making and attention to the means by which they “frame and represent alternative futures, link the past and the future, enable or restrict actions in space, and naturalize ways of thinking about possible worlds.”⁵⁹ Imaginaries of the future are produced within and determined by the scientific, social, and cultural context, which is why it is important to look at these contexts to understand what made a certain imaginary possible.

⁵⁵ Jasanoff 2016: “Perfecting the Human,” 83.

⁵⁶ Jasanoff 2015a: “Future imperfect,” 25.

⁵⁷ Storey (2015); Barker (2015).

⁵⁸ Hilgartner (2015, 34–35).

⁵⁹ Jasanoff 2015: “Future imperfect,” 24–25.

1.4.2 *Perennial Dreams Contextualized*

It is possible that humans have always, in one way or another, been committed to the future and desired to improve themselves and their situation. Judging by previous research, this is partly the reason why today's transhumanism has a contested or at least complicated definitional history.⁶⁰ Perhaps there is, in Fuller's and Lipinska's words, a *transhuman telos*—a tendency to improve upon, if not perfect, virtues—incipient in the human condition.⁶¹

If transhumanism is about humans striving to improve themselves in general or about expanding the boundaries of the human condition, then all of human history is “transhuman.” The question of whether it is makes for an interesting philosophical discussion, but such a view arguably gives rise to a problem when writing a history of transhumanism.

Instead, viewing transhumanism as first a potential vanguard vision and then a sociotechnical imaginary enables regarding it as a document that reveals the sensibility of the historical time and society in which it appeared and was perpetuated. Although the vision and the imaginary may connect to what is essentially eternal problems, the solutions they suggest are historically determined.

Bashford has pointed to the usefulness of Huxley for the project of historicizing transhumanism.⁶² The study is driven by an interest in the roots of transhumanism—in what ideas, practices, words, and philosophical longings transhumanism was put in relation to—but proposes that, rather than searching for proto-transhuman ideas, we narrow down the scope of historical time during which it is fruitful to speak of transhumanist thought.

Transhumanism needs to be historicized. By that is meant that transhumanism needs to be understood in relation to a more precise historical context. This analysis is built on the assumption that transhumanism is something specific, that its inception is historically situated in a particular time and place, and that understanding this context is critical for comprehending the worldview.

Transhumanism was very much an intellectual stance for Huxley. That much is clear from just a cursory examination of his printed essays on the subject. He described transhumanism as a new idea-system, based on the

⁶⁰ See Pilsch (2017, 11).

⁶¹ Fuller & Lipinska (2014, 46).

⁶² Bashford (2013). See also discussion in Bashford (2022, 351–65).

notion of humanity attempting to overcome its limitations to arrive at fuller fruition. He stated that the truth of the transhumanist approach was larger and more universal than any previous truth and was bound in the long run to supersede lesser, or more distorted, truths, such as Marxism, or Christian theology, or liberal individualism.⁶³ Huxley clearly saw transhumanism as being more than just a word; he was actively trying to promote a vision.

Huxley did not conceive of the word transhumanism until 1951.⁶⁴ He appears, however, to have been interested in building an idea-system for a greater part of his life and had previously called it scientific- or evolutionary humanism. That said, it is important to not immediately view an earlier evolutionary humanism and the later transhumanism as exact synonyms. Huxley's vision likely developed over several decades and part of the task must be to examine how his evolutionary humanism relates to transhumanism, and whether there are any significant or subtle differences.

Therefore, it is necessary to examine what the steps were for Huxley toward formulating his transhumanism, and what happened during the course of the decades during which he was active that is important for understanding it, finding a coherent pattern in thinking of Huxley, while at the same time not overlooking developments, inconsistencies, and conflicts. This entails a sensitive reading of source material, with special attention paid to the connotations of words and recurrence of stock phrases.⁶⁵

The history of ideas and sciences are points of departure for this study. In relation to a study of the origins of a sociotechnical imaginary, it is important to underline that there is no true unidirectionality in the formation of an imaginary. An individual's vision can shape an imaginary or even the public imagination by constructing narratives into which they blend their expectations, beliefs, and fears of the future, but this same individual is simultaneously having his or hers convictions and fantasies shaped by a surrounding setting.

Although Huxley may have been a spreader of ideas, no man is an island: Huxley's ideas belong to a wider context and should have been part of a more general mode of thought during the period in which he was active. Huxley's vision therefore needs to be understood in relation to intellectual currents and themes circulating in his milieu, needs to be

⁶³Huxley 1957: "Knowledge, Morality, and Destiny," 260.

⁶⁴For a more detailed discussion, see Chap. 6.1.

⁶⁵Greene (1981, 23).

placed within the intellectual, scientific, and sociopolitical contexts and debates that framed his ideas and gave them coherent form. The intent is to move between the details of Huxley's thought and the broader context—the mental landscape—of his time and place in a British and an American setting, starting in the 1910s and spanning essentially over the entirety of Huxley's life, and to examine how he gave embodiment to circulating ideas and aspirations.

As mentioned, the history of transhumanism is still a desideratum. As the originator of the term in the English language, Huxley does constitute a part of transhumanist history, and it is here believed that a thorough investigation of Huxley's transhumanist ideas will contribute to a better understanding of this history. Above was forwarded the hypothesis that Huxley played a role in the formation of the mode of thinking that is transhumanism. Before claiming strong continuity or discontinuity in the history of transhumanist thought, however, there must first be a thorough examination of the particulars. A detailed analysis of Huxley's transhumanism per se, as well as an analysis of the formation of the new transhumanist movement, is necessary to then see in what ways Huxley's ideas are related to or relevant for the contemporary biopolitical debate and contemporary transhumanist thought.

1.4.3 *Evolutionary Visions of the Future*

In *Utopia and the Ideal Society* (1981), historian Colin Davis affirmed that the simplest and most common concept of utopia is that it is the human dream of a better world. Although such a definition is too vague to be analytically useful, it nonetheless pointed Davis to an immediate insight: utopia does not need to be in the future. Classical utopias are static and “nowhere” in place and time. If and when this study is at all concerned with utopian thinking, it will rather be related to what has been referred to as “modern utopias”—arising in the eighteenth century—that are concerned with “actualization in time.”⁶⁶ In other words, the kind of utopia that has (an imagined) future. It is a form of utopian thinking that is driven by the notion that society is capable of improvement and that sometimes contains plans for improving society.⁶⁷

⁶⁶ Davis (1981, 15).

⁶⁷ Davis (1981, 12–13).

“Modern utopias” and modes of thought advocating scientifically and technologically optimistic ideas regarding the perfectibility and future of humanity are often derived from the philosophy of the Enlightenment, with its belief in progress, reason, and rationality. Transhumanism, too, is frequently described as an Enlightenment successor.⁶⁸ This study suggests, however, that the Enlightenment tradition cannot satisfactorily account for the sociotechnical imaginary of transhumanism and will instead argue that transhumanism is a consequence of progressive evolutionism as well as of Darwinism, because it promotes an evolutionary way of thinking about, and uses biology to discuss, the future.⁶⁹

The theory of evolution by natural selection presented to the world by Charles Darwin in 1859 threw new light on time past, present, and future. Although evolutionism in various forms already existed, Darwin offered a radical, new approach to the subject and played a major role in getting the idea of evolution accepted. The theory established evolution as a process. Humankind not only originated from a non-human past but was also still in the ongoing process of evolution. The question “who am I and where am I going?” was put into a new context.

The “Darwinian revolution” and the new modes of thinking that followed in its path introduced new ways of arguing about the possibilities of the future of humanity, through affecting evolution. Ideas about the possible perfectibility of humankind were coupled with scientific understanding of evolutionary processes, heredity, and later genetics, to form a very hands-on-approach to affecting biology in a more pronounced way than ever before. For a great number of scientists, politicians, and scholars, starting in the mid-nineteenth century and stretching well into the twentieth century, the possibility of controlling human evolution and thereby anticipating the future seemed within grasp.

Huxley was, first and foremost, an evolutionary biologist. He was closely involved with and engaged in theoretical and experimental developments within the field of evolutionary biology. He is also an important figure in relation to what historian of science Peter Bowler has termed

⁶⁸ See Sect. 1.2 and Wolfe (2009, xiii); Lilley (2013, 46); Bohan (2018); Jorion 2022: “Introduction,” 13.

⁶⁹ In that sense it is, in Pilsch’s words, an “evolutionary futurism.” Pilsch refers to transhumanism as belonging to a tradition of long-view utopian unifying radical thought in the nineteenth and twentieth centuries, and a way of projecting a particular future through language, see Pilsch (2017, 3, 12–13).

post-Darwinian evolutionism.⁷⁰ Post-Darwinian evolutionism is here used to mean evolutionary thought developed after Darwin. Post-Darwinian evolutionism can include ideas that would not be termed Darwinian in the strict scientific sense of the word, as well as ideas that tended toward opposition to some of the perceived implications of Darwinism.

1.4.4 *The Existential Dimension*

Huxley called his transhumanism a “religion of the future.” Incidentally, theologian commentators today have charged contemporary supporters of transhumanism with merely replacing one system of faith with another.⁷¹ We must be careful, however, to label a thing before having examined it. Huxley may have spoken of a religion of the future, but this tells us little of his view of religion or of why he saw a need for it.

Huxley was among those who publicly discussed the wider problems of life and the future. He was included in Alban Widgery’s *Contemporary Thought of Great Britain* (1927), with the motivation that he made attempts beyond “mere specialism” to formulate more general conceptions in connection to the wider problems of existence.⁷²

It is important to acknowledge the existential dimensions of science. Historian of science Betty Smocovitis has pointed out that existential concerns should be most apparent in sciences like evolution, and has argued for a reawakened sensitivity to these more philosophical questions: “The science emerges from, and is inextricably linked to, other, more humanistic, cultural concerns that serve existential and aesthetic needs, [...] in the way of being an expression of humanistic desires; that it may be part of a culturally embedded belief system from which groups have derived values, seems to have been forgotten [...]”⁷³

Smocovitis encourages emphasis on “the narrative worlds, discursive mentalities,” or “the *perspective* of the scientists.”⁷⁴ Smocovitis has also observed that evolutionary biology has clear representational and narrative practices. Because of a historically relatively limited use of material or

⁷⁰ Bowler (1977).

⁷¹ See Pilsch (2017, 6); Evans (2018, 73).

⁷² Widgery (1927, 70–79).

⁷³ Smocovitis (1996, 86). For an analysis of the use of romantic tropes in popular science and of the emphasis of the mythic qualities and existential relevance of science, see Helsing (2019).

⁷⁴ Smocovitis (1996, 81, 86).

instrumentally determined evidence, textuality and narrativity is a transparent feature of the science of evolution.⁷⁵

Remembering again the concepts of the vanguard vision and sociotechnical imaginary, they not only project hopes and expectations of the future but can also express worries and fears about the technological and scientific development (and its wider connection to social development). To further historicize transhumanism, the analysis will identify perceived problems in Huxley's time, problems in relation to which his transhumanism was to be a solution. Essentially, it entails discovering what the issues were that motivated the need for Huxley's vision, and what, exactly, it was that he hoped to see realized.

1.5 THE TUGBOAT: INTRODUCING HUXLEY

Huxley is described as having been cultivated, witty, and affectionate, but also self-centered, brusque, and impatient. He was passionate about evolution and had religious leanings. His friend the poet Stephen Spender characterized him as “very Victorian, except that he flouted respectability by talking about sex.”⁷⁶

In her autobiography, Huxley's wife Juliette portrayed him as a “tugboat to many unspoken, undefined ideas which, by his determined dedication, influenced our times.”⁷⁷ A tugboat is a fitting description. Huxley's life spanned over a large part of the twentieth century, and he can and has been seen as an important bridging figure between an older Victorian mindset and a modern one. He very much shared in the spirit of an age, the spirit of the generation that attained maturity in the decade preceding the First World War and that was exposed to many novel and startling ideas.

Due to writing the dystopian novel *Brave New World* (1932), it is Julian's younger brother Aldous Huxley (1894–1963) who is the more mentioned of the two in relation to futuristic, bioethical, or transhumanist debates and scholarship. Julian has not attained the same legacy. Nevertheless, a good case could be made for the fact that he had an impact. He was certainly in a position to assert influence over his time and context. Many contemporary and similar-minded scientists were important

⁷⁵ Smocovitis (1996, 93).

⁷⁶ Spender (1986, 458).

⁷⁷ Huxley (1986, 166).

researchers and intellectuals but were not to the same extent program directors.

In contrast, Huxley was—and certainly believed himself to be—a program director. Writing most often for the public at large, with a good sense of form and drama, he was a spreader of ideas. Historian Chris Renwick has convincingly portrayed Huxley as an apt communicator with a “strong interest in building dialogue between the disparate parts of biology and the world beyond natural science.”⁷⁸ With his ties to the United States, he was transatlantic in his impact.

Huxley stemmed from a family of intellectual giants and belonged to the “intelligence aristocracy” of British society. This group—as defined by Noel Annan—was made up of a certain type of British middle-class family who, starting in the early nineteenth century, had begun to intermarry and produced teachers, scholars, and scientists who soon occupied posts all over the country, not in the least in Oxford and Cambridge. They were keepers of museums, secretaries of philanthropic or learned societies, journalists, or publishers, taking up work in accepted institutions and living a stable life: “They were the leaders of the new intelligentsia.”⁷⁹

When Julian was born to Leonard and Julia Huxley on June 22, 1887, he was arguably already famous, as the grandson of Thomas Henry Huxley (1825–1895), a colossus of science in the English-speaking world. Known as “Darwin’s bulldog,” T. H. Huxley had fiercely defended Darwinism and been an educator of science across the social structure. Julian’s maternal grandfather was the literary scholar Tom Arnold (1823–1900), his great uncle the poet Matthew Arnold (1822–1888). His great-aunt, Mrs. Humphry Ward (1851–1920), was the author of the nineteenth-century best-seller novel *Robert Elsmere* (1888).

Julian has described the family mindset, “with its implications of high but hard thinking, plain but fiery living, wide intellectual interest and constant intellectual achievement.”⁸⁰ By his heritage and position, he was expected to uphold a set of attitudes, and was elitist and competitive.⁸¹ He was resolutely ambitious. He also suffered repeated nervous breakdowns throughout his life. The mental collapses would affect his ability to hold a long-term post. Juliette Huxley has written of her husband’s periods of

⁷⁸ Renwick (2016).

⁷⁹ Annan (1969, 244).

⁸⁰ Huxley 1927: *Religion Without Revelation*, 103.

⁸¹ Werskey (1978, 21); see also Ruse (1996, 329–30).

nervous breakdowns and episodes of “acute euphoria.”⁸² Julian believed himself to be manic-depressive. After a period of intense energy, he collapsed in a state of feebleness and depression.⁸³

Julian was educated at Balliol College, Oxford University, beginning his studies in 1906. At 25 years old, in 1912, he accepted a professorship at Rice Institute, Houston, Texas. He remained in Houston until 1916, when he returned to Europe to take part in the war. Following the end of the war, Huxley was offered a fellowship in Zoology at New College, Oxford. In 1925 he became Professor of Zoology at King’s College, University of London. He left his position in 1927 to pursue a career as a popular writer and public intellectual. In 1935 he accepted the position of Secretary of the Zoological Society of London, a position he resigned under pressure in 1942. He was elected a fellow of the Royal Society in 1938. After the Second World War, Huxley became a member of the commission formed to plan what would become UNESCO, and in 1946, he became UNESCO’s first Director-General. When his term of office came to an end in 1948, he would spend the remainder of his life lecturing and writing in support of the causes to which he was devoted. He was knighted in 1958. He died on February 14, 1975.

1.5.1 *Previous Research: Huxley*

Given his heritage and his contributions, Huxley figures frequently in works on the history of science and in works on British intellectual history. As the author of the *Modern Synthesis* (1942), he has earned a spot in any comprehensive book on the history of biology. Therefore, this study is inevitably indebted to a large group of academic scholars, particularly within the field of history of science and history of biology, who have previously written of Huxley in relation to a grander history of evolutionary biology. This book makes use of and engages with several of their academic works to further the analysis.

There are several biographical accounts of Huxley.⁸⁴ The most recent biographer is Bashford, who in her monumental *The Huxleys: An Intimate*

⁸² Huxley (1986, 69).

⁸³ Huxley 1973: *Memories II*, 104.

⁸⁴ Clark (1960, 1968); Baker (1976, 1978); Dronamraju (1993); Sommer (2016, 135–248); Keynes & Harrison (1989); Olby (2004).

Story of Evolution (2022) gives an admirably detailed and thoughtful account of the lives of Julian and his grandfather T. H. Huxley.⁸⁵

Apart from biographies proper, Huxley's idea of progress in evolution, especially in connection to a wider account of the history of Darwinism, has generally been the most explored venue. Bowler has, besides giving biographical details of Huxley's life, discussed Huxley's idea of progress in relation to Darwinism.⁸⁶ Several commentators have noted Huxley's roots in an Edwardian-style worldview that retained the old belief that there is purpose and progress imbued in nature.⁸⁷

Many historians of science, when evaluating Huxley's legacy in total, have been prone to describe him as a somewhat naïve believer in progress. Within the context of the philosophy of biology and the history of Darwinism, Huxley's evolutionary theories have been deemed teleological, vitalist, or simply erroneous because, as historian Colin Divall put it in relation to Huxley, "'progress' is not a strictly scientific notion. Instead, it is an interpretative evaluation of scientific 'facts.'"⁸⁸

Philosopher of science Michael Ruse has criticized Huxley for having built cultural values right into his science. In his *Mystery of Mysteries: Is Evolution a Social Construct?* (2001) he speaks of Huxley's cultural-value infiltration into the work of the *Modern Synthesis* and his failure to keep science distinct from culture and hence nonepistemic-value-free.⁸⁹ Philosopher Timothy Shanahan, who has written about the idea of progressive evolution from Darwin to Dawkins, concludes: "Although the details of his views developed during his long career, Julian Huxley's core conviction that the evolutionary process has been characterized by progress never wavered."⁹⁰ However, as historian of science Marc Swetlitz

⁸⁵ Bashford (2022).

⁸⁶ Bowler has explained Huxley's belief that nature offers us guidance on how to behave harks back to an older tradition of cosmic teleology whose heirs in the twentieth century were the exponents of emergent evolution, see, for example, Bowler (2001, 74–75).

⁸⁷ Bowler (2001, 70–71); Divall (1992); Ruse (1996, 328–38, 349–54); Dronamraju's brief discussion of Huxley's views focuses on his influence concerning these questions on some younger biologists (1993, pp. 149–50).

⁸⁸ Divall (1992, 39); for a critical philosophical analysis of Huxley's idea of progress, see also sister Carol Marie Wildt's dissertation in philosophy *Julian Huxley's Conception of Evolutionary Progress*, 1974. The thesis contains a short but helpful walk-through of three of Huxley's contemporary opponents to the idea of progress in evolution.

⁸⁹ Ruse (2001, 98); see also Lustig 2004: "Natural Atheology," 69.

⁹⁰ Shanahan (2004, 197).

pointed out, “historians have typically presented a static picture of Huxley’s views on progress, focusing on one or two major texts or drawing a composite picture from a number of sources.”⁹¹

Because Huxley was a public figure involved in a philosophical and political debate on human society and culture, his politics as well as his scientific work has been of interest to several scholars. Several authors have discussed the connection between Huxley’s science and his ideological commitments, emphasizing the impact of the latter on the former.⁹²

Important contributions regarding Huxley’s worldview have been given by historian of science John C. Greene, who observed Huxley’s life-long emphasis on the idea that humankind was to be the agent of the process of evolution, enabling evolution to realize new possibilities.⁹³ For a written account of the work on the evolutionary synthesis and of Huxley’s quest to unify biology (and of the unity of science), Smocovitis’s work is recommended.⁹⁴ Historian Colin Divall’s *Capitalizing on Science: Philosophical Ambiguity in Julian Huxley’s Politics 1920–1950* (1985) gives a thoughtful and critical account of how Huxley navigated the British political context.⁹⁵ Divall has also contributed to the excellent collection of conference papers entitled *Julian Huxley: Biologist and Statesman of Science* (1992), edited by C. Kenneth Waters and Albert Van Helden. The anthology is filled with insights and suggestions for further work. Historian Paul T. Phillips has given a valuable account of Huxley’s thought in his historical analysis of the moral philosophies and agendas of a quartet of prominent figures during the 1960s in Britain. The book focuses on Huxley, Bertrand Russell, Malcolm Muggeridge (1903–90), and Barbara

⁹¹ Swetlitz (1995, 182–83).

⁹² Greene (1981, 162–63); Provine (1988); Durant (1989a, 1992); Divall (1992); Swetlitz (1995); Ruse (1996, 335–36); Smocovitis (1996, 139); Smocovitis (2012, S114); and concerning a more general context, see Freeden (1979); Paul (1984); Durant (1989b); Bowler (2001); Smith (2003); Phillips (2013); Fleckstein (1978) is a dissertation that attempts to criticize Huxley’s atheism from a Christian standpoint; Green (1981) is a dissertation in the German language of Huxley’s philosophy of evolution; Braidy (1986) is a dissertation in the French language, a biography as well as a study of Huxley’s philosophy of evolution; Sommer (2020).

⁹³ Greene (1990); Greene (1981, 166–68).

⁹⁴ Smocovitis (1996, 2012).

⁹⁵ Divall argues that Huxley supported elitist, conservative, and capitalist politics, see Divall (1985).

Ward (1914–81). Phillips focuses on the quest for unity in Huxley’s philosophical moral system, as well as the effectiveness of his message.⁹⁶

Social scientist Richard Samuel Deese has examined Huxley’s thought with specific regard to ecological and environmental themes in *We Are Amphibians: Julian and Aldous Huxley on the Future of Our Species* (2015). Deese’s main aim was to show how the Huxley brothers shared a concern for ecology and raised awareness of an ecological responsibility.⁹⁷ Historian Chris Renwick has surveyed Huxley’s scientific humanism and suggested treating it as a proposal for better cooperation between biological science and the social sciences. Renwick argues that Huxley’s philosophy promoted the role of the social sciences, because he encouraged a deep understanding of the social environment as well as of human biology.⁹⁸

1.6 MATERIAL

Source material includes the printed works of Huxley, with a few exceptions made for books written on specific subjects not immediately relevant for the study, such as books on ants and ornithology. Of particular importance has been *The Individual in the Animal Kingdom* (1912), *Essays of a Biologist* (1923), *Religion Without Revelation* (1927), *If I Were Dictator* (1934), *The Uniqueness of Man* (1941), *Evolution the Modern Synthesis* (1942), *New Bottles for New Wine* (1957), and *Essays of a Humanist* (1964), along with numerous articles of a scientific and popular nature (see list of sources). In addition, source material includes books and articles published by Huxley’s contemporaries, when engaged in the same debate and relating to the study’s chosen subject.

The primary archival source material consists of the private papers of Huxley, kept in the Julian Sorell Huxley Archive (Julian Sorell Huxley Papers, 1899–1980 MS 050) at the Woodson Research Center, Rice University in Houston, Texas. The archive features a hefty—albeit not complete—collection of Huxley’s private papers, correspondence, conference material, as well as marginalia and drafts of manuscripts and articles

⁹⁶ One of the books’ chapters contains a reproduction of an article written by Phillips for the *Journal of the History of Ideas*: “One World, One Faith: The Quest for Unity in Julian Huxley’s Religion of Evolutionary Humanism,” see Phillips (2013, 3, 50).

⁹⁷ Deese (2015). For more on Huxley’s opinions on and involvement in ecology and the politics of ecology, see historian of science Peder Anker’s treatment of Huxley as part of the “Oxford School of Imperial Ecology,” in Anker (2001, 76 ff.)

⁹⁸ Renwick (2016, 162).

published by him. It also contains clippings, photographs, and addresses by others. The archive consists of 180 boxes, over 91 linear feet (approximately 55 meters), and spans over the entirety of Huxley's life. The archive material has not been digitalized nor published.

This study has made use of the index guide to the papers established by Sarah C. Bates, Mary G. Winkler, and Christina Riquelmy, in order to identify items of relevance for the analysis.⁹⁹ The correspondence constitutes approximately one-third of the archive papers and forms an impressive portrait gallery of twentieth-century intelligentsia, with letters to and from a vast array of scientifically, politically, and culturally significant individuals. The correspondence is, however, not complete and has a lot missing. Nonetheless, it has been consulted. Printed collections of letters to and from Julian and Aldous Huxley, Pierre Teilhard de Chardin, as well as of others around Julian, have also been utilized.

Huxley's own published and unpublished writings comprise yet another one-third of the archive collection. They are found in the archive series V: Manuscripts, typescripts, and notes. The series contains manuscripts, typescripts, and private notes wherein he attempted to formulate his ideas, written by Huxley between 1910 and 1974, and is particularly rich because it details the development of Huxley's thought and conveys the variety of his interests. Huxley worked out many of his thoughts while writing drafts for articles and books, collecting thoughts for lectures and essays. Examining his notes helps trace Huxley's thought processes and enables comparisons between the private notes and the ideas he chose to make public through publication. This part of the archive features items typed on machine, but a lot is written by hand.

The material is ordered chronologically within the archive. However, there are many notes and manuscript fragments on undated scraps of paper, and some are almost unintelligible. Therefore, it has been impossible for the archivists to accurately place every single manuscript or note and the researcher must bear this in mind when using these materials. To the greatest extent possible, this study has attempted to use such material that is clearly dated.

Archival material related to Huxley is also kept in the UNESCO Archive at the UNESCO Headquarters in Paris, France. Although most of Huxley's private papers have been moved to his archive at the Woodson Research Center, the UNESCO Archive still holds material concerning

⁹⁹ Bates, Winkler & Riquelmy 1987: "A Guide to the Papers of Julian Sorell Huxley."

Huxley's time as Director-General. It has not been digitalized or published. This material has also been consulted.

In addition, the chosen theme has necessitated a broad examination of the futurology genre from the 1960s, 1970s, and 1980s, including books and magazines. Material belonging to the new transhumanists active in the 1970s–1990s, with a focus on the central texts of the new transhumanists, has been essential for the later part of the analysis. These are texts by Robert Ettinger, Fereidoun M. Esfandiary (FM-2030), Max More, Natasha Vita-More, Eric Drexler, Nick Bostrom, etc., as well as all issues of the *Extropy* magazine. In the case of Esfandiary, his archive, the F. M. Esfandiary/FM-2030 papers, 1943–2000: MssCol4846, in the Manuscripts and Archives Division, The New York Public Library, has also been briefly consulted.

1.7 DISPOSITION

The analysis is divided into four parts that follow a chronological order, roughly tracing the course of Huxley's life and the three decades following his death. Each part consists of two chapters and ends with a concluding discussion.

The first part, “I. Beginnings of a Vision,” revolves around the period of approximately 1910–1927 and introduces the themes present in Huxley's thinking and activities that are important for understanding the development of Huxley's transhumanism and for understanding what it is. The two chapters will argue that control was an important concept for Huxley, with specific regard to the idea of controlling life, and show that an idea of control took a hold of a younger Huxley and how it can be understood within the larger context in which he was active. Chapter 2 focuses on Huxley's involvement in experimental biology, but also engages with Huxley's philosophy of evolution and, more specifically, how it is connected to his “religion of the future.” Chapter 3 seeks out Huxley's motivations for constructing and promoting a vision and introduces the issues he was grappling with.

The second part, “II. If I Were Dictator: Visionary Practices,” continues with the period 1927–1945 and deals to a large extent with Huxley's political activities and ideas, as this was a time during which he established himself as a public intellectual and “vanguard visioneer.” The chapters discern what actions Huxley's vision promoted and argues that he was in

a position to influence people around him. Additionally, they discuss the question of biopolitics and eugenics in relation to Huxley’s vision and context.

The third part, “III. Prophet of Destiny: the Vision as Transhumanism,” concerns the period of 1945–1975 and analyzes how Huxley’s vision solidified under the name “transhumanism.” Chapter 6 examines the term transhumanism, and discusses questions of influence, particularly the influence of Pierre Teilhard de Chardin. Chapter 7 investigates end-goals and purposes of Huxley’s transhumanism, as this has been the subject of some debate.

The fourth and final part, “IV. Meeting of Transhumanisms: Huxley and Transhumanism 2.0,” considers the period of approximately 1960–1995, and turns the focus away from Huxley to instead provide a sketch of how his vision turned into a sociotechnical imaginary, also referred to as new transhumanism or transhumanism 2.0. The analysis in Chaps. 8 and 9 consists of an examination and discussion of the later development of transhumanism, and briefly traces the intellectual roots and origins of transhumanism 2.0. By surveying the literature available to the new generation of transhumanists, these chapters find and discuss connections between Huxley’s transhumanism and newer versions of it.

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PART I

Beginnings of a Vision



CHAPTER 2

A New Step Forward in Mastery: Science, Evolution, and Control

The visions of to-day may be the facts of to-morrow.
Huxley 1927: Religion Without Revelation, 57.

In the spring of 1923, a 36-year-old Julian Huxley was reading a new science fiction novel, then referred to as a “scientific romance” or “scientific fantasy.” The fantasy—entitled *Men Like Gods*—was written by the famous author H. G. Wells (1866–1946) and told the story of a man who accidentally falls into a time-space portal and ends up in Utopia, which is like Earth but roughly 3000 years into the future. Here the man encounters the Utopians, human-like beings with telepathic powers. Through the use of advanced science, the Utopians have mastered their surroundings, eliminated disease, and altered their biological makeup to become stronger, faster, and smarter.

Huxley liked the book; it tickled his imagination. It did not, however, strike him as complete fantasy. Reviewing the book in *Nature*, he wrote that he believed that the kind of biological control of life postulated in Wells’ book was not fiction at all: “This is a process which the biologist sees so obviously on its way that it should excite no surprise.”¹

¹Huxley 1923: “Biology in Utopia,” 68.

That same year, Huxley's friend and fellow biologist J. B. S. Haldane published *Daedalus, or Science and the Future*, a science fictional history of twentieth-century biological invention. He imagined techniques for in vitro development of human embryos, hormonal prevention of aging, and pharmacological control of behavior. It has been noted that Haldane, in his essay, turned the biologist into a new romantic figure.² Haldane claimed that the world would not—as had been previously believed in the nineteenth century—be transformed by machines, but instead be transformed by the biologists and their experiments.³

Huxley would have agreed with his friend Haldane's sentiment. In fact, two years prior to Haldane publishing *Daedalus*, Huxley had written an article containing an almost identical announcement. Historically, he wrote in 1921, humankind's success was due to its ability to control inorganic nature. The twentieth century would, Huxley stated, be marked by a revolution caused by a new step forward in "mastery": the mastery over organic nature.⁴

The two chapters of Part I seeks out the beginnings of Huxley's vision and argues that it must be understood in relation to developments in evolutionary science and a new interest in the scientific control of life. It also identifies the issues that motivated the development of Huxley's thought.

This chapter will examine how an idea of control took hold of a younger Huxley and how it was expressed, focusing on Huxley's method of argumentation and use of knowledge of scientific developments and resources. Control will be explored in relation to Huxley's involvement in experimental biology, and then analyzed in relation to Huxley's philosophy of evolutionary biology.

Huxley is best remembered as a generalist concerned with the wider questions of evolutionary biology and with the evolutionary synthesis, but in his early career he was involved with experimental biology. In the early twentieth century, a number of biologists began to show a real interest in the scientific control of life and to think of themselves and their work within the framework of engineering.⁵ In certain ways it came to transform some scientists' conceptual, instrumental, and methodological commitments. Part of Huxley's confident belief in the human power of mastery

² Pauly (1987, 187); Adams (2000).

³ Haldane (1923).

⁴ Huxley 1921: "The Control of the Life-Cycle (iv)," 497.

⁵ Pauly (1987, 4).

not only over inorganic nature but also organic life sprung from him being involved in these particular experimental developments in biology during the early twentieth century. They were developments that enabled imagining the possibility of controlling evolution and life in a more pronounced way than ever before.

A basic definition of control is a *purposive influence toward a predetermined goal*. Two notions are important for this definition: *Influence* is used to mean influence over something. *Purpose* is used to mean that this influence is directed toward some prior goal of the controlling agent.⁶ This controlling purpose is not always merely mechanic or materialistic but can simultaneously have philosophical existential meaning as well.

When a young Huxley elaborated on the prospect of control in biology in his lectures at the Rice Institute in Houston, Texas, in the 1910s, he had realized that the idea of “controlling the freedom of life” might be perceived as hateful or doubtful to many people.⁷ When he tried himself to define what was intended, he seemed to propose a form of “soft” control. It was not that “we should be pushing here and pulling there, attempting in vain [...] to [...] anticipate the millennium.”⁸ The responsibility for humankind was not so great after all: “The control is one of guidance merely; the plant will grow of itself—only we may be able to help it to better growth.”⁹

By the end of the First World War, the idea of control appears to have extended. Now, Huxley wrote of being overwhelmed by a feeling of awe at the powers of the human intellect, which could take “the whole stellar

⁶Beniger (1986, 7–8); Levin (2000a, 21). The word control is an Anglo-French contraction of the word *contre-rolle* (*contrerôle*), in turn derived from a Mediaeval Latin verb: *contrarotulare*. It originally stands to mean comparing something “against the rolls,” referring to a register kept in duplicate by administrators to serve as a comparative means of verifying accounts. However, control has since evolved to bear various meanings and connotations. Control suggests being in command or a mastery over something. It leads the thoughts to authority and supervision; someone *in* control has charge *over* something, and to control something is to direct it, to manage it, or to regulate it. The word control lies in close proximity to manipulation, but it can also signify an overseeing or a guidance of something. Antonyms to control, on the other hand, are to abandon, to give up, or to resign. It is to leave things to chance, to risk something, or mismanage it or neglect it and steers the thought toward helplessness and powerlessness. A thing uncontrolled alludes to something in disarray or disorder, related to unruliness or lawlessness.

⁷JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes.

⁸JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes.

⁹JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes.

universe and handle it like a baker handling dough.”¹⁰ The excitement and self-confidence emanated, in part, from the new forms of biology that had emerged around the turn of the century. Historian Gary Werskey noted that scientists in the 1920s and early 1930s were strengthened by a sense of living in the golden age of science.¹¹ Biology felt like a new frontier, and it was an exciting time for the science.

2.1 VITAL EXPERIMENTS

As stated above, the fact that Huxley and Haldane emphasized biology’s role in shaping or even controlling life was due not only to a general scientific optimism, but to the fact that they were proponents of a newer form of biology, namely, experimentalism. A generation of biologists born in the late nineteenth century turned against what they saw as the speculative nature of the morphological descriptive tradition. This new generation increasingly turned toward a more experimental approach and was attracted to the idea that their work in biology should follow laboratory law: it should be directly observable, demonstrable, repeatable, predictable, and controllable.¹²

Historian of science Philip J. Pauly has suggested that there is a real history to the idea of scientific control of life, and that biologists’ interest in controlling life should be fully integrated into histories of the life sciences. Pauly believed an inability among scholars to envision a viable historical context has hitherto led the scientific control of life to be “conceptualized in fictional, even mythical, contexts—in terms of Faust, Frankenstein, and the science fiction classics of H. G. Wells and Aldous Huxley.”¹³

Although the viable historical context in this case does include Wells, Aldous Huxley and their fiction just as well as a very real biological scientific setting, Pauly’s point is important. Pauly theorized that a new kind of interest in the control of life arose in the late nineteenth century among biologists and extended into the twentieth century. A number of

¹⁰ JSH Papers, RU, MS50, 58:2. Notes, 1917–1918. “I confess to a feeling of awe...”

¹¹ Werskey (1978, 24).

¹² Allen (1975, 9, 35).

¹³ Pauly (1987, 3–4). Pauly identifies biologist Jacques Loeb as a pioneering figure in working to build what would become a new world, and to spread knowledge of the importance of biological creation.

biologists began to think of themselves and their work within the framework of engineering: “They argued that the fundamental purpose of their science ought to be the control of organisms. They envisioned manipulation, transformation, and creation of all the phenomena subsumed under the word ‘life.’ Nature was raw material to be transformed by the power of the biologist.”¹⁴ Connected to this, Bowler has stated that life scientists in the early twentieth century began to argue that their ability to understand biological processes offered new ways to control nature for human betterment: “New technologies were thought to offer the prospect of ‘speeding up evolution’ under human control.”¹⁵

In a summarized version of events methods changed from passive observation, through systematic observation and comparative description, to a use of manipulative experimental techniques or methods and a fully experimental approach.¹⁶ As the name implies, experimental biology involved experiments and made use of tissue culturing, regeneration experiments, implantation of organs, hormonal experiments and studies of physical and biochemical factors on development, and attempts to associate genetics with developmental events.¹⁷

Huxley counted himself among these experimental biologists. His own early research involved experiment, and for a short while he became one of the leading figures in the campaign to promote experimental biology, which was only widely accepted as an important mode of research in Britain from the 1920s onward.¹⁸ Huxley’s laboratory research circled around ontogeny, the growth and development of organisms. It was also in this field he had started his scientific career.¹⁹

Huxley’s first research topic was suggested by the zoologist Paul Mayer (1848–1923) at the Naples Marine Station.²⁰ A 22-year-old Huxley had won a scholarship and spent a summer at Naples in 1909.²¹ Mayer

¹⁴ Pauly (1987, 4).

¹⁵ Bowler (2017, 178).

¹⁶ Erlingsson (2013, 89). See also Kevles (1995, 122). Regarding the longer history of experimental science, see Lutz (2002).

¹⁷ Churchill (1992); Witkowski (1992).

¹⁸ Renwick (2016); Erlingsson (2013, 76).

¹⁹ Witkowski (1992).

²⁰ Paul Mayer had been a student of Ernst Haeckel.

²¹ Julian’s grandfather T. H. Huxley had played a part in the establishment of the Naples Station in the 1870s, giving much support to the founder—and close friend—German Darwinist Anton Dohrn. For more about T. H. Huxley, Bashford’s work is highly recommended, see Bashford (2022). See also Massingham (1932).

introduced Huxley to Henry Van Peters Wilson's (1863–1939) experiments on the reaggregation of sponges. Wilson had separated the cells of a sponge (*Microciona*) by squeezing it through fine mesh silk, turning it into a cloud of loose cells. Wilson then observed that this cellular debris eventually started clumping together and underwent processes of growth and differentiation that led to reformation into a functional organism with the development of a new sponge.²² Huxley repeated the experiments of Wilson using the sponge *Sycon raphanus*. After having destroyed the sponge and separated the cells, as with Wilson's separated cells the cells of Huxley's sponges re-sorted themselves as they would in the normal development of a sponge.²³

Following the sponge experiments, he then started experimenting on the metamorphosis of organisms. In the 1910s, he read experiments that had shown that premature metamorphosis could be induced in tadpoles by feeding them thyroid hormone, in other words that it was possible to gain physiological control of developmental events through hormone administration. Huxley experimented on tadpoles, and then moved on to the axolotl (*Ambystoma mexicanum*), a Mexican salamander known for being neotenic. The axolotl is unusual in that it can reach adulthood and sexual maturity without undergoing metamorphosis. In his experiments, Huxley fed axolotls with thyroid and forcibly caused them to metamorphose.²⁴

Biochemist Joseph Needham (1900–1995) later quoted Huxley as having said that it was exciting to have single-handedly controlled the metamorphosis of an animal.²⁵ Huxley himself stated that his experiments on metamorphosis were of general importance in two ways. Besides revealing more of the function of thyroid hormone activity, the experiments showed the possibility of controlling morphogenetic processes not only

²²This discovery had been published in *Science* and in the *Journal of Experimental Zoology* (1907) and opened up new vistas for studies in regeneration and differentiation, see Costello (1961, 372–73).

²³Huxley 1912: "Some Phenomena of Regeneration..." 168.

²⁴Huxley 1920: "Metamorphosis of Axolotl caused by Thyroid-feeding," 435; Huxley 1925: "Studies on Amphibian Metamorphosis II"; see also Huxley & Hogben 1922: "Experiments on Amphibian Metamorphosis..."; Witkowski (1992).

²⁵Needham, "The First Julian Huxley Memorial Lecture," in Dronamraju (1993, xi). In his autobiography, Huxley remembered feeling excitement at having "recreated a land animal that had not existed, except in tadpole form, for many thousands of years." This statement is untrue but conveys some of Huxley's personal feelings, Huxley (1970, 126).

qualitatively, but also quantitatively.²⁶ In his private notes from the early 1920s, considering his own and others experiments, Huxley concluded: “Enough will have been said to show that the whole of our conceptions of biology are in the melting-pot. Observation alone has given way to experiment as the chief method of research; and experiment is paving the way, as ever, for control.”²⁷

In 1923, zoologist Lancelot Hogben (1895–1975), Haldane and Huxley, supported by animal geneticist Frank A. E. Crew (1886–1973) of the Edinburgh Animal Breeding Research Institute, started a journal called the *British Journal of Experimental Biology* to promote the experimental field. The new journal was in part funded by H. G. Wells and was to be a medium for studies of evolution that would be based upon an experimental science. Huxley sat on the editorial board and in 1925 also partook in funding and establishing The Society for Experimental Biology.²⁸

It is worth noting that Huxley’s experiments with axolotl were not original. They had been conducted previously by other researchers, for example, by the Czech physiologist Vilém Laufberger (1890–1986) in 1913. Several scholars have pointed to the fact that Huxley was never a truly successful experimenting researcher. In some cases, he was not fully aware that his experiments had already been done; in others his whirlwind character resulted in him not working things out fully. While there is consensus regarding Huxley moving on to become a brilliant synthesizer, in his own research he has been accused of being unsuccessful and unoriginal. Huxley was familiar with having his papers rejected.²⁹

Despite this, his experiments with hormones attracted a great deal of attention among biologists and especially among the general public.

²⁶Huxley 1925: “Studies on Amphibian Metamorphosis II.”

²⁷JSH Papers, RU, MS50, 60:6. 1920s. Notes regarding experimental biology. Strikethrough in original.

²⁸Huxley 1923: “The British Journal of Experimental Biology,” 102; Mazumdar (1992, 151); Smocovitis (1996, 139–40); Erlingsson (2013, 81, 87–88).

²⁹In November 1921, Huxley’s paper on dedifferentiation in the *Echinus* larva was rejected by the *Proceedings of the Royal Society*. Two other papers by Huxley were rejected by the *Journal of the Marine Biological Association*. In the coming years Huxley would continue to face difficulties getting some of his scientific papers published, see Erlingsson (2013, 78); Witkowski (1992); Gayon (2000). For examples of published papers, see Huxley 1920: “Intersexes in...”; Huxley 1927: “The Modification of Development...”

Huxley reported his findings in a short paper to *Nature*.³⁰ In connection to the publication of his axolotl paper in *Nature*, he also gave a talk at the Linnean Society of London where he exhibited his metamorphosed axolotls and did the same at the Royal Society of Arts.³¹ These talks were noticed by the national press and turned into sensational news, in no small part owing to the Huxley family name. The fact that Julian was the grandson of the scientific giant T. H. Huxley was frequently pointed out in the articles. Apart from that, the experiments in themselves and Julian's way of presenting them seemed to tickle the public's imagination.

Reports and versions of the story were reprinted in a plethora of newspapers that wrote of Huxley "probing life's mysteries" and performing difficult "transformation tricks" to produce a new sort of creature.³² Through his laboratory research Huxley had, according to one sensationalist article entitled "A Great Discovery. Thyroid Gland Marvels. Control of Sex and Growth," come closer to revealing the secret of perpetual youth and renewed vigor, the determination of sex, and the curing of certain diseases.³³ In one of the more exaggerated accounts, one commentator noted (perhaps with a little sarcasm) that the promises of the discoveries made in Huxley's experiments made Albert Einstein's theory "seem mere frivol in comparison."³⁴

Huxley of course cannot be said to be responsible for the sensationalist reporting of journalists. Nevertheless, he was obviously quite taken himself with the new and adventurous fields of research and clearly wanted to promote experimental biology.³⁵ Biologists, Huxley claimed, were on the

³⁰ Huxley 1920: "Metamorphosis of Axolotl Caused by Thyroid Feeding."

³¹ Baker (1976, 211); JSH Papers, RU, MS50, 136:1. "Secret of Longer Life. Mr. Huxley on Control of Growth," *The Time*, 22 Feb. 1920.

³² Among the newspapers reporting on Huxley's experiments: "Idiot Children. Professor Huxley's Cure," *Daily Mail*, 17 Feb. 1920; "A Great Discovery. Thyroid Gland Marvels. Control of Sex and Growth. Renewal of Youth," *Daily Mail* 20 Feb. 1920; *Spectator*, 20 Feb. 1920; "The Secret of Youth. Prof. Huxley's Discoveries. A Manchester Pathologist's Views," *Yorkshire Herald*, 24 Feb. 1920; *Daily Telegraph*, 25 Feb. 1920; *Overseas Daily Mail* 28 Feb. 1920; "Thyroid Gland Marvels," *Daily Mail*, 6 Mar. 1920; "A Boy Made to Grow Up," *The Christian Herald*, 11 Mar. 1920. See JSH Papers, RU, MS50, 136:1. See also Gibbs (1922, 49).

³³ JSH Papers, RU, MS50, 136:1. *Overseas Daily Mail*, 28 Feb. 1920; see also "When Girls May Be Boys. Probing One of Life's Deepest Mysteries," *Daily Sketch*, 19 Feb. 1922.

³⁴ JSH Papers, RU, MS50, 136:1. "Thyroidine," *The Clarion*, 5 Mar. 1920.

³⁵ JSH Papers, RU, MS50, 136:1. "Secret of Longer Life. Mr. Huxley on Control of Growth," *The Time*, 22 Feb. 1920.

verge of “discovering how to turn on and off this switch which controls both the rate and form of animal growth.”³⁶ He enthusiastically spoke of new experiments to be carried out in Oxford, on sex determination, hormonal administration, experiments with diet and vitamins, and tissue culturing in the laboratory of tissue removed from the body.

Because the sensationalist publicity was regarded by some of Huxley’s colleagues as likely to damage his reputation in the scientific world, Huxley also responded with an article in the *Illustrated London News* of February 28, 1920.³⁷ His article about the experiments gave the history at length of thyroid hormone and the thyroid gland and did credit previous researchers. However, it also claimed that the recent discoveries falsified the idea that certain developmental features in organisms were “beyond human control,” and celebrated the fact that biology was at last becoming an exact science: “Once it is realised that the science of life *can* be exact, quantitative, it is immediately obvious that it becomes the most important single branch of study that exists or can be imagined.”³⁸ The developments in the field that Huxley saw unfolding in front of his eyes made him certain that the time he was living in marked “the rise of biology,” and that this was rapidly leading to a major shift in the center of gravity of science as a whole.³⁹ It is perhaps no wonder then, than Huxley considered Wells’ scientific fantasy to be closer to fact than fiction.

2.2 THE PRESSURE OF LIFE

The idea that experimental approaches might turn biology into an exact science was especially exciting because evolutionary biology was at this time being scrutinized for displaying a nonrigorous methodology and traces of vitalism. The critique is seen, for example, in J. H. Woodger’s (1894–1981) *Biological Principles* (1929), in which Woodger summarily stated that evolutionary studies still relied on an unscientific narrative and that many of its claims could not be proven by experiment. To Woodger, evolutionary studies were an immature science.⁴⁰

³⁶ JSH Papers, RU, MS50, 136:1. Huxley 1920: “The Thyroid Gland and the Control of Animal Growth,” *The Illustrated London News*, 28 Feb.

³⁷ Baker (1976, 211).

³⁸ JSH Papers, RU, MS50, 136:1. Huxley 1920: “The Thyroid Gland and the Control of Animal Growth,” *The Illustrated London News*, 28 Feb.

³⁹ Huxley 1923: “Biology and Sociology,” *Essays of a Biologist*, 72.

⁴⁰ Woodger (1929, 11–12); for an excellent account of this, see Smocovitis (1996, 100).

Momentarily shifting the focus away from experimental biology and the control of life, the following passage will outline the state of Darwinism in the first decades of the 1900s and present a fundamental problem that would act as incentive for Huxley's vision.

Darwin's evolutionary theory was a solution to the problem of adaptation—the need to explain the empirical fact of apparent design, the fact that various parts of organisms appear made as if for a purpose. His theory of descent with modification asserts that all current species are the modified descendants of other, earlier forms associated with them in time and space. His explanation for why this was and how it happened was natural selection. Darwin gave an explanation for how the process of evolution occurred.

Darwin proposed that characters that correlated with individual reproductive success would accumulate in natural populations.⁴¹ Adaptations evident in living nature are not the product of (God's) design but instead the result of over-population, variation, and natural selection—the survival of the fittest. Individual organisms live in an environment composed of other individuals of the same species, other species, a specific geographical and climatic area, and a specific set of food resources. Natural selection means that this environment exerts pressure on the individual organism's chance of survival. More organisms are born than can survive and reproduce. There is a consequent struggle for existence. Some organisms have, by chance, particular characteristics which help them succeed in this struggle. Hereditary variations that give the individual a better chance of surviving and leaving more descendants are perpetuated (“selected”). This process leads to certain evolutionary changes and enables new varieties and species to emerge.

This was, in short, what Darwin's theory conveyed as it was presented to the world in 1859. But as previous research has shown, natural selection did not gain favor at once even among biologists. Many accepted evolution, but not the means by which it happened. Several theories besides natural selection continued to circulate; mutational leaps, orthogenesis, neo-Lamarckism.⁴² Huxley's own grandfather—one of the most prominent advocates of Darwinism—did not fully accept natural selection as the chief mechanism of evolution.⁴³ T. H. Huxley believed that major

⁴¹ Advantages in reproductive success are called “Darwinian fitness,” see Gardner (2009).

⁴² Bowler (2004, 48); Greene (1981, 162).

⁴³ Bowler (1993, 15).

leaps and cataclysms could play a significant role in evolution.⁴⁴ Additionally, the last decades of the nineteenth century and the first decade of the twentieth century also saw a growth of Idealist thought, which indicated an evasion of some of the materialistic implications of Darwinian evolution and a desire to retain a role for purpose in evolution.⁴⁵

Because of the critique and the question marks surrounding the theory of natural selection around this time, historians of biology have typically referred to the period between 1880 and 1930 as “The Eclipse of Darwinism.” It was a time in which scientists questioned the adequacy of the Darwinian selection theory.⁴⁶ Evolutionary studies was also seen as hard to combine with experimentation. The theory of natural selection did not seem to have any basis in real experimental experience and turned out to be difficult to make direct observations of in nature—the very supposition that evolution was a process moving in very small steps over thousands or millions of years made it seemingly impossible. Immediate experimental verification could not be done, partly because natural

⁴⁴ Gould (1977).

⁴⁵ Hale (2014, 289).

⁴⁶ Bowler (2003, 274); see also Bowler (1983); Lightman (2010); Allen (2014, 19 ff). Historian of science Mark Largent has criticized historians of science uncritical adoption of the term “eclipse of Darwinism” and stresses that our understanding of this so-called eclipse harks from scientists of the synthesis era and from historians who have been unduly influenced by them. He suggests that the phrase “eclipse of Darwinism” was employed by the succeeding generation of authors to slur their predecessors by implying that they worked in an ignorant and ineffective era. More specifically, Largent argues that the phrase was employed by Huxley in 1942, to model himself the architect of the modern evolutionary synthesis and to set the tone for later scientists and historians of science, see Largent (2009, 3–6); historian of biology Joe Cain has suggested the abandon of the unit concept “the evolutionary synthesis,” on the grounds that “there was much more to evolutionary studies in the 1920s and 1930s than is suggested in mainline narratives of the period.” Like Largent, Cain argues that the idea of a modern or evolutionary synthesis served a useful purpose, not in the least for Huxley personally. The idea presented a way to assert modernity and triumph to his name: “Huxley’s ‘eclipse’ narrative was purposefully Whig, justifying his own role,” Cain (2009). The notion of an eclipse and a modern synthesis first appear simultaneously in the *Modern Synthesis* and in this sense, Huxley was a self-modeled architect of the interpretation of the history of biology. However, there really was a period in which natural selection was not fully accepted. In the second, Huxley was himself very much influenced by the period before the synthesis. For a discussion of this, see Smocovitis (1996, 71 ff). Smocovitis writes that “the architects [of the evolutionary synthesis] (including Simpson, Mayr, Huxley, et al.) were overstressing their sense of unity. This was not based on an attempt at self-aggrandizement or self-importance [...], but because they were responding to persistent and historically induced charges of disunity,” Smocovitis (1996, 192).

selection was not predictive.⁴⁷ Smocovitis has shown that the 1920s and 1930s marked a time during which the focus on general natural history and evolutionary studies dwindled, in favor of a focus on experimental biology, and has described a tension between experimentalists and nonexperimentalists in the 1920s and 1930s.⁴⁸

Huxley was caught in-between. During the 1910s and 1920s he was, as seen, enthusiastic about experimental biology. On the other hand, he was from the very start drawn to the wider questions concerning the philosophy of evolutionary biology. And he was especially drawn to the idea of progress and purpose in evolution (evolutionary progress implies a goal or end point for evolution). It is important to note that Huxley's early years of 1890–1920 were spent in a societal and scientific milieu where the theory of natural selection was not fully accepted, and that he during this time was displaying a strong penchant for vitalism.

In the 1910s, during his time at Rice Institute in Houston, Texas, a young Huxley had been convinced of straightforward progress in evolution and had at times expressed himself in a way that made it sound as if the human species was the predetermined pinnacle of creation. The evolutionary process, he said, strove toward ever-new possibilities of realization.⁴⁹ He spoke of “world-forces” moving in a certain direction and encouraged his students to believe that humans needed only “to remain at one with the upward sweep of life.”⁵⁰ In his first book, *The Individual in the Animal Kingdom* (1912), he wrote of an “actual line” traced by Life and of an “upward progress of terrestrial life towards individuality.”⁵¹

Several scholars have pointed out Bergson's influence on Huxley.⁵² The French philosopher Henri Bergson (1859–1941) was met with a wave of enthusiasm for his *L'Évolution créatrice* in 1907 (translated into English as

⁴⁷And as such, some have argued, the theory could not be disproven, see Popper (1982, 168).

⁴⁸Smocovitis (1996, 114–15, 118, 122–23). For more on the rise of experimental biology and genetics as a turbulent time for natural history, see Gasking (1970).

⁴⁹JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes.

⁵⁰JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes.

⁵¹Huxley 1912: *The Individual in the Animal Kingdom*, 26, 28–29.

⁵²Ruse has highlighted the importance of considering the impact of Bergson when examining Huxley's ideas on evolution. Ruse writes that by the time Huxley got to Rice, he “had so far followed Bergson that he was himself an overt vitalist,” Ruse (1996, 337); Bowler also writes of Bergson's influence on Huxley and adds that Huxley continued to mention Bergson even after he had started to conceal his “vitalist leanings,” see Bowler (2001, 151–52); see also Divall (1992, 43); Greene (1990).

Creative Evolution in 1911). It was a book about evolution, but it was by no means Darwinian. On the contrary, Bergson dismissed natural selection as the driving force of evolution and proposed in its place a form of force-driven progression. Whereas he denied intelligent design in the structure of each species, he postulated a creative life force—what he called *élan vital*. This creative life force struggled against the limitations of matter and drove evolution to progress. With the help of Bergson, evolution turned mystical, with life forces sweeping nature along, dissolving and creating anew, ascending into higher and greater forms of complexity and consciousness.

Huxley was evidently energized by Bergson's vitalism. The preface to Huxley's *The Individual in the Animal Kingdom* clearly stated the debt owed to Monsieur Bergson, "who, whether one agrees or no with his views, has given a stimulus (most valuable gift of all) to Biology and Philosophy alike."⁵³ Huxley's own book set out to frame a general definition of the individual from the scientific (biological) point of view. The overarching theme dealt with the broad question of the philosophy of biology.

In the book, Huxley loosely elaborated on Bergson's *élan vital* into a theory that supposed that evolution progressed or tended toward individuality (a biological unit of increasing complexity).⁵⁴ Huxley sent a copy of the book to Bergson himself, who was delighted. Writing to Huxley from Paris in December 1912, the philosopher complemented Huxley on his elegant and simple style and thanked him for doing him the honor of quoting him. He found the ideas about progress toward individuality especially interesting.⁵⁵

Bergson's *Creative Evolution* was included in the reading-lists Huxley had put together in preparation for his lectures at Rice. He also mentioned Bergson's *élan vital* in his private notes from the Rice period of 1914–1916. Because the term *élan vital* was firmly associated with Bergson, Huxley at times chose to substitute it for the term "pressure of life."⁵⁶ Nevertheless, Huxley's pressure of life on these occasions seemed in all but name to be Bergson's *élan vital*. He believed the Bergsonian insight to be of enough

⁵³Huxley 1912: *The Individual in the Animal Kingdom*, vii. Bergson is again mentioned on 6–7 and 9–10.

⁵⁴Huxley 1912: *The Individual in the Animal Kingdom*, 28–29.

⁵⁵JSH Papers, RU, MS50, 5:9. Letter from Bergson, 14 Dec. 1912.

⁵⁶JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, Lecture 1.

importance at least to be incorporated into his lectures. Thus, Huxley spoke of the driving force that was continually impelling life to advance in evolution: “Bergson has glimpsed it with his poet’s eye, and has called it the élan vital.”⁵⁷

Part of Huxley’s ideas around this time could be seen as an expression of a form of neo-idealism that had arisen in the late nineteenth and early twentieth century. Darwinism in non-rigorous extra-scientific forms had come to be incorporated in various forms of “evolutionism,” many of which saw evolution as a vast process in which humans were brought to the top and still moving to ever-greater heights. Evolutionism was strongly linked with the idea of progress and predicting future progress became an extension of that link.⁵⁸

Many of the late nineteenth- and early twentieth-century biologists and philosophers who were looking for more teleological visions of evolution were, writes Bowler, motivated in part by a wish to minimize the extent to which the process was driven by death, suffering, and—perhaps especially important for this analysis—chance.⁵⁹ Herbert Spencer (1820–1903) had imagined an anthropocentric teleology where natural selection produced ever-higher moral beings, and Alfred Russel Wallace (1823–1913) had come to believe that natural selection alone could not account for the marvels of the human mind but that a higher power must have planned human evolution. Later, George Bernard Shaw’s (1856–1950) “Emergent Evolution” bore a strong resemblance to Bergsonian vitalism but combined with neo-Lamarckism, a kind of willing-for-change.⁶⁰

Although Huxley came of age as a scientist during the “eclipse of Darwinism,” by the time he was starting to become relatively established in the early 1920s the situation was already changing rapidly. Now had begun a period of what Smocovitis has referred to as a “quantification of evolution,” when aspects of evolution such as mutations, population structures, and random genetic drift became quantifiable and measurable. The growing measurability and testability of natural selection within a populational framework would eventually lead to general support for natural selection as the primary mechanism of evolution.⁶¹

⁵⁷ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes. Huxley’s own underlining.

⁵⁸ Bowler (2017, ix).

⁵⁹ Bowler (2004, 58).

⁶⁰ Ruse (2006, 263).

⁶¹ Smocovitis (1996, 122).

In the first, the German cytologist August Weismann's (1834–1914) concept of the “germ plasm” (germ cells) had made headway, and Weismann's theories disproved Lamarckism.⁶² Haldane, one of the British founders of the genetical theory of natural selection, made another important contribution. Haldane made an example out of the Peppered moth (*Biston betularia*) as a case of natural selection in action. This moth occurs in two variants, a darker one and a lighter one. In 1924, Haldane described how the sooty moth-habitat created by the industries of England had resulted in a “selection” for the darker variant of the moth, which had become increasingly more common as opposed to a lighter moth that was not as well adapted.⁶³

Additionally, the experimental studies of mutations on flies (*Drosophila melanogaster*) by geneticist T. H. Morgan (1866–1945) and his school had begun to undermine the plausibility of Hugo de Vries's (1848–1935) original mutation theory. The older mutation theory had supposed significant mutations leading to “leaps” in evolution. What the Morgan school found was that mutations of such a large scale would be problematic for the individual organism. Too dramatic hereditary changes or modifications usually lead to the demise of the individual. Instead, smaller mutations were more effective since they usually did not affect the flies' ability to survive and thus had a better chance of spreading in larger populations. Morgan recognized that external factors might affect the reproductive success of an organism carrying the mutated gene. When a new mutated

⁶²Weismann hypothesized that the body was made up of two different kinds of cells; the germ cells, that were present in the gonads and produced sperm and eggs, and the somatic cells, that were present in all other tissues in the body. The somatic cells—developed afresh in each new generation from the germ plasm—could be affected by the environment, but the “germ plasm” was isolated from the somatic cells and could not. The germ plasm was transmitted unaltered from one generation to the next. Weismann further confirmed his theory by cutting off the tails of a group of mice and then continuing the process in their offspring over several generations. There was no indication that this mutilation produced mice with tails shorter than normal. The experiment showed that whatever was responsible for building the tails in embryonic baby mice was not produced by the tails of their parents. Mice without tails still carried the complete germ plasm for producing the structure in their offspring. For humans, this meant that parents could work endlessly to improve their bodies and minds, but since the body merely transmitted its germ plasm to the next generation and did not produce it, their children would not become stronger or smarter because of it, see Paul (1995, 41); Bowler (2003, 255).

⁶³Haldane (1924).

gene led to a better-adapted organism, it could survive and spread. The new mutation theory of small mutations fit better with natural selection than had an older mutation theory.⁶⁴

Huxley had travelled to visit Morgan's so-called "fly room" at Columbia University in New York in the early 1910s. In the 1920s he wrote and spoke of Morgan's experiments on *Drosophila* and clearly saw their significance.⁶⁵ He was a close friend of Haldane, as well as with several other scientists who would make significant contributions leading up to the evolutionary synthesis. Huxley was well aware of the strides being made toward further validating natural selection. As the 1920s progressed, he should have already understood its implications: Natural selection worked mechanistically and purposelessly. In light of the new research being made all around Huxley, it became increasingly hard to sustain notions of teleology, vitalism, purpose, and progress in evolution.

Darwinism is existentially difficult. The idea of life as a continuing chain—often imagined in a hierarchical order from lower to higher forms—was established before Darwin made his claim. What was truly novel in the *Origin of Species* was the method by which evolution happened and life transformed. The theory of evolution that Darwin proposed was an open-ended, branching model. The variations upon which natural selection operates arise by accident; they do not arise because they are needed.⁶⁶ To understand Darwin's theory of evolution by natural selection also meant understanding that there was no creative power, no meaning, and no special place for humanity in creation. Its effect was, as historian Peter Morton has put it, "to humble human pride almost unbearably." Darwin's theory could and did give rise to existential dread, nihilism, and cynicism.⁶⁷

The course of evolution is difficult to predict. Evolution by natural selection is about local adaptation, not about general advance or progress. It has no direction but is a blind process devoid of meaning or purpose. In that sense, Darwinism could not remedy human anxiety about an unknown future.

⁶⁴ Bowler (2003, 328–29).

⁶⁵ Huxley 1929: "Heredity II," in *Essays in Popular Science*, 19–20, 23–24.

⁶⁶ Shanahan (2004, 112); Bowler (1993, 46).

⁶⁷ Morton (1984, 6–9).

2.3 NIETZSCHE'S ACCIDENT IMMUNITY AND HUXLEY'S LAW OF PROGRESS

Huxley's optimistic progressivism is often mentioned as a main feature of his character. His progressivism manifested both in a general belief in human progress, and within a more particular biological scientific setting: He believed that there was progress in evolution. It is impossible to ignore the idea of progress when analyzing Huxley. Rather than asserting that he believed in progress, however, it is more fitting to say that Huxley wanted to believe in progress in evolution, but that his insight into the workings of natural selection had started to make it increasingly difficult to do so and that this problem would become a key motivator for his vision.

Greene at one point noted that Huxley had ambivalent feelings about natural selection as an agency for producing biological progress.⁶⁸ On a similar note, biologist John Beatty pointed out that Huxley's knowledge of evolution should have made him realize how exceedingly rare those phenomenon that could be called progressive were in the process: "He acknowledged so many other selectionist and nonselectionist forms of evolution [...], most of all which have 'nonprogressive' outcomes, that overall he was skeptical about the prevalence of progressive evolution."⁶⁹ It is argued here that this is a crucial point, and that the argument needs to be further advanced, as it is of importance for understanding Huxley's transhumanism.

Darwin's theory had famously stimulated Spencer to sketch the outlines of an evolutionary philosophy, combining positivistic empiricism and organic evolution to form a belief in progressive evolution and the benefits of competitive struggle.⁷⁰ But not everyone was like Spencer optimistic about the prospect of progress by natural selection, and as already discussed, in the new century rapid strides were being made toward making it ever more clear that evolution by natural selection was not compatible with human notions of progress.

Even if one did not keep up to date with the latest scientific discoveries in the 1910s and 1920s, there were still reasons to doubt evolutionary

⁶⁸ Greene (1990).

⁶⁹ Beatty (1992, 189); Smocovitis (1996, 144).

⁷⁰ Greene (1981, 133–34); Morton (1984, 60–61); see also Francis (2007); Freeman (1974).

progress. Huxley had been brought up and educated in a societal and scientific milieu where the prospect, and fear, of degeneration was present.

Degeneration was a kind of antithesis to the idea of progress. In 1880, the English zoologist Edwin Ray Lankester (1847–1929) had authored *Degeneration: A Chapter in Darwinism*. It promoted the theory of degeneration, the idea that organisms could reverse their development and decline back to a “lower type.” This notion was coupled with ideas of defeat in the natural struggle, a loss of life force, something hinting at stagnation and decay. Adopting ideas from, among others, Ernst Haeckel (1834–1919) and Anton Dohrn (1840–1909), Lankester hypothesized that degeneration was one of three general avenues that evolution might take (the others being balance and elaboration). Any new set of conditions occurring to an animal which rendered its food and safety very easily obtained seemed to lead to degeneration.⁷¹ Lankester was skeptical of European optimism and the belief in universal progress, which he believed to be at odds with the general laws of evolution. In evolution, a species such as humankind was as likely to degenerate as to progress. Lankester ended his book with a warning to humanity: It was possible that we were all drifting toward a degenerate condition, a contented life of mere material enjoyment accompanied by ignorance and superstition.⁷²

The theme of degeneration had found its way into Huxley’s early lectures from Rice, where he used Lankester’s *Extinct Animals* (1905), which regarded the question of why animals became extinct. Apart from the obvious factor of human interference, Lankester considered the evolutionary drama, where new species ascended while older, less adaptive species disappeared. Changes in environment and in way of life could lead to species falling behind and becoming extinct.⁷³ Huxley’s lecture notes make it clear that he was familiar with the idea that there existed nonprogressive outcomes of evolution, such as degeneration and standstills.⁷⁴

“To be noted that many biological writers have persistently denied idea of progress,” Huxley remarked in a private entry at the end of 1917.⁷⁵ But perhaps they ruled out progress because they had not thoroughly explored what progress was? Perhaps it was that they thought of progress in the

⁷¹ Chamberlin & Gilman (1985); see also Lester (1995).

⁷² Lankester (1880, 58–62).

⁷³ Lankester (1905, 28 ff).

⁷⁴ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes, Lecture 3.

⁷⁵ JSH Papers, RU, MS50, 58:1. Notes Dec. 1917. “The Biological Idea of Progress, 3 questions to be considered.”

wrong way. Huxley now ruled out the idea that all change was progress. Likewise, it seemed unlikely that progress was universal and that nothing but progress had occurred in the history of nature and of humankind. Aware of new strides being made in science, and of phenomena such as degeneration and extinction, he could not find it in him to believe that progress was necessarily a Law of Nature.

Nevertheless, Huxley concluded that life, despite “numerous assertions to the contrary,” might be affected by the operation of some sort of law of progress. If this law of biological progress existed, he asked himself, what did it consist in?⁷⁶ He reached an answer to that question by thinking of progress in relation to control. Huxley concluded that progress in biology could be characterized by two kinds of “objective” happenings. Either progress could transpire when one set of species replaced another, as, for example, when warm-blooded mammals had replaced the reptiles as the dominant group in nature. Or, and this was Huxley’s preferred brand of progress, headway was made if and when there was an increase in the animal’s possibility of control.

When writing his first book, Huxley had apparently been energized not only by Bergson, but also by another popular philosopher. In *The Individual in the Animal Kingdom*, Huxley determined that the minimum conception of the individual was that it must have some independence of the forces of outside nature.⁷⁷ Independence, of course, implies autonomy and self-reliance. In reaching this conclusion, Huxley drew on the (in)famous character of Zarathustra.

There was a vogue for Friedrich Nietzsche (1844–1900) in England at the turn of the century and Huxley—at 25 years of age already exhibiting a literary flair—used Nietzsche’s *Thus Spoke Zarathustra* as a “source of help,” and Zarathustra’s declaration “accidents cannot happen to me,” as a point of departure for his definition of what the individual organism was.⁷⁸ According to Huxley, the most important character of

⁷⁶ JSH Papers, RU, MS50, 58:1. Notes Dec. 1917. “The Biological Idea of Progress, 3 questions to be considered.”

⁷⁷ Huxley 1912: *The Individual in the Animal Kingdom*, 28. For additional ideas of biological individuality, see Huxley 1926: “The Biological Basis of Individuality.”

⁷⁸ Huxley 1912: *The Individual in the Animal Kingdom*, 1. The part quoted tells of Zarathustra ascending a mountain and thinking of any eventual thing that might befall him (fate or unexpected experiences). Huxley gives no reference as to what edition of Nietzsche’s *Zarathustra* he had read. When he quotes Nietzsche, he does so in German, but with no reference: “Die Zeit ist abgeschlossen, wo mir noch Zufälle begegnen durften; und was *könnte*

the organism-individual was independence from the outer world and all its influences: “in other words, immunity from accidents.”⁷⁹ By saying accidents could not happen to him, Zarathustra had pointed to the perfection of his individuality: He was the epitome of the self-mastered individual in full power.

Huxley did not give any exact literary reference to Nietzsche in his book, but rather elaborated freely, speaking in-text of Zarathustra and Nietzsche, and opening with a quote from *Thus Spoke Zarathustra* in German.⁸⁰ He would also quote the German philosopher in his lectures at Rice.⁸¹ The inspiration Huxley got from Nietzsche might also have helped him when he, a few years later, started in earnest to try to think about the idea of progress and its relation to evolutionary biology. By this time, the breezy vitalism present in parts of *The Individual in the Animal Kingdom* had somewhat subsided. In fact, around this time Huxley started making a point of distancing himself from Bergson. In his first collection of essays, *Essays of a Biologist* (1923) Huxley would write that Bergson’s refusal to acknowledge natural selection revealed that he was “a good poet, but a bad scientist.”⁸² Huxley had by this time already been made aware of the critique of progress and vitalism.

Keeping with his definition of the organism-individual, Huxley defined progress as an increase in the efficiency of some mechanism of the animal designed to deal with external forces or conditions. This increase in control would thus be giving the animal greater independence from the environment, a higher immunity from accidents. Furthermore, Huxley noted that these two kinds of progress usually went together: If a species gained

jetzt noch zu mir fallen, was nich schon mein Eigen wäre!” Passages in the English editions of Nietzsche’s work: “The time is now past when accidents could befall me; and what *could* now fall to my lot which would not already be mine own!” Nietzsche (1911, 183); and in the 1899 English edition: “The time is past when accidents could happen unto me. And what *could* now fall unto my share that is not already mine own!” Nietzsche (1899, 221). For the reception of Nietzsche in England, see Thatcher (1970). On the vogue for Nietzsche in England, see, for example, Collini (1991, 88). For more on Nietzsche’s *Thus Spoke Zarathustra*, see Ansell-Pearson & Loeb (2022).

⁷⁹ Huxley 1912: *The Individual in the Animal Kingdom*, 3–4.

⁸⁰ Huxley 1912: *The Individual in the Animal Kingdom*, 1–10.

⁸¹ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes, Lecture 3.

⁸² Huxley 1923: *Essays of a Biologist*, 33, 215.

increased control, it usually meant it would be superiorly fit to survive and would thus replace other, less adaptive species.⁸³

By the end of the First World War, Huxley believed he had scientifically defined progress. Progress in evolution was when an organism gained an increased control of and independence from the environment. After having worked out this definition, he started to make his views known as often as he got a chance. He firmly believed that his definition could show that progress was an evolutionary reality.⁸⁴ Despite the prevalence of degeneration and stagnancy in evolution, there were yet certain things that progressed.⁸⁵

Although Huxley did give examples of developments of greater control in organisms that did not necessarily ascribe to humans alone—a central nervous system, warm-bloodedness—his definition of progress can yet be viewed as anthropocentric. It could be argued that actual control over the environment occurs only in the human species, or, as biologist Francisco Ayala has put it: “All organisms interact with the environment, but they do not control it.”⁸⁶ Despite its universal bid, Huxley’s law of progress through increased control of and independence from the environment somehow seemed to imply autonomy in the human sense of the ability to intend, desire, and act for oneself, and the idea of the rational sovereign subject.

Huxley had no true issue assuming what would today be called an anthropocentric position. He had always been fascinated with the question of what the human species was in light of evolution, or, as he then put it, the question of “man’s true place in nature.”⁸⁷ It seemed only fitting, as his grandfather T. H. Huxley had done much to popularize the term in the nineteenth century.⁸⁸ From the onset, Julian did want to emphasize what he saw as humankind’s unique position, and viewed humanity as the pinnacle of individuality.⁸⁹ True, humankind was but one species out of

⁸³ JSH Papers, RU, MS50, 58:1. Notes from Dec. 1917, “The Idea of a Critical Point in Evolution.”

⁸⁴ Huxley 1923: “Biology and Sociology,” *Essays of a Biologist*, 88.

⁸⁵ Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 32.

⁸⁶ Ayala (1988, 91). This could, of course, be disputed. Does a beaver not control its environment by building dams?

⁸⁷ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes.

⁸⁸ “Man’s place in nature,” see Paul (1995, 27); see also Huxley (1896a).

⁸⁹ Huxley 1912 *The Individual in the Animal Kingdom*, 26.

hundreds of thousands, but it was also “that most protean and plastic of all the forms of life.”⁹⁰

Huxley was especially fascinated with the unique human ability to manipulate and thus greatly affect the environment. He realized that there was something to be said of the peculiar position of the human species: “Man’s control over the forces of nature and his independence of external conditions seem so immeasurably greater than any control or independence possessed by lower organisms: his wholesale extinction of such creatures as conflicted with him, and his domestication of those that might be useful to him appears as a new kind of biological superiority.”⁹¹ The question was what this new kind of biological superiority consisted of more specifically.

2.4 A CRITICAL POINT: MIND IN EVOLUTION

In 1912, Huxley had written of conscious reason and memory as a new and unique type of mechanism, a new path in evolution. Mind made individuality in an organism enormously more powerful. It also enabled tool and machine use, language, and through this even a form of extended lifetime: The organism could last for longer than the allotted span of its substance.⁹²

Since Huxley had started believing that an increase in control was connected to what constituted progress in evolution, a theory of mind and its connection to a greater possibility of control became very important for him. He also believed that mind was the key to understanding what the human species was. For mind had in humankind exalted to a level “far above what it has attained in the brutes.”⁹³ The creation of mental images of the outer world was a specialization obtained to give the animal greater control through greater knowledge. And in no other species were the pictures of outer reality more vivid and the ability to process them greater than in the mind of man: “His mind, for instance, can understand a

⁹⁰ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes.

⁹¹ JSH Papers, RU, MS50, 58:1. Notes from Dec. 1917, “The Idea of a Critical Point in Evolution.” Huxley’s own underlining.

⁹² Huxley 1912: *The Individual in the Animal Kingdom*, 29.

⁹³ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes for lecture 2.

steam-engine, the Cow's cannot. It is therefore a fact that [Man] has a biological advantage over the cow."⁹⁴

Huxley's theory of mind is reminiscent of several already circulating hypotheses at the time. Henri Bergson viewed mind as institutional in the evolutionary process. Intelligence, especially in connection to humankind, was an intensified facet of the *élan vital*.⁹⁵ Huxley may also have drawn on the work of sociologist and liberal political theorist L. T. Hobhouse (1864–1929). In the early 1910s, he had included Hobhouse's *Mind in Evolution* (1901) and *Morals in Evolution* (1906) on his lists of literature.⁹⁶ Hobhouse's social liberal politics, as well as his view of evolution, was informed by a worldview of an inherent progressive impulse.⁹⁷ His theory of the evolution of mind accepted Darwinian evolution with its non-progressive characteristics, while all at the same time believing in progress when it came to the evolution of mind. Hobhouse stated that the evolution of mind in humans had resulted in what he referred to as a form of "self-conscious evolution," entering a process in which life was more and more dominated by intelligence. Self-conscious evolution differed from previous evolution in having a purpose toward which it steadily made its way. This difference not only affected the method by which it advanced, but also the rate at which it moved.⁹⁸ The development of mind in evolution constituted a radical move into a higher principle of organization.⁹⁹

In 1917, and considering the rise of mind in evolution, Huxley wrote: "Here there is some sort of a critical point."¹⁰⁰ Huxley wanted to illustrate the advancement of evolution by plotting an upward curve (Figs. 2.1 and 2.2). The line of evolution ABC was to be thought of as a function of the variables Time and Biological Progress. Evolution was continuous, but the rise of mind at critical point B marked a difference in quantity and speed of evolution.¹⁰¹ Curve ABC was thus general progress over time in

⁹⁴ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes for lecture 2.

⁹⁵ For more on Bergson's philosophy and *élan vital*, see Gallagher (1970, 39–55).

⁹⁶ JSH Papers, RU, MS50, 57:6. Rice 1914–1916, list of literature.

⁹⁷ Mead (2010, 649); see also Owen (1974) and Seaman (1978).

⁹⁸ Hobhouse (1901, 371, 401).

⁹⁹ Hobhouse (1901, 396–97). See also Alexander (1931).

¹⁰⁰ JSH Papers, RU, MS50, 58:1. Notes from Dec. 1917, "The Idea of a Critical Point in Evolution."

¹⁰¹ JSH Papers, RU, MS50, 58:1. Notes from Dec. 1917, "The Idea of a Critical Point in Evolution," and JSH Papers, RU, MS50, 59:10. Drawing of graphs, "A Critical Point in Evolution."

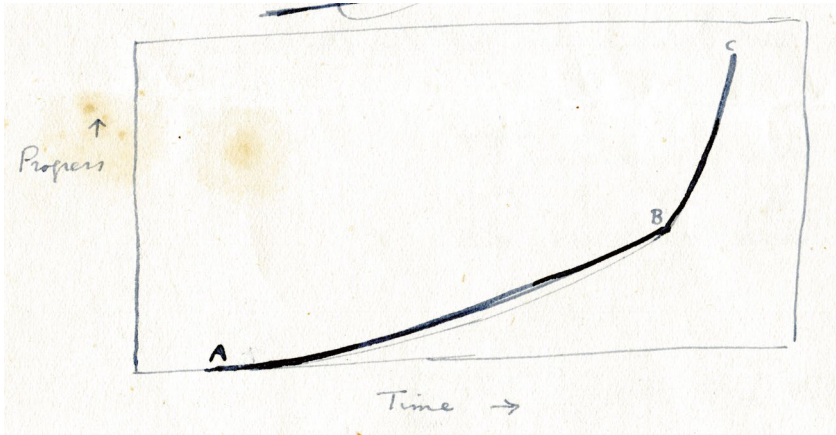


Fig. 2.1 The ABC line of evolution as a function of the variables Time and Progress. Critical point B marks a difference in quantity and speed of evolution: More progress in less time! Graph drawn by Julian Huxley in 1917. Source: JSH Papers, RU, MS50, 59:10. Published with permission from Woodson Research Center, Fondren Library, Rice University, Houston, Texas

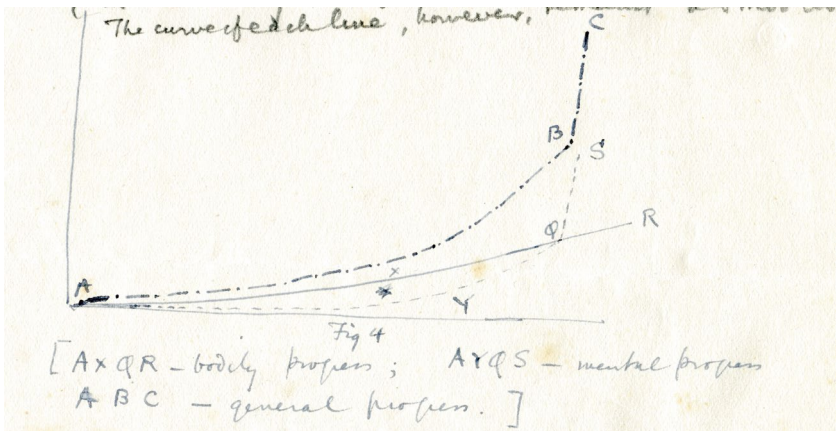


Fig. 2.2 Lines of evolution. Line AXQR represents “bodily progress,” line AYQS “mental progress,” whereas ABC is “general progress.” General progress accelerates at the critical point B when mental properties come to have more survival value than bodily. Graph drawn by Julian Huxley in 1917. Source: JSH Papers, RU, MS50, 59:10. Published with permission from Woodson Research Center, Fondren Library, Rice University, Houston, Texas

animal evolution, trying to represent achievement as measured by degree of control over, and independence of, inorganic forces and other organisms: “We may think of this being given by the curve for bodily organization up to the critical point B; and then by the curve for mental progress after the point B.” The graphs, wrote Huxley, would probably seem unscientific to many of his fellow experimentalists. Nevertheless, he was convinced he had touched upon something truly valuable.¹⁰²

In 1921, Huxley described the increase of brain and mind as the determining factor in the upward progress of animals.¹⁰³ The idea of a critical point was also utilized in Huxley’s *Essays of a Biologist* in 1923. The rise of mind in evolution was as critical as that when living matter had risen from non-living matter.¹⁰⁴

Huxley wanted to emphasize continuity in evolution. He wrote that the rise of mankind had not resulted in a discontinuity in terms of a distinct break in evolution, but nonetheless believed it had meant “a discontinuity in this sense, that the comparatively smooth curve of animal evolution does a suddenly kink, alter its shape, shoot upwards.” It is clear that the critical point B, where the progressive curve shot upward, was closely related to the appearance of the human species. The critical point in evolution occurred when, Huxley claimed, mind came to have more biological (survival) value than bodily organization, “as it were freed from the tyranny of the body.” In a line of thinking reminiscent of Hobhouse’s ideas of the evolution of mind, he wrote: “With man, for the first time in the history of life, we can say that mental organisation is more important biologically than bodily organization.”¹⁰⁵ He explained that mind had become the dominant factor in the type of organism the human was, and therefore also the dominant factor in the evolutionary process.¹⁰⁶

Huxley used “mind” broadly, to denote all psychical activity and experience, conscious or subconscious, sensory, emotional, and cognitive. It is

¹⁰² JSH Papers, RU, MS50, 58:1. Notes from Dec. 1917, “The Idea of a Critical Point in Evolution.”

¹⁰³ Huxley 1921: “The Control of the Life-Cycle (iv),” 497.

¹⁰⁴ Huxley 1923: “Religion and Science: Old Wine in New Bottles,” *Essays of a Biologist*, 256–57.

¹⁰⁵ JSH Papers, RU, MS50, 58:1. Notes from Dec. 1917, “The Idea of a Critical Point in Evolution.”

¹⁰⁶ Huxley 1923: “Science and Religion,” 295; see also Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 23–24; Huxley 1927: “Mind Considered from the Point of View of Biology.”

important to note that he certainly ascribed non-human animals “mental properties” as well, ranging from the “individualized” to the “extremely unorganized.”¹⁰⁷ He did not, however, believe it probable that even the “higher” animals possessed ideas or images.¹⁰⁸ In relation to mind, human-kind was in a classificatory group of its own.¹⁰⁹ Huxley strongly identified humans with their cognitive abilities.

In viewing evolution as a line or a curve, also thinking that evolution had passed through certain stages or phases along the way lay close at hand.¹¹⁰ There was continuity between the stages, but with a critical point between them after which the process had altered its character. In the early 1920s, Huxley also started speaking of different evolutionary stages. The organic had risen from the inorganic, the organic had in turn given rise to mind. Thinking in this way of evolutionary stages would later become important when Huxley formulated his transhumanism.

Alongside the critical point in evolution, Huxley started referring to what he viewed as a distinct human stage of evolution. He called it the “Psychozoic.”¹¹¹ It was the stage in which mind became self-conscious.¹¹² Psychozoic organisms were self-aware organisms, that is, human beings. Huxley did not invent the term. It has since gone out of fashion, but at the time of Huxley adopting it, the term “psychozoic” was sometimes used when speaking of a new geological era, the period of geological time characterized by the presence of human intelligence. Geologists used it to promote recognition of the extent of human domination of the Earth and the Earth modified by human action (compare: Anthropocene).¹¹³ Huxley picked up the concept and used it in an evolutionary setting, believing that the human dominance on Earth could be explained by the appearance of a self-conscious mind.

¹⁰⁷ JSH Papers, RU, MS50, 58:1. Notes from Dec. 1917, “The Idea of a Critical Point in Evolution.”

¹⁰⁸ Huxley 1923: “Biology and Sociology,” *Essays of a Biologist*, 97.

¹⁰⁹ Mind in humans Huxley characterized by a) reason and imagination, b) general concepts, and 3) a coherent organized and continued mental life, see JSH Papers, RU, MS50, 58:1. Notes from Dec. 1917, “The Idea of a Critical Point in Evolution.”

¹¹⁰ For a detailed discussion of the related question of Huxley’s use of evolutionary laws, see Swetlitz (1995, 185).

¹¹¹ Huxley 1923: “Rationalism and the Idea of God,” 219; Huxley 1923: “Religion and Science: Old Wine in New Bottles,” 257; Huxley 1923: “Science and Religion,” 295.

¹¹² Huxley 1923: “Religion and Science,” *Essays of a Biologist*, 257.

¹¹³ The term may have been coined by geologist Joseph LeConte (1823–1901). The term psychozoic is discussed in LeConte (1877, 556–57), and appears in LeConte (1878). See also Vernadsky (1945).

Huxley was certainly not alone in campaigning for the primacy of (the human) mind in evolution, as already touched upon. The ethologist and psychologist Conwy Lloyd Morgan (1852–1936) proposed his philosophy of “emergent evolution” in the early 1920s. According to Morgan’s philosophy—inspired by Bergson—mind and spirit “emerged” at key points in the development of nature and once formed, began to play an active role in directing further progress.¹¹⁴ An aging Lloyd Morgan’s *Emergent Evolution* was published the same year as Huxley’s *Essays of a Biologist*, in 1923, and the similarities between the two were noted within that decade.¹¹⁵

The human-specific stage of psychozoic evolution would, in one sense, become a way for Huxley to explain how human cultural change could be understood in evolutionary terms. Through speaking of psychozoic evolution, he could discuss human societal transformations, the cultivation of plants and the domestication of animals, the development of metal tools and writing, urbanization, the rise of market economies, etc.¹¹⁶ At times it seemed an effortless application of biology to society. Huxley could speak of “evolutionary selection” working on different human tribes or nations.¹¹⁷ In *Animal Biology* (1927), he and Haldane compared technological progress to biological. The steam engine had become the “dominant type” of vehicle and had made other types of technology go extinct.¹¹⁸ Huxley did not always make clear distinctions between the biological and the cultural, instead often viewing them as parts of the same process.

The Huxleyan fondness of discussing human society and culture from the viewpoint of an evolutionary biologist found its clearest expression, however, not in explanations of human history, but instead in announcements regarding the uniqueness of humankind and what this meant for the future. In discussing the future, the psychozoic stage of evolution also became a way for Huxley to regain for humanity some of the control lost to the inhuman and meaningless forces of Darwinian evolution.

¹¹⁴ Morgan (1928).

¹¹⁵ Widgery (1927, 62). Huxley referred to Lloyd Morgan’s philosophy in the 1960s, but not—as far as I have been able to discern—earlier, although it is highly probable that he had heard of it, see Huxley 1971: “Science and Synthesis,” 31–32.

¹¹⁶ Greene has likened Huxley’s idea regarding this matter to Spencer’s “superorganic evolution,” denoting a form of continuation of organic evolution to human culture, see Greene (1981, 165).

¹¹⁷ Huxley 1926: “The Hope of Betterment,” 50–51.

¹¹⁸ Huxley & Haldane (1927); Ruse (1996, 311–12).

In the early 1920s, backed up by his theory of mind, Huxley explained that because humans had a unique mode of life (thanks to their “psycho-neural mechanism”) they could develop and eventually advance not only through biological inheritance, but also through “experience-inheritance,” so that experience was no longer stored in the individual alone. Instead, it could be transmitted amassed to later generations.¹¹⁹ Indeed, wrote Huxley, here Lamarck seemed to have been correct! Human beings could indeed “inherit acquired characteristics,” through speech, writing, and printing tradition provided a new method of inheritance.¹²⁰ On a sidenote, neo-Lamarckism was attractive for the very reason that it assured its supporters that an organism’s response to changes in the environment could be an exercise of choice and, in the case of humans, free will.

And so, according to Huxley the appearance of humans marked the beginning of a new era.¹²¹ The upward curve of evolution—the one that had altered at a critical point and shot upward—started to increase almost exponentially in this new era. It became more rapid as time went on: “From man’s first beginnings until the present, the rate of progress has been growing more and more rapid; and there are no signs that it is slackening now.”¹²²

¹¹⁹ Huxley 1923: “Biology and Sociology,” *Essays of a Biologist*, 77–78.

¹²⁰ Huxley 1926: “The Evolution of Man,” 48–49.

¹²¹ Huxley 1923: “Religion and Science,” *Essays of a Biologist*, 256–57.

¹²² Huxley 1926: “The Evolution of Man,” 48.

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A Razor for the Divine: Constructing a New Religion

As stated in the introduction, Huxley was interested in creating a new religion for the future. This chapter will focus more specifically Huxley's early attempts to systematically formulate his "religion for the future," venturing into questions of meaning making and the search for an alternative creed for the future. The chapter will also introduce the problem of the "human beast" and argue that evolutionism both raised existential issues and enabled new possible solutions to these issues.

Like several of his contemporaries and friends, his brother Aldous, the philosopher C. E. M. Joad (1891–1953), H. G. Wells, George Bernard Shaw, Bertrand Russell, and Haldane, Huxley was critical of organized religion and outspoken about his thoughts on the matter.¹ From the 1920s onward, he started to publicly discuss religion from a scientist's point of view, in texts such as "Science and Religion" (1926) and *Why I Reject the Idea of God* (1931).²

Huxley believed that the new science of evolution, but also of comparative religion and religious psychology, had cut the ground from under the feet of the "supernaturalists."³ It was important to him that the approach

¹ See Haldane (1938, 202); Kevles (1995, 124).

² Huxley 1923: "Science and Religion"; Huxley et al. (1931).

³ JSH Papers, RU, MS50, 59:3. 1921–1922. Note regarding the naturalistic attitude toward religion; Huxley 1927: *Religion Without Revelation*, 82–86.

to any religious system be scientific, that the ideas it expressed could be analyzed and tested by the help of scientific disciplines.

It is not surprising that he would think so. This was a period during which possibilities of psychological and biological explanations for religion were being actively explored. If human experiences could be analyzed and their dynamics determined scientifically, could religious experience not be treated in the same way? James Georges Frazer's (1854–1941) highly influential *The Golden Bough*—first published in 1890 but rendered in new editions throughout 1906–1915—and similar studies had made an impact on Huxley's view of the matter. Frazer's comparative study of religion famously included Christianity. This fact, along with Frazer's idea that humankind had been religiously progressing, from early magic cults through religious beliefs to scientific rational thought, put matters of faith in a new perspective. Huxley referred specifically to Frazer's *The Golden Bough* in his *Essays of a Biologist* (1923) and in *Religion Without Revelation* (1927).⁴

According to Huxley, the question of religion could best be viewed through the lens of biology. The human was an organism and an evolutionary product, and even religious thought was evolving.⁵ He viewed religion as a natural phenomenon, and more specifically a psychological one. God was created in the human mind through the act of “organizing our knowledge of outer reality after the pattern of a personality.”⁶ Religion, then, was based on a human “irrational tendency to symbolism” and a tendency to project subjective ideas into external objects and processes.⁷

During the 1930s and 1940s, Huxley continued his critique of religion. He was an active member of the Rationalist Press Association and published in the *RPA Annual*. In 1934, he wrote that, were he a dictator, he would wish to disestablish and disendow the Church and repeal the blasphemy laws.⁸ He repudiated all doctrines of static changelessness or “futile cycles of recurrent change,” elements he associated with traditional religious thinking. To his mind, religion had falsely convinced people that a

⁴ Additionally, Huxley was inspired by George M. Stratton's (1865–1957) *The Psychology of Religious Life* (1911), see Huxley 1923: “Rationalism and the Idea of God,” *Essays of a Biologist*, 210.

⁵ JSH Papers, RU, MS50, 59:3. 1921–1922. Note regarding the naturalistic attitude toward religion.

⁶ Huxley 1923: “Science and Religion,” 316.

⁷ Huxley 1923: “Science and Religion,” 313–14.

⁸ Huxley 1934: *If I Were Dictator*, 124–25.

hard life was a necessary condition of existence and that people needed to remain in their appointed station of life. In Huxley's future, there would be no promises of a better life in the world to come, no blaming suffering on a Divine Purpose. Nor would there be any Absolute, no eternal truths or absolute morality.⁹

The interwar period saw several instances of outrage over his outspoken disbelief in God. Critics called him a rationalist bent on destroying religious beliefs dependent on the idea of a personal God.¹⁰ In 1928, the poet Alfred Noyes (1880–1958), at the time a recently converted catholic, pointed to Huxley as the main atheist culprit: he was in the process of undermining the world's highest values.¹¹ Following the Conway Memorial lecture of 1930, wherein Huxley rejected the idea of God, he was charged with advocating a cold scientific world without God, or of attempting to set up a new God in the form of science.¹² Maybe, one commentator suggested, Huxley should be sent off to Russia, to truly experience what the destruction of religion had brought upon that "unhappy country."¹³ A number of church officials even held a meeting to discuss Huxley's atheistic lecture and, according to the *Oxford Daily Telegraph*, emphatically condemned his vision.¹⁴

Huxley was, however, far from uninterested in religion. He took great interest in aspects of ritual, creed, morality, and mystical experience. He did not have the same secularizing agenda that some of the scientific naturalists of the second half of the nineteenth century may have had.¹⁵ During the First World War, Huxley had entered into a period of intense reading. A theological essay by William Temple (1881–1944), the liberal-minded archbishop of York, influenced him to set upon a study of philosophy and religion. He read Thomas Aquinas's *Summa Theologica*, the *Confessions* of

⁹ Huxley 1934: *If I Were Dictator*, 13–14.

¹⁰ JSH Papers, RU, MS50, 136:3. West 1924: "The New Scientific Religion," *London Quarterly Review*, Jul., 29–39; "The Biology of Mind. Review of *Essays of a Biologist*," *The British Medical Journal*, 1924, vol. 1, no. 3301: 632–33.

¹¹ JSH Papers, RU, MS50, 121:3. Noyes 1928: "The Diminishing Road," *Spectator*, 28 Mar.

¹² JSH Papers, RU, MS50, 136:4. "Religion Without a God..." *North Mail and Newcastle Chronicle*, 4 Oct. 1930. See also 136:4. "Professor Huxley's Outlook," *Dundee Advertiser*, 3 Oct. 1930; 136:4. "The Basis of Morality," *Bolton Evening News*, 3 Oct. 1930.

¹³ JSH Papers, RU, MS50, 136:4. "The Example of Russia," *Daily Mail*, 8 Oct. 1930. Anonymous commentator.

¹⁴ JSH Papers, RU, MS50, 136:4. "Scientist Criticised," *Oxford Daily Telegraph*, 3 Oct. 1930.

¹⁵ Lightman (2007, 43).

Augustine, the lives of various saints and mystics, and translations of German theologians, as well as works of English bishops like Charles Gore (1853–1932) and Neville S. Talbot (1879–1943).¹⁶

Even though one should be careful not to exaggerate tendencies or the “mood of an era,” it is possible to claim that Huxley and many of his contemporaries found themselves in what was felt to be a new, secularized world. Surveys of church attendance do suggest a steady decline after the 1890s.¹⁷ Early twentieth century, particularly the period following the First World War, has generally been described as a pessimistic time. The mood was present even before the Great War. In 1912, the bishop Talbot mourned the loss of an earlier Victorian confident optimism and belief in progress that had presently withered away.¹⁸

The pessimism of the early twentieth century was regularly related to a widespread feeling of loss of traditional beliefs and the feeling that science stripped the world of human values and meaning.¹⁹ This gave cause for a debate on moral and ethics, and aged forms of belief. Many who abandoned traditional religion were still convinced that humanity needed some form of faith. Some believed science needed to be accounted for in a new life philosophy or religion.²⁰

Like several of his contemporaries, Huxley noted that the established Christian church was “decaying” and described a general feeling of confusion in the current situation; people did not know what to believe but needed something to believe in.²¹ Although Huxley rejected the idea of God, he nevertheless believed that what he referred to as “religious feeling” was important. The hard-core atheist might be tempted to call for elimination of all the irrational symbolism Huxley described in religion, but he saw in it something very human-specific and valuable, indeed necessary.

¹⁶ Huxley (1970, 113).

¹⁷ Bowler (2001, 194). At the same time, notes Bowler, a survey by C. L. Drawbridge made in 1932 suggested that there was no major trend away from religion, see Bowler 2001, 32–33. See also Drawbridge 1932, 28 ff. For further reading see Helmstadter & Lightman (1990); Chamberlin (1981).

¹⁸ JSH Papers, RU, MS50, 121:2. Talbot 1912: “The Modern Situation.” Huxley had clearly read this, as can be seen by notations in the margins. See also Burrow (2000).

¹⁹ Bowler (2001, 339–40).

²⁰ Smith (1992, 4). As an example, see West (1924); Russell (1935); see also Sandhurst (1946); Midgley (1992).

²¹ Huxley 1927: *Religion Without Revelation*, 81.

A theology, he wrote in 1917, developed as the product of the human intellect attempting to make order in the universe. That human attempt at trying to understand the universe—with its resulting theology—looked to be unavoidable: “There is a mystical element in human nature that demands satisfaction.”²² A couple of years later, he would even state that the idea of God was “an inevitable product of biological evolution [...]”²³ In viewing religion as a biological and cognitive phenomenon, Huxley very early on thought that it might even be necessary in order for the human individual to live a sane and purposeful life.

The problem, then, did not lie in religion per se, but instead in the fact that current religions were outdated or unsatisfactory. Huxley was convinced of this very early on. In his notes of 1917, he wrote:

What the philosophers and theologians want is a razor. The Absolute badly needs a hair-cut [...]. As for God, he should really have his beard trimmed. I admit that he is more presentable than in the days of his youth, his Jahveh days. But there is still too much hair on his face, and it conceals his real character. [...] I want to see his chin and mouth, and the lines round the corners of the mouth, and the exact modelling of his cheeks. [...] William of Occam invented a razor for himself, to use on Logic. Let us hope that the Twentieth Century will construct one to be employed upon the features of Divinity.²⁴

Huxley’s religious and philosophical excursions seemed to be propelled not only by a general interest in religious systems of belief but also driven by a strong conviction in the need for finding a higher purpose. Examining belief-systems also had a practical significance to Huxley, for as early as his Rice period (1914–1916) he had felt that a general framework of mind was required.²⁵ The idea of the need for a new system of beliefs was evidently with Huxley as early as the 1910s. In 1918, he had complained that the “Freethinking school” lacked a crucial element: It lacked a purpose or authority transcending humankind.²⁶ It was to be around the time of the

²² JSH Papers, RU, MS50, 58:1. Note on religion from 15 Dec. 1917. “Where Wells is Wrong...”

²³ Huxley 1923: “Rationalism and the Idea of God,” *Essays of a Biologist*, 208.

²⁴ JSH Papers, RU, MS50, 58:1. Notes for an unpublished essay, 1917.

²⁵ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes.

²⁶ JSH Papers, RU, MS50, 58:6. Typewritten notes for an essay, 1918.

ending of the First World War that he in earnest started to think about formulating a vision—a new general system of ideas—for humankind.²⁷

Amid the period of religious and philosophical studies during the end of the First World War, Huxley had sketched out plans to write his own book on religion. He proposed to himself then to call it *The Land Beyond Golgotha*, or simply *Beyond Golgotha*, and suggested that it was to be an essay on religion from a new standpoint: “It will have as a motto Lord Morley’s sentence about it being the next task of science to construct a new religion [...]”²⁸ The politician and literary man John Morley (1838–1923), editor of the *Fortnightly* from 1867 to 1882, had been a friend of T. H. Huxley.²⁹ Julian had met him as a boy.³⁰ Morley had been sympathetic to ideas of a new and science-based religion and had suggested: “Science, when she has accomplished all her triumphs in her own order, will still have to go back, when the time comes, to assist in the building up of a new creed by which men can live.”³¹

3.1 SPIRITUAL BIOLOGY

As a non-believer in God, Huxley from the start hoped that evolution could be the new authority. In Huxley’s mind any new system of belief needed to be linked to the science of biology. Biology was the science of life; it should thus strive to enlarge its scope to include every function of life. In his notes from the period 1916–1918 he wrote down and underlined: “spiritual biology.”³² He imagined some sort of “evolutionary philosophy,” which without deviating from rational reasoning could point to an authority greater than the human individual. If humanity could accept and understand the evolutionary theory, it could also accept change as the basis of a new, dynamic system. Evolution gave the basis for fundamental ideas such as “direction,” “speed,” and “time.”³³ This was the first time Huxley tried considering what a religion of the future might look like.

²⁷ JSH Papers, RU, MS50, 58:11. “Spiritual Biology,” undatable material, 1916–1918.

²⁸ JSH Papers, RU, MS50, 58:6. Note, 1918. “On the train to...”

²⁹ Marvin (1918, 641–44).

³⁰ Huxley (1970, 26).

³¹ Morley (1874, 120); Phillips (2013, 33).

³² JSH Papers, RU, MS50, 58:11. “Spiritual Biology,” undatable material, 1916–1918. See also Deese (2015, 92).

³³ JSH Papers, RU, MS50, 58:6. Typewritten notes for an essay, 1918.

In September 1918, he wrote to his soon-to-be wife Juliette that he believed he had worked out “a fairly complete philosophy of religion in biological terms— [...] But it all remains in my head!”³⁴ And it would remain there for a while. Huxley never wrote the book with the title *Beyond Golgotha* as he had planned in the late 1910s. Nevertheless, he would get a chance to make public use of his thoughts on religion elaborated during the War years. His first public writing on the topic was published in *Essays of a Biologist* (1923), essays “Rationalism and the Idea of God” and “Religion and Science: Old Wine in New Bottles,” as well as in *Science and Civilization* (1923), edited by F. S. Marvin.³⁵ These essays presented much of the ideas regarding religion he had sketched out in his private notes.

The most serious of these early attempts at formulating and presenting a vision was done in Huxley’s book of 1927, *Religion Without Revelation*. In it, Huxley called for what the title suggested: an updated version of religion, ditching the concept of God but retaining a religious or spiritual feeling. The book saw Huxley treading new ground. It was his first full-length book discussing a subject wholly outside of the scientific biological domain. *Religion Without Revelation* showcased his extensive reading on religious subjects. He clearly wanted to reveal himself as the man of letters he sought to be in addition to the evolutionary biologist. The text was peppered with quotes from classic poems and novels, texts by clergymen, as well as from works in history, metaphysics, anthropology, and psychology.

In *Religion Without Revelation*, Huxley again returned to Morley’s encouragement that science should construct a new religion.³⁶ By now, he described what he saw as the desperate need of humanity at the present time for a common outlook “comparable in its comprehensiveness and wide acceptance with the common outlook, religious and philosophical, which dominated the Middle Ages.”³⁷ This as a statement was somewhat

³⁴ Huxley (1986, 63).

³⁵ The volume was based on lectures given at the Sixth Unity History School held at Woodbrooke near Birmingham in August 1922. Huxley’s lecture-topic had been “Science and Religion,” and his essay in *Science and Civilization* bore the same title. The Unity History School had been holding lectures since 1915. Subjects for the school had been “The Unity of Western Civilization,” “Progress,” “Progress and History,” “Recent Developments in European Thought.” Volumes of the collected lectures were successful and used for study in various universities.

³⁶ Huxley 1927: “Personalialia,” *Religion Without Revelation*, 127.

³⁷ Huxley 1927: “The Situation To-Day,” *Religion Without Revelation*, 94.

surprising, seeing as Huxley regularly criticized the religious dogmatism of previous centuries. It seems Huxley nonetheless adhered to the idea that religion was an important part of the foundation of any successful civilization. He now stated that religious feeling had unmatched power to “transform life” and act as a powerful motivator, but that “primitive”, old, or undeveloped religion (not fit for the modern age) would instead impede human faculty and clog the wheels of progress.³⁸

The current age was the age of science. Never before had the human knowledge of nature been this complete: “It was impossible, before the later nineteenth century, to have any properly grounded idea of the unity of the natural world.”³⁹ So how could the twentieth century and beyond be content with the same religious outlook that had satisfied it “when the natural world was uncomprehended, appeared chaotic as much as orderly, and the ideas of control and conscious change had not yet been born?”⁴⁰ For these reasons, theology needed to be reformed.⁴¹ In particular, Huxley firmly believed religion could and should exist with a complete absence of belief in revelation and a personal God.⁴²

A large part of *Religion Without Revelation* was dedicated to exploring questions of what religion was and had been in its various components and in human society, in order to understand why it did not work anymore and what aspects of organized religion needed to be abandoned. Some of his cues Huxley took from Alfred North Whitehead (1861–1947), whose *Science and the Modern World* (1925) appears to have made an impression on him.⁴³ The mathematician Whitehead had begun writing in earnest about metaphysics in the 1920s and *Science and the Modern World* had received wide general attention. In Whitehead, Huxley found an impressive combination of “philosopher, man of science, man of letters, and mathematician.”⁴⁴ He also found some of his own ideas similarly expressed by Whitehead.

Whitehead’s philosophy has later been referred to as “process philosophy,” essentially giving priority to change as a main factor of the world. In

³⁸ Huxley 1927: *Religion Without Revelation*, 156, 342.

³⁹ Huxley 1927: “Developed Religion,” *Religion Without Revelation*, 322–23.

⁴⁰ Huxley 1927: *Religion Without Revelation*, 325.

⁴¹ Huxley 1927: *Religion Without Revelation*, 58.

⁴² Huxley 1927: *Religion Without Revelation*, 23.

⁴³ Huxley refers to Whitehead, see Huxley 1927: *Religion Without Revelation*, 93–94.

⁴⁴ Huxley 1927: *Religion Without Revelation*, 149–50.

Science and the Modern World, Whitehead generally criticized the “scientific mentality” as limiting and all (scientific) notions of reality and matter as fixed or static as misleading. Instead, Whitehead emphasized change, and a constant process of dynamic “becoming.”⁴⁵ This struck a chord with Huxley, who, as shown, was already working out a system where evolution—with the change and dynamic forward movement it represented to Huxley—was to be the model of thought. He most likely also sympathized with Whitehead’s attempt to move past what was felt to be an acute conflict between science and religion.⁴⁶

Religion Without Revelation did not mention a spiritual biology. Instead, Huxley wrote that the new common outlook for humanity should be based on a “scientific humanism.”⁴⁷ He was not alone in using that epithet. One contemporary example is the science historian Charles Singer (1876–1960), driving force behind the foundation of the British Society for the History of Science in 1947, who defined a “scientific humanism” in the first issue of *The Rationalist: A Journal of Scientific Humanism* in 1929.⁴⁸ Huxley stood in contact with Singer, as they taught at the zoology department in Oxford at the same time in the early 1920s and Huxley participated in a summer school on science and civilization that Singer co-organized in 1922.

Huxley defined humanism as based on the idea of “human control by human effort in accordance with human ideals.”⁴⁹ The “scientific” put heavy emphasis on biology by continuously stressing the importance of an understanding of evolution for a comprehensive worldview.

This scientific humanism was to direct religious feeling toward progress, science, and humankind. The earlier vaguer spiritual biology had now developed into a suggestion of a kind of worshipping of life. The

⁴⁵ Whitehead (1925).

⁴⁶ Huxley would continue to take an interest in Whitehead, he reviewed the philosopher’s works in the 1930s, see *The Spectator*, 28 Apr. 1933, 611.

⁴⁷ Huxley 1927: *Religion Without Revelation*, 9.

⁴⁸ For Singer’s ideas regarding scientific humanism, see Mayer (2005). Another close-lying example is George Sarton (1884–1956), founder of the discipline of the history of science and of the journal *Isis*, who championed his idea of a “New Humanism” in the 1920s, see Sarton (1924), and Huxley’s acquaintance Lancelot Hogben, who called his creed “scientific humanism.” To Hogben, scientific humanism meant realizing that the pursuit of science was inextricably linked to the responsibilities of citizenship, a respectful understanding of the impact of science on human society, see Hogben (1939a, 13).

⁴⁹ Huxley 1927: *Religion Without Revelation*, 18.

evolutionary point of view showed that human organisms were linked with all other organisms, plant and animal, and that this continuous stream of organic life was itself evolved from and connected to non-living matter. Out of the evolutionary drama, humankind had emerged. Any “religion of the future” should respect “sanctity in existence,” human existence in particular, and admit transcendent value in many human activities and products (poetry, science, etc.).⁵⁰

But the scientific humanism Huxley suggested was not about a passive life-appreciation. It was, after all, about human control and using this to overcome obstacles. In this perhaps especially, Huxley believed his own vision would differ from earlier religions, which he interpreted as often having encouraged an apathetic acceptance of hardship. Huxley’s scientific humanism would accept the reality of evil and pain and suffering: “We shall expect them, but we shall try to overcome them.”⁵¹ A sacred task would be to “make gradual progress in the task of subordinating matter to mind.”⁵² In particular, the human personality should strive to attain higher levels of “wholeness,” to dedicate oneself to attaining what Huxley described as “more life”: “more in quality as well as in quantity.”⁵³

It was a first sketch and presented no complete system or finished thoughts, but *Religion Without Revelation* demonstrated that Huxley took the idea of attempting to come up with a new set of beliefs very seriously, and that he was convinced that it was a necessary aspect of a future desirable outcome for humanity.

It is important to underline the fact that Huxley—and this is true regardless of what period in his life we examine—made no real difference between a religion, a philosophy, or even at times an ideology. This was, as seen, because he believed a religion could be a worldview that did not necessarily have to involve a belief in God or gods. For example, in 1918 Huxley considered the tendency to raise the principles of nationality to mystical heights (Nationalism) to be a symptom of humankind’s need for emotional and moral support from an authority, something previously provided by traditional religions.⁵⁴ In the 1920s he continued to discuss

⁵⁰ Huxley 1927: *Religion Without Revelation*, 326.

⁵¹ Huxley 1927: *Religion Without Revelation*, 363–64.

⁵² Huxley 1927: *Religion Without Revelation*, 362.

⁵³ Huxley 1927: *Religion Without Revelation*, 340, 357.

⁵⁴ JSH Papers, RU, MS50, 58:6. Typewritten notes for an essay, 1918.

nationalism as a form of modern religion.⁵⁵ On several later occasions he would describe political ideologies as religious reactions in a modern world. He saw Marxism, Nazism, and Fascism as “social religions” following in the wake of a breakdown of supernatural theology.⁵⁶

It was common to make this analogy. When Aldous wrote that he viewed most doctrines of belief as “manifestly idiotic,” he counted Nazism, Communism, and nationalism as belief-systems.⁵⁷ Joseph Needham believed that communism provided “the moral theology appropriate for our time.”⁵⁸ The American philosopher Susanne Langer (1895–1985), who harbored similar ideas about religion as a need of the human animal, is a later influence on Huxley regarding this matter.⁵⁹ Like Huxley, Langer entertained the idea that older philosophical systems (to which she counted Christianity) were exhausted in the modern world, which gave rise to ideologies instead.⁶⁰

Following the Second World War, Huxley would abandon “ideology” because he felt it bore too narrow political connotations (in the 1950s, he wrote that he preferred the word religion, because he found the word ideology to be “ugly” and “unpleasant”).⁶¹ He would consistently and continually alternate between belief-system, idea-system, philosophy, worldview, and religion when discussing his vision.

In 1926, Huxley defined religion as an account of the world and humankind’s place in it.⁶² It is to be noted, again, that he did not believe that religion had to involve supernatural elements. Rather, his view and definition of religion can be seen as functional. Functional as in a function of the human organism but also in the sense of religion seen as any cultural system at its most abstract, a system of symbols that, here borrowing a

⁵⁵ Huxley 1923: “Biology and Sociology,” *Essays of a Biologist*, 94.

⁵⁶ JSH Papers, RU, MS50, 63:4. “The Belief in Survival,” 1932; JSH Papers, RU, MS50, 100:1. “Humanity’s Need is a New Ideology,” 28 Jan. 1950. At another time, Huxley identified Catholicism, Communism, and “the American way of life” as idea-systems of equal standing, see JSH Papers, RU, MS50, 113:2. Notes of the Ninth Meeting of the Idea-systems Group, 14 Mar. 1951.

⁵⁷ Huxley (1969, 453). Letter from Aldous to Julian, 24 Apr. 1940.

⁵⁸ Werskey (1978, 204).

⁵⁹ Huxley writes that Langer had inspired him, see Huxley 1951: “Foreword,” 128.

⁶⁰ Langer (1942, 292).

⁶¹ JSH Papers, RU, MS50, 100:1. “Humanity’s Need is a New Ideology,” 28 Jan. 1950; Huxley 1957: “Knowledge, Morality, and Destiny,” 256.

⁶² Huxley 1923: “Science and Religion,” 287.

definition from sociologist John H. Evans, “acts to establish powerful, pervasive and long-lasting moods and motivations in humans by formulating conceptions of a general order of existence.”⁶³ In 1942, Huxley wrote of his belief that natural ethical or religious feeling could be channeled into new venues and “applied to provide a new and more efficient moral framework for living.”⁶⁴

Besides believing that some form of belief was a necessary motivator for living, Huxley was also convinced that the kind of general framework of mind that a religion provided could be a powerful driving force of change. The “peculiarity of mind” that invested external objects with emotions and ideas and gave rise to religious feeling was important and of great practical value, if rightly used.⁶⁵ In *Religion Without Revelation*, his functional view of religion was pronounced, as he claimed to address the problem of religion and religious feeling “stripped of all trappings, theological, credal, or ecclesiastical,” in order to be able to see clearly “the real function of religion.”⁶⁶ Huxley clearly saw a functional purpose for religion: it could motivate change. This also implied that he saw a need to motivate people to change.

Part of the reason why religion was important to Huxley lies in the fact that he believed science was essentially morally and emotionally neutral. Science generated knowledge, facts, new ideas, and new opportunities of control. What humans did with the results of science, however, was not dependent upon science, but upon values: “It is here that religion can become the dominant factor.”⁶⁷

Nonetheless, Huxley’s “spiritual biology” or “scientific humanism” was something more than a functional tool to motivate and persuade people. The socialist and atheist publisher Emanuel Haldeman-Julius had referred to Huxley as a “modern mystic,” due to Huxley’s attempt at creating and promoting a religion of the future.⁶⁸

In 1927, teacher and philosopher Alban G. Widgery (1887–1968) identified as a philosophical trend an attempt at a transcendence of the viewpoint of positivism in many of the prominent thinkers of his time in

⁶³ Evans (2018, 64–65).

⁶⁴ Huxley 1942: “The Biologist Looks at Man,” *Fortune*.

⁶⁵ Huxley 1923: “Science and Religion,” 314.

⁶⁶ Huxley 1927: *Religion Without Revelation*, 10.

⁶⁷ Huxley in *Science and Religion: A Symposium*, 1931, 18–19.

⁶⁸ Huxley et al. 1931: *Why I Reject the Idea of God*, 32.

Great Britain. They all seemed to strive for something that justified the assertion of an element of mysticism in their attitudes, while retaining their non-religious stance.⁶⁹ This was a form of *Lebensmystik*, as described by historian Roger Griffin: An “immanentist monistic life mysticism,” that had risen at the turn of the twentieth century. Life itself was seen as a source of wonder and transcendence, encouraging intellectuals to worship a “this-worldliness” imbued with numinous significance.⁷⁰ The outlook bore traces of an earlier Transcendentalism, seeking to find divine experience in the everyday, rather than in a distant heaven. Physical and spiritual phenomena were seen as part of the same dynamic process of the universe, and there was a strong belief in the power of the individual.

Transcendentalism had informed parts of the British intelligentsia at the end of the nineteenth century through texts by Ralph Waldo Emerson (1803–1882), Walter Whitman (1819–1892), and Henry David Thoreau (1817–1862).⁷¹ The Bloomsburyites at Garsington, with whom Huxley associated himself, cultivated a kind of “Life Worship”; one where an enlightened elite should have vivid life experiences, expand their consciousness, and strive to become more individualized and actualized. Many of them had a penchant for concepts such as “Life” and “Life force,” as well as for Nietzsche and Bergson. Writer and poet D. H. Lawrence (1885–1930), who Huxley knew and with whom he would later vacation, saw himself as an “aristocrat of life” and spoke of seeking to become “more vividly alive.”⁷²

Part of this immanentist monistic life-mysticism is clearly found in Huxley. His scientific humanism made a task of attaining “more life” or a “fuller life.” He was also not a stranger to using a decidedly “religious” language when speaking of biology and evolution. In his Rice lectures, he likened evolution to a revelation.⁷³ He spoke of the possibility of interpreting the great drama that was evolution as if deciphering a secret sacred text and declared: “Evolution is one of those cosmic words which are the units in the language of eternity.”⁷⁴

⁶⁹Widgery (1927, 36).

⁷⁰Griffin (2013, 73).

⁷¹Mead (2010, 646).

⁷²Lawrence 1963a: “Reflections on the Death of a Porcupine,” 207; “Aristocracy,” 227–28. Essays written in the 1920s. See also Lawrence (1952, 169).

⁷³JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes.

⁷⁴JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes.

In the early 1910s, Huxley also talked of how biological knowledge could be gathered and pieced together “into broken snatches of transcendent meaning.”⁷⁵ The wording and usage of the term transcendence in the Rice lectures was similar to the Christian evolutionist Henry Drummond’s (1851–1897), whose *Ascent of Man* (1895) had been included on Huxley’s literature lists. In it, Drummond wrote of evolution: “What Science has to say about himself is of transcendent interest to Man, and the practical bearings of this theme are coming to be more vital than any on the field of knowledge.”⁷⁶

In “Progress shown in evolution,” an essay from 1928, Huxley chose to cite Nobel Prize winner physicist Robert Millikan (1868–1953) on progress.⁷⁷ Being religious, Millikan believed science brought forward evidence as to a benevolent force in the universe and was convinced of theistic evolution, where God created through the laws of nature. Huxley would continue to appreciate formulations in and draw inspiration from what would increasingly be seen as unconventional sources, from a strictly scientific point of view.

In the 1920s, Huxley also started to contemplate transcendence. He wrote of what he referred to as “the problem of transcendence” and elaborated on the idea that transcendence was the hallmark of religion at its highest.⁷⁸ Huxley did not, however, want to discuss transcendence in the sense of human relationship with a transcendent God. Many religious writers, he claimed, stressed the question of transcendence and its importance. But the idea that transcendence was an experience that could only be understood in relation to a person’s relationship with God was, according to Huxley, to give it “false exclusiveness.” Transcendence must be a thing achievable even without a belief in God.⁷⁹

To Huxley, transcendence sometimes meant considering oneself an integral part of the universe. During the 1920s, he would express the idea of a force flowing through the world and of the world or cosmos as a unified and complete whole. Huxley spoke then of “the fundamental uniformity and unity of the cosmos. [...] [N]ot merely the unity of life [...] but

⁷⁵ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes.

⁷⁶ Drummond (1895), v. See also Watson (1897), Scott (2004).

⁷⁷ Huxley 1928: “Progress Shown in Evolution,” 339; Millikan (1927, 41–42).

⁷⁸ Huxley 1923: *Essays of a Biologist*, 293–94; see also Huxley 1923: “Science and Religion,” 322–24.

⁷⁹ Huxley 1923: “Religion and Science,” 295.

the unity of living and non-living, demanding a monistic conception of the universe.”⁸⁰ According to this cosmic idealism the human being was riding along, supported, on the tide of evolution.⁸¹

In these cases, Huxley’s view is reminiscent of a form of secular transcendence that was imagined in secular humanist movements in the 1920s and 1930s: Transcendence often implied a reaching out beyond the self, a sense of wonder and awe in contemplating the universe and one’s place in it.⁸² Later in his career, too, Huxley would use transcendence in this sense. He described the mystical experience of transcendence of the self as an essentially positive experience, one that entailed feeling mystically united with nature (becoming “one with the universe”).⁸³

This idea of the unity of life and a life-force flowing through cosmos certainly echoed some of the vitalism a young Huxley had been doused with through Bergson. As shown, however, even if there were still traces of vitalism there, parts of it were on its way out. Huxley had started to criticize Bergson in the 1920s. The idea that humans were simply riding along, perhaps benevolently supported, on the tide of evolution toward greater heights of progress, was rapidly becoming hard to defend in light of events unfolding around Huxley.

3.2 *BÊTE HUMAINE*: THE PROBLEM OF THE HUMAN ANIMAL

While Huxley was exclaiming his enthusiastic belief in experimental biology, human capability, and even in the possibility of scrapping older religions and instead creating a new faith based on evolution, science, and reason, the times were not entirely happy. As already touched upon, the new research and new knowledge of the mechanism of natural selection confirmed a random, even chaotic process that was not teleological at all. To some, the implications of Darwin’s theory of evolution by natural selection seemed to point to the insight that further human progress was more unlikely than had previously been imagined. Political events could

⁸⁰Huxley 1923: “Progress, Biological and Other,” 60.

⁸¹Huxley 1923: “Progress, Biological and Other,” 40–41. See also JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes, Lecture 3.

⁸²Meyer (1982, 534).

⁸³Huxley & Huxley 1947: *Evolution and Ethics, 1893–1943*, 192; Huxley 1970: *Memories*, 55.

also affect the outlook. The Darwinian struggle of natural selection—once heralded by Herbert Spencer as a force of progress—did not seem to generate social progress at all.⁸⁴ Spencer’s brand of progressive optimism did not seem viable following the disillusionment brought on by the trench warfare of the First World War.

George Bernard Shaw expressed what many felt: The European catastrophe was of “a magnitude so appalling, and a scope so unpredictable, that as I write these lines in 1920, it is still far from certain whether our civilization will survive it.”⁸⁵ G. K. Chesterton (1874–1936), Catholic and outspoken critic of Darwinian progressionism, emphasized the possible stagnancy of evolution. Just because we came from the ape did not necessarily mean we were going to the angels.⁸⁶ Philosopher Ferdinand Canning Scott Schiller (1864–1937)—leading pragmatist in the interwar period—was inclined to agree: There was no law of progress.⁸⁷ The earlier confident progressionism was on its way out and all but disappeared in the pessimistic atmosphere of the late 1920s and the 1930s.⁸⁸ The economic depression, political stalemate of interwar Britain, and the rise of Fascism in Europe in the 1930s further undermined the confidence in progress and fostered considerable disillusion across the political spectrum.⁸⁹

The perfectibility of humankind was put into question. William Ralph Inge (1860–1954), Dean of St. Paul’s, was (like Chesterton and Schiller) critical of the optimists.⁹⁰ Hardly had there been any moral or physical improvement throughout the ages; there had been no progress in the human species for thousands of years. Mentally, modern humans were no better than the humans of the Old Stone Age. The Great War had proven that civilized humans had not become more humane or sensitive to the suffering of others. Progress had not been progress at all, but merely a temporary absence of temptations. Inge had been shocked to see blood lust and brutality awakened in young men during the war. They stood as a clear example of how easily came the loss of superficial self-control:

⁸⁴ Bury (1920, 340–41); Ruse (1996, 184); Hale (2014, 22); Greene (1981, 134–35).

⁸⁵ Shaw (1921, x).

⁸⁶ Widgey (1927, 26–27); Bowler (2001, 397); Dale (1982).

⁸⁷ Schiller (1926, 35–36).

⁸⁸ Bowler (2004, 63); Murray (2002, 150).

⁸⁹ Stapleton (2000, 262–63).

⁹⁰ Inge partook actively in the public debate and had earned the nickname “The Gloomy Dean,” for the pessimistic views expressed in his writings. Inge 1920: “The Idea of Progress”; Inge (1930); Bowler (2001, 275).

“With these examples before our eyes, it is difficult to feel any confidence that either the lapse of time or civilization has made the *bête humaine* less ferocious.”⁹¹

Many sources, besides a general imaginary, could have inspired Inge to speak of the *bête humaine*. Émile Zola’s (1840–1902) novel *La Bête humaine* had been published in 1890. Zola’s “Beast Within” portrayed a man with some form of hereditary madness that impelled him to murder women, displaying an uncontrollable violent and sexual behavior. It expressed clearly the idea of the human who reverts to or reveals his or her bestial brutality under conditions of emotional stress.⁹² Zola’s naturalism had caused an outrage and debate in England in the last decades of the nineteenth century, but his novels had found a large audience of readers by the 1900s.⁹³

Closer to home, Inge would perhaps have been acquainted with Robert Louis Stevenson’s (1850–1894) bestseller *Strange Case of Dr Jekyll and Mr Hyde* (1886), that ghastly tale of civilization versus barbarism, making its readers aware of the brute violence lurking beneath the polished surface of ordinary men. On the same theme, Wells’ Doctor Moreau creates, using experimental biology, something like humanity from animals. But the experiments are unsuccessful, and the book ends with the Beast-People forgetting their humanity as the beast within re-emerges to reclaim the animal.⁹⁴

The notion of the human beast is an old trope. Humans being like animals, transforming into or reverting to animals—metaphorically or literally—are found in some of humankind’s oldest myths. Certainly not all this literature and art is meant to present a negative view of the matter, but descriptions of humans as “bestial” or “bestly” have often, if not always, been meant in a derogatory sense. In English, the term “beast”—derived from the Latin *bestia*—was essentially a synonym for “animal,” but sometimes reserved for large, wild, or feral animals. It was being used about humans in a pejorative sense—meaning senseless, wild, or violent—going back to at least the seventeenth century.⁹⁵

⁹¹ Inge (1920, 22–23).

⁹² Dahlstrom (1946). *La bête humaine* was first translated into English in 1901, translated and edited with a preface by Edward Vizetelly, with the exact title *The Monomaniac (La Bête Humaine)*, see Zola (1901).

⁹³ Decker (1934).

⁹⁴ Wells (1896); see also Neill (2021); McNabb (2015).

⁹⁵ Preece (2005, 1).

However, as English scholar Tim Youngs has discussed, post-Darwinian images of the beastliness of “man” have different connotations from those that preceded them.⁹⁶ There had been a burgeoning “crisis of distinctions,” in particular the distinction between the human and the animal, in the early modern discourse of species.⁹⁷ But the question of the relationship between humans and animals could arguably remain a predominantly philosophical problem (regarding the human rational and/or immortal soul) up until the nineteenth century. The shock of Darwinian evolution was that the human characterized as an animal became a scientific truth. Not only could the human now be seen as containing within him- or herself actual traces of the (non-human) animal through heredity; the naturalistic account made it clear that humans in fact are animals. Humanity truly incorporated animality. Analyzing Wells’s science fiction and other science fictional accounts of the post-Darwinian era, writer Brian Aldiss has described a prevalent “horror of animality.”⁹⁸

Darwin’s theory of evolution arguably meant a profound change in our conception of ourselves. In *The Descent of Man* (1871) and *The Expression of the Emotions in Man and Animals* (1872), Darwin suggested that human behavior followed a long line of descent, and this was at times interpreted in connection to the idea that humanity had risen from a “lower” animal form. Humans were not made in the image of God and were not uniquely rational beings. This human recognition of the animal self, and the realization of the kinship between humans and other animals, did not necessarily have a positive impact either on the way humans viewed themselves or on how they regarded and treated non-human animals.⁹⁹

The notion of a *bête humaine*, or human beast, could now carry with it the idea that whatever was wrong with humans could be possibly explained by a biological evolutionary heritage. Human beings, then, were seen as

⁹⁶ Youngs (2013, 18).

⁹⁷ Boehrer (2010, 8).

⁹⁸ Aldiss (1973, 124–25).

⁹⁹ Preece (2005, 2). The philosopher James Rachels argued for a profound positive change in our conception of ourselves with and after Darwin. The realization that we are products of the same evolutionary forces that shaped the rest of the animal kingdom undermined the traditional idea that human life had a special, unique worth and, Rachels suggested, opened for the possibility of a more respectful approach to nature, see Rachels (1991, 1, 4). For a critical literary perspective on the human/animal relationship, see Norris (1985).

having a host of unwanted characteristics belonging to the category of “baser instincts,” traits that had “animal” origin and that were perhaps uncontrollable.

Historian of science Piers Hale has argued that Darwin’s decision to excise his comments on humankind from *Origin of Species* before publishing led many of Darwin’s contemporaries to immediately misread the implications Darwin believed evolution to have for humanity. In *Origin*, natural selection was described as a fierce and bloody competition between one individual and another. Human beings, as part of nature, were seen as having been primarily shaped by that competition.¹⁰⁰

The issue was brought to the philosophical discussion of human nature. Were humans originally made good by Nature, but corrupted by society? Or was it the case that humans—originally wild barbarians or animals—had a “natural evil” that needed to be curbed by civilization, science, and an enlightened society? T. H. Huxley, who had contrasted the brutal state of nature with ethical human society, wrote of humankind’s biological heritage as the “dose of original sin” that every individual carried within. Our ancestors, who fought in the harsh state of nature, had transferred “the instinct of unlimited self-assertion” unto us. It was up to civilization to teach us self-restraint and renunciation.¹⁰¹

In 1921, Shaw doubted whether the “human animal” was capable of solving the problems raised by his own aggression. Humans could not even, it seemed to Shaw, succeed in organizing a village or a tribe too well.¹⁰² Many felt inclined to agree with the above-mentioned Inge’s experience. It seemed as if humankind had not changed at all during human history. Schiller adhered to the perception that humankind had not changed but was identical in mentality and in moral with its Paleolithic ancestors: “[Man] is still the irrational, impulsive, emotional, foolish, destructive, cruel, credulous creature he always was. [...] Civilization is not even skin deep; it does not go deeper than the clothes.”¹⁰³ Humans

¹⁰⁰ Darwin only later explained, in *The Descent of Man*, that humankind was a social species to which cooperation was significant, see Hale (2014, 17).

¹⁰¹ Huxley, T. H 1896: *Evolution and Ethics and Other Essays*, 43–44. Wells (together with whom Julian would come to work closely) held the conception that nature was evil rather than good, and in this was no doubt inspired by his admired teacher T. H. Huxley’s *Evolution and Ethics*, see Glover (1972, 123); see also MacKenzie & MacKenzie (1973).

¹⁰² Shaw (1921, x–xi).

¹⁰³ Schiller (1926, 37–39).

were quite literally limited by their past. Huxley's friend Haldane lamented than humans were, after all, "only a little freer than a barnacle. Our bodily and mental activities are fairly rigidly confined to those which have had survival value to our ancestors during the last few million generations."¹⁰⁴

Huxley shared with his contemporaries the notion that humans were partly "beasts" (he was, after all, an evolutionary biologist). It was an insight that could make one feel a good deal of humility. In notes for lectures from 1911 to 1912, Huxley wrote of the idea that the human mind (reason, consciousness) was "extremely limited in both quality and extent." With such feeble power of knowledge, Huxley wrote, humankind could never arrive at a universally true formula or even a definite line of action. At that time, he still adhered to hopefully believing that evolution had not yet reached the limit of "upward change" in the human mind.¹⁰⁵

After the First World War, as the problem presented itself with new urgency, the notion that there was a "natural evil" in human beings affected Huxley. He now tried to explain the problem by equating evil in humans with stagnancy and degeneration in organic evolution. It had nothing to do with progress, or, if it did, perhaps it was indirectly helping the positive main direction.¹⁰⁶

Huxley had read and referred to Pyotr Kropotkin's *Mutual Aid* (1902) and had written of the importance of co-operation.¹⁰⁷ He believed, however, that the human social instinct that made people act altruistically toward their peers was comparatively newly developed in evolution. As such, it was desperately competing against the older, deeper-rooted individualist tendency—that mindset of the survival of the fittest. As modern society became more complex, our older and deeper-rooted instincts of aggressive individualism resulted in more and more frequent conflict.¹⁰⁸ By the end of the 1920s, Huxley was prepared to claim that the Great European War had been "inevitable when it came, because of the fact that human intelligence, good-will, and virtue, in 1914 and for all of history before it, were incomplete, insufficient."¹⁰⁹

¹⁰⁴ Haldane (1930, 279).

¹⁰⁵ JSH Papers, RU, MS50, 57:3. Lecture notes, 1911–1912. "Every spiritual thing has a material side..."

¹⁰⁶ Huxley 1923: "Science and Religion," 299.

¹⁰⁷ Huxley 1923: "Biology and Sociology," *Essays of a Biologist*, 91.

¹⁰⁸ Huxley 1923: "Science and Religion," 308.

¹⁰⁹ Huxley 1927: *Religion Without Revelation*, 16.

3.3 HUMANS ARE NOT STATIC: THINKING IN TERMS OF FURTHER EVOLUTION

As has been discussed, Huxley believed that mind was the thing that made humans stand apart from other organisms. The human mind enabled speech, writing, and printing, all new modes of inheritance through tradition and education. The human mind was also much more plastic: “As [...] consequence, man has come by the power—impossible to any other organism—of leading what is to all intents and purposes a multiple existence. It is for this very reason difficult to fit man into many of the ordinary biological categories.”¹¹⁰

According to the pre-Darwinian idea of a *Scala naturae*—the great ladder or chain of creation—there is a hierarchy of nature, with inanimate entities on the lowest rang, and followed by plants, animals, humans, angels, and God in the highest position. Creation is seen as ordered and ascending toward the spiritual. Historian of ideas Arthur O. Lovejoy (1873–1962) found an ambiguity within the *Scala naturae* mode of thinking: Humankind stood as a sort of “middle link.” Being a member of two orders of being at once—hovering somewhere in-between the beasts and the angels—induced a sense of frustration over the disparity between human aspirations and human powers.¹¹¹ This ambiguity of humankind had famously been made the very foundation of Giovanni Pico della Mirandola’s (1463–1494) Renaissance humanism. Pico praised the human being for its ability and freedom to move on the ladder of creation. Whereas everything else in creation, whether lower or higher on the ladder than the human, had its decided and static place and role, humans had no restrictions and could choose for themselves how to shape their nature.¹¹²

Darwin’s theory of evolution upset the idea of a *Scala naturae*.¹¹³ Terms such as “higher” and “lower” were increasingly being criticized as not relevant to use in relation to a classification of organisms, other than perhaps with respect to standards within each grouping of organisms. Darwin himself was cautious to speak of higher and lower in nature. At

¹¹⁰ Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 44–45.

¹¹¹ Lovejoy (1957, 198–99); see also Eriksson (2010, 38–39); Mendieta (2016, 159).

¹¹² Pico was speaking of the God-given human faculty of disciplined reason and imagination. Pico della Mirandola (1956), 6–7.

¹¹³ It should be noted, however, that the idea of an ordering of organisms also laid the basis for the transformism and evolutionary thinking of the eighteenth and nineteenth centuries.

one point, he wrote that it was “absurd” to classify one animal as higher than another.¹¹⁴ Nor did Darwin see it fit to describe any form of linear progress over the course of evolution. His own basic metaphor was a tree, not a ladder or a chain. But, as historian of science Diane Paul put it, “if trees branch, they still grow upward. That is where Darwin, in general, thought evolution was headed.”¹¹⁵

The thinking associated with a ladder of creation, in terms of higher and lower, ascent and descent, did not disappear with Darwin. Nor did questions of progress and of humankind’s place in nature. The geologist Charles Lyell (1797–1875) once wrote to Darwin that he felt the theory of evolution had diminished the dignity of the human ancestry. It gave him no comfort to know that he might be succeeded in unbroken lineal descent by angels who would “show a Newton as we show an ape.”¹¹⁶ Later, Nietzsche would think along similar lines, but with greater gusto: Man would be to Superman as the ape was to Man, a laughingstock, a thing of shame.¹¹⁷

Remnants of the idea or metaphor of evolution as a ladder, that could possibly be ascended or descended, was still found among biologists in the interwar period. Echoing Pico but in a Darwinian setting, Huxley stated that the human species did not fit into any of the ordinary biological categories and that the “range of potentiality” given to humans was much larger than in any other animal. The difference between two healthy jellyfish or two healthy monkeys was very little, but the “difference between two normal men may easily exceed the difference between a jelly-fish and a monkey.”¹¹⁸ Humans in the future, Haldane believed, may excel us a great deal more than present-day humans’ excelled worms or jellyfish.¹¹⁹ Autodidact scientist and eugenicist Herbert Brewer (1897–1968) similarly guessed that humans might be the forerunners of “beings as superior to ourselves as we are to the apes.”¹²⁰

The frustration over the disparity between human aspirations and human powers was certainly felt. Huxley, too, grappled with this issue. In

¹¹⁴ Herbert (1977).

¹¹⁵ Paul (1995, 23).

¹¹⁶ Ruse (1989, 47).

¹¹⁷ Nietzsche (1911, 6).

¹¹⁸ Huxley 1927: *Religion Without Revelation*, 335.

¹¹⁹ JSH Papers, RU, MS50, 121:3. Haldane 1927: “The Golden Age—and Then!” *Evening Standard*, 10 Oct.

¹²⁰ Brewer (1935, 121). For more on Brewer, see Redvaldsen (2015).

notes from the 1920s, he had wondered “what influence does the fact of our being immersed in Nature [assert] upon our capabilities for getting above or outside Nature?”¹²¹ The evolutionary biologist was perhaps asking an updated version of the question of humankind’s place in nature as the puzzling “middle link,” or, as Huxley had put it, living that “multiple existence.”¹²²

One way of solving the issue with the embarrassing and sometimes dangerous evolutionary heritage was to think in terms of further evolution. Darwinian evolution by natural selection meant not only that human beings came from and still were animals. Evolution also taught change and process. As a matter of fact, human beings were not static and were not destined to remain as they were. Huxley found no cause for alarm in the fact that humankind had evolved from ape-like ancestors, rather the opposite: The origin of humankind proved to Huxley that humans had advanced during their evolution. This fact was to Huxley not only more scientific but also potentially more optimistic than older beliefs, that claimed humans descended from gods or heralded from a golden age or had been banished from the Garden of Eden. All such older beliefs implied that present-day humans were degenerate.¹²³

As shown, Huxley was at this point already considering some form of new system of thought or religion and had suggested basing it on the dynamic system that was evolution. Facing the depressing image of the *bête humaine*, Huxley’s vision promoted a view of the human species as only yet near the beginning of its evolutionary career.¹²⁴ Humanity was biologically still youthful.¹²⁵ Evolution, as Huxley wanted to view it, taught that there was nothing indicating that the process was not being or could not be continued further.¹²⁶ Indeed, evolution could give a sense of the inevitability of change, or, at the very least, could ensure humans that change and transformation was natural. In 1936 Huxley proposed to substitute the religious escape mechanism of “other-worldly phantasy” for the “real possibility of evolutionary progress.”¹²⁷

¹²¹ JSH Papers, RU, MS50, 60:6. Manuscripts, notes, 1920s. “Introductory.” Underlining is Huxley’s own.

¹²² Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 44–45.

¹²³ Huxley 1926: “The Evolution of Man,” 44.

¹²⁴ Huxley 1923: “Science and Religion,” 329.

¹²⁵ Huxley 1926: “The Evolution of Man,” 48.

¹²⁶ Huxley 1926: “The Hope of Betterment,” 54.

¹²⁷ Huxley 1936: “Eugenics and Society,” *Eugenics Review*, 29.

The possibility of some future evolutionary change did not solve the immediate problem, however. Many thousands of years had passed, and yet humans had not improved, as recent events had shown. How, indeed, could improvement have occurred? Evolution worked in small steps over spaces of time so vast as to make all of human history seem like the blink of an eye. Huxley had also reached the conclusion that that there could have been next to no inborn change in capacity in the human species since it first appeared: “The general run of human nature and human capacity has remained the same for thousands of years.”¹²⁸ For about 50,000 years the inherited constitution of humans had been what it still was. The progress that was, in Huxley’s eyes, everywhere evident depended not on biological changes in heredity, but instead on more knowledge and more power amassed through accumulated tradition.

Although Huxley believed humanity was only in the beginning of its evolutionary career, although he believed change would continue, he had to admit that human beings had not changed, yet. For someone who wanted to emphasize evolution and human evolution as an essentially progressive and dynamic system, the fact that human nature had remained so static could be seen as an issue. For all his optimism, Huxley was not entirely happy. In 1926 he wrote: “In spite of all our progress there can be no one who thinks that the present state of things is a good one.”¹²⁹

3.4 THE BEGINNING OF A REVOLT: SEEKING SOLUTIONS

In *Literature and Revolution*, written in 1924, Leon Trotsky (1879–1940) lamented humankind’s current anatomical and physiological weaknesses and the human inability to master its own feelings, which led down such humiliating paths as, for example, fantasizing about a life after death. Trotsky suggested using artificial selection and “psychophysical” training to radically transform the human species and create a higher social biological type that he referred to as “a superman.” Trotsky explicitly expressed it as a form of revolt against nature: “The human race will not have ceased to crawl on all fours before God, kings and capital, in order later to submit humbly before the dark laws of heredity and a blind sexual selection!”¹³⁰

¹²⁸ Huxley 1926: “The Hope of Betterment,” 50.

¹²⁹ Huxley 1926: “The Evolution of Man,” 49.

¹³⁰ Trotsky (1957, 254–56).

The Russian revolutionary was not the only one expressing this kind of frustration and defiance. As a matter of fact, his declaration is a good example of what is here believed to be a more widely held line of thinking that had appeared around this time. A similar sentiment is found with Huxley and several of his contemporaries, particularly those interested in controlling biology. To Huxley, at least one of the “problems of mankind” was that “man had to live in a world in which he was confronted with forces and powers other than his own.”¹³¹ The question was if one had to tolerate the situation or whether something could be done about it. Trotsky clearly gave his views on the matter, but so would Huxley.

Huxley wrote that there was a growing minority of people who refused to believe in or accept the current conceptions and valuations of society and human life. The old moral beliefs, often grounded in traditional religion, taught humans to bend the knee to various authorities. “So long as the majority of men,” wrote Huxley, “refuse to believe that they need not remain the slave of the transcendental, whether in the shape of an imaginary Being of the Absolute, or of Transcendental Morality, they cannot reap the fruits of reason. If the minority became the majority, society and all its institutions and codes would be radically altered.”¹³² A couple of years later, as shown, Huxley’s vision made a task of “subordinating matter to mind” and of trying to overcome obstacles set up by nature.¹³³

The idea that humans did not need to accept things the way they were extended to include not only human-made aspects and features of life, but also external factors. Through the increase in control over the environment, humankind had become “less and less at the mercy of the forces of nature and of other organisms.”¹³⁴ Following Huxley’s ideas, this development constituted progress. In one sense, then, progress was to be less and less at the mercy of someone or something else; progress was to no longer submit.

Again, Huxley’s convictions were propelled by a great confidence in science, particularly the new vistas of experimental biology. Convinced by what he saw as a revolution in the human capability to plan, control, construct, and manipulate, Huxley was ready to believe that there was hardly anything humans could not achieve, if they set their minds to it.

¹³¹ Huxley 1923: “Science and Religion,” 287.

¹³² Huxley 1923: “Biology in Utopia,” 73.

¹³³ Huxley 1927: *Religion Without Revelation*, 362–64.

¹³⁴ Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 52.

When Darwin had written of natural selection, he used the evidence and techniques of artificial selection, the work of the breeders on animals and plants.¹³⁵ As he did so, Darwin had also contrasted human capabilities with Nature's and encouraged his readers to stand humble before the awesome powers of the evolutionary process. What humans could do; nature could do far better:

How fleeting are the wishes and efforts of man! [...] and consequently how poor will be his results, compared with those accumulated by Nature [...]! Can we wonder, then, that Nature's productions should be far 'truer' in character than man's productions; [...] and should plainly bear the stamp of far higher workmanship?¹³⁶

Like his predecessor, Huxley would compare the results of natural selection to those produced by humans. He would, however, reach a different conclusion as to how to interpret these results. In his Rice-lectures, Huxley had spoken of life's "negative control" and a couple of years later had claimed that the human study of evolution and of biology had brought "order out of chaos."¹³⁷ In 1924, when speaking of eugenics, he suggested that humans could and should "replace Nature's more drastic methods of elimination."¹³⁸ In 1927, he had admitted that the "slow, wasteful and blind forces" of natural selection had unquestionably created marvelous things. But he added that when humans had applied their efforts to change, for example, the breed of their animals, the progress had been far more rapid than that of nature.¹³⁹

Often accompanying the argument for human intervention, for example, in eugenics, was the idea that selection through scientific control was better than nature's method of selection (natural selection). Whereas nature's ways of selection were described as chaotic and brutal, human interference would be rational and purposeful. Francis Galton (1822–1911), who coined the word eugenics in 1883, argued that human beings could do providently, quickly, and kindly what Nature did blindly,

¹³⁵ Ruse (2004, 133–34).

¹³⁶ Darwin (1859, 84).

¹³⁷ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, Notes; Huxley 1919: "Biology and Human Progress," *The Manchester Guardian*, 15 Aug. 1919.

¹³⁸ Huxley 1924: "Nature or Nurture," *New Leader*.

¹³⁹ Huxley 1927: "The World with Mechanism Enslaved," *The Evening Standard*, 12 Oct.

slowly, and ruthlessly.¹⁴⁰ If, Huxley suggested in the 1920s, progressive evolution could be obtained through quicker and more merciful methods, the old method of natural selection would stand condemned.¹⁴¹

Huxley was confident that the knowledge of human heredity was already advanced enough to be used for human enhancement. If natural selection, he suggested, could achieve such staggering degrees of evolutionary transformation without “knowing” anything about the mechanisms of evolution, what might not humans with their reasoned mind achieve?¹⁴² He encouraged humanity to move toward a form of artificial rather than natural selection that entailed calculated control and a conscious aim and was therefore more effective and less wasteful than natural selection.¹⁴³ The future agent of human transformation would not be the blind and automatic. Instead, humankind would employ a hereditary selection “as non-natural as are most human activities.”¹⁴⁴

Huxley was a public intellectual in an era of social engineering, and this is of significance. The technocratic and practical aspects of Huxley’s thinking will be explored at greater length in the next two chapters. For now, it is sufficient to note that the idea of controlling life constitutes a crucial component in the philosophy and practices of social engineering and eugenics. When Galton had coined the word eugenics, he also started a movement and an ideal.¹⁴⁵ Galton saw eugenics as a means to manipulate natural selection in humankind. By 1908, he understood eugenics as a preferable alternative to natural selection among humans.¹⁴⁶

Nietzsche had spoken of Zarathustra as an incorporation of the superhuman ideal.¹⁴⁷ There has been debate over whether Nietzsche spoke of “modifying” humans by means of new and higher philosophical values, or if he was speaking of actual physical breeding of better humans. Put in a different way, was the superhuman the ideal of a new spiritually superior

¹⁴⁰ Kevles (1995, 12).

¹⁴¹ Huxley 1923: “Science and Religion,” 298.

¹⁴² Huxley 1964: “Eugenics in Evolutionary Perspective,” 272–73.

¹⁴³ Huxley 1957: “A Re-Definition of Progress,” 30.

¹⁴⁴ See Huxley 1964: “Eugenics in Evolutionary Perspective,” and Huxley 1957: “A Re-Definition of Progress,” 30.

¹⁴⁵ *Eugenics* is a Greek derivation meaning “being well born,” or “of good birth.” In short, eugenics aimed at improving the biological quality of future human generations. Pick (1989, 198).

¹⁴⁶ Bashford & Levine (2010, 4); Kevles (1995, 3); Paul (1995, 3).

¹⁴⁷ Nietzsche (1908, 96–97).

type of human or of a new superior species that could replace humanity? Whatever Nietzsche might have meant, however, it was and is entirely possible to read him as having intended the creation of a new species, relating the *Übermensch* to a Darwinian evolutionary event in the future. Zarathustra had spoken bombastically of Man as something that was to be surpassed.¹⁴⁸ On a comparative side note, Trotsky's "superman" also read as a combination of the ideas of a philosophically, politically, socially better man and of a human literally bred and molded by science to be superior.

In the 1910s, Huxley promoted the view that natural and sexual selection could work and historically had worked on molding the human sexes. The selective operation of men's ideals for women had biologically altered the whole female sex. Men had shaped women into becoming meek and subordinate.¹⁴⁹ This argument was not meant to defend inequality between the sexes as biologically justified. The idea that selection could mold biology in this manner meant, to Huxley, that everything was possible through evolution: If men changed their ideals for women, treated women more as equals, and gave them freedom to study, work, and regulate their own affairs this would—on a hereditary level—result in females of higher intellectual capabilities and physical robustness. Following this development, these future women would in their turn through sexual selection also work to mold better men.¹⁵⁰ The key idea was that human will could affect things, could affect even evolution.

The Nietzschean theme of will-to-power, that had permeated *Thus Spoke Zarathustra* and emphasized the human struggle against the surrounding environment as well as the human reason for living in it, was at times reflected in Huxley's view of agency. This version of Nietzsche taught that the will to power was a fundamental component of human identity, driving the actualization of self-overcoming and self-mastery. In 1912, Huxley had agreed: "Nietzsche's words affirmed the individual's principle of action."¹⁵¹

Remembering again Huxley's definition of progress in evolution, which postulated that an organism or species progressed over the course of time when there was an increase in the control exerted by organisms over the

¹⁴⁸ Nietzsche (1911, 6, 241).

¹⁴⁹ He also suggested that women through this selection now had a slightly lower intelligence than men.

¹⁵⁰ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, Notes, lecture 3.

¹⁵¹ Huxley 1912: *The Individual in the Animal Kingdom*, 9–10.

environment and in their independence with regard to it, the human had progressed further than any other species.¹⁵² Humankind had originated from nature and evolution, but the evolution of mind made possible for humanity to in some sense go beyond nature and assume control. And the human species was not finished yet. When Huxley had mentioned Zarathustra in his book the *Individual in the Animal Kingdom* (1912), he concluded that the human individual, despite being the most independent of any animal, was yet far from that “happy state” of perfect independence from accidents.¹⁵³ Huxley would never speak of the Superman or *Übermensch*, but it is clear that he had considered the idea of the individual’s complete autonomy.

It is important to remember also that Huxley had been brought up in a Victorian milieu and many times displayed a decidedly Victorian moral mindset.¹⁵⁴ Intellectual historian Stefan Collini has explained that morality in the Victorian culture’s understanding of it was understood as a system of obligations.¹⁵⁵ Historian of science Roger Smith has written that “the word ‘Victorian’ conjures up a British literature of order and disorder that stressed individual control and the individual’s duty to society.”¹⁵⁶ Victorian ideas of order were represented as the will’s control over the body—the key to the individual’s comfort and efficient conduct in society. Such views, notes Smith, were taken for granted.¹⁵⁷ Several scholars have observed the impact of the ideal of Victorian self-control on a generation of thinkers and scientists around the turn of the century. Closely related to this is the “scientific temper”—a measured and controlled attitude. Terms such as “self-control,” “self-mastery,” and “nervous control” became popular in the early twentieth century.¹⁵⁸ The language of Pavlov and Freud suggested that control, whether internalized or coming from without, was a fundamental condition of social life.¹⁵⁹

Such thinking no doubt blended with and influenced Huxley’s and others’ ideas of human conduct in society and in evolution. A distinction

¹⁵² Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 30.

¹⁵³ Huxley 1912: *The Individual in the Animal Kingdom*, 7.

¹⁵⁴ See Divall (1992); Stansky (1992); Wiener (1992).

¹⁵⁵ Collini (1991, 63); Ironside (1996, 19–21).

¹⁵⁶ Smith (1992, 27–28).

¹⁵⁷ Smith (1992, 31).

¹⁵⁸ Levin 2000a: “Contexts of Control,” 25.

¹⁵⁹ Smith (1992, 5).

was sometimes made between the automatic activities of impulses (of animals) and controlled rational action (of humans). This can be related to the idea of the human beast. Good human conduct was marked by measured, reasoned control. An individual not in control would give him- or herself over to impulsive and irrational behavior, would be at the mercy of sudden whims and instincts that belonged in the category of behaviors shared by the apes and other beasts, but that should not really belong to a truly “human” human being.¹⁶⁰

In letters to Juliette, Huxley referred to his own recurring depression as a sub-human state, almost animal. He described having “no will, no control, no anything.”¹⁶¹ During a severe depressive episode in 1919, following the First World War, Huxley was put in care with the renowned doctor Roger Vittoz in Lausanne, Switzerland. Vittoz was a proponent of the view that mental illnesses should be seen as a loss of control, or as the result of “insufficient brain control.”¹⁶² A brain without a controlling power was uncurbed and in a state of anarchy: “A prey to every impulse, subject to all fears, unable to reason or weigh an idea.”¹⁶³ In *Treatment of Neurasthenia by Teaching of Brain Control* (1911), Vittoz suggested treatment in the form of basic physical movements and mental exercises that would promote the control of actions and the control of ideas in the patient. The goal was to make the ill person feel more a master of him- or herself again.¹⁶⁴ Vittoz’s theories were clearly in line with turn-of-the-century conceptions of control, generally taking for granted the individual’s will as a real agency and therefore viewing loss of control and insanity as connected.¹⁶⁵ Huxley was seemingly pleased with Vittoz’s treatment, for he would recommend the “nerve-doctor” to T. S. Eliot.¹⁶⁶

¹⁶⁰The evolutionist C. Lloyd Morgan drew a distinction between automatic activities (impulses, instincts) and controlled rational action to mediate between the world of animal behavior and volitional human conduct, although humans could certainly act on impulse too. This view was shared by at least a young Huxley who, in 1912, contrasted the fully formed human personality with the animal mind’s “placid automatism,” see Huxley 1912: *The Individual in the Animal Kingdom*, 30; Morgan (1903, 194); Morgan (1912), *Instinct and Experience*, 31, 103–4. For a discussion on C. Lloyd Morgan and the concept of inhibition, see Smith (1992, 155).

¹⁶¹Huxley (1986, 82). Letter from Julian to Juliette, 9 Aug. 1919.

¹⁶²Vittoz (1911, viii, 46).

¹⁶³Vittoz (1911, 4).

¹⁶⁴Vittoz (1911, 49).

¹⁶⁵Smith (1992, 165).

¹⁶⁶JSH Papers, RU, MS50, 6:5. Letters from T. S. Eliot, 26 Oct. 1921 and 31 Oct. 1921.

Returning now to the idea that human will could affect evolution, Huxley argued that in the psychozoic stage of evolution, the psychozoic (human) organisms might come “to direct their own evolution instead of having their destinies shaped by the blind forces of natural selection.”¹⁶⁷ He claimed that most of that which may have once been progressive about organic evolution had become an obstacle or “a drag” to psychozoic evolution. Biological evolution, from a human standpoint, was “relatively retrogressive.” In a slightly condescending tone, he wrote: “evolution by blind natural selection was the method of progress for organisms below man.”¹⁶⁸

This was a revolt against that final adversary, Nature. Huxley spoke of blind forces and of the dark laws of natural and sexual selection, those both external and internal forces affecting all living things, and that according to Huxley “shaped human destinies.” For it was in the 1920s that Huxley began speaking of destiny, that “remorseless power felt but not apprehended, feared but not understood,” that obstructed the striving of humanity.¹⁶⁹

The word destiny derives from *destinare*; that which has been established. Destiny stands to mean a fixed order of things, an irresistible force conceived of as determining the future—often predetermined by some higher power or God. Destiny is that which you are meant to do. The idea of destiny also implies that the future can be predicted, but being predetermined, it is not usually seen as something that can be actively shaped and altered by humans. And yet, it seems there is an element of choice contained within the concept of destiny, because despite assuming a natural order in the universe, still there seems to exist the idea that individual choices and conscious action can somehow fulfill destiny.

What was another word for destiny in the modern world, asked Huxley, if not heredity? Heredity, like destiny, “accumulated the sins of the forefathers within [...] to charge their grievous burden upon the children’s shoulders.” Heredity was a force pushing humans blindly along predestined roads.¹⁷⁰ So if humans could discover “how to alter the hereditary

¹⁶⁷ Huxley 1923: “Religion and Science,” *Essays of a Biologist*, 257.

¹⁶⁸ Huxley 1923: “Science and Religion,” 298.

¹⁶⁹ Huxley 1929: “Heredity: I,” *Essays in Popular Science*, 1.

¹⁷⁰ Huxley 1929: “Heredity: I,” *Essays in Popular Science*, 1. Huxley also referred to “the force of heredity” as destiny in Huxley 1927: *Religion Without Revelation*, 333.

constitution at will,” then that would in effect mean that human beings would be controlling destiny.¹⁷¹ And who is higher than he, who has risen above his shifting destiny?

The idea that destiny might be controlled could instill hope. In a broadcast talk on the BBC in 1926, Huxley stated that modern science had made humans realize that they could become masters of their own future: “Blind acquiescence in destiny is giving place to the hope that destiny may in large measure come to be controlled.”¹⁷² To Huxley at least, this seemed to offer some comfort in face of widespread disillusionment with the beastly *Homo sapiens* and doubtful progress in evolution. On one occasion, he wrote of having suddenly been gripped by a feeling of relief and confidence on the crowded streets among the mass of people in New York, for there he felt he had glimpsed the life force embodied in the shape of human beings: “There was the driving force of progress.”¹⁷³ It is significant that Huxley named the chapter on eugenics in his book *The Stream of Life* “The Hope of Betterment.”¹⁷⁴ The *Lebensmystik* discussed earlier, the “immanentist mysticism,” manifested too in a new importance attached to the human body as a source of transcendent value, and in attempts to craft a “new man.”¹⁷⁵

While Zarathustra climbed the mountain, knowing accidents could no longer befall him, his ascension alluded to transcendence.¹⁷⁶ But it was a form of individual and self-achieved transcendence that had little to do with a supernatural God or even a benevolent life force. Huxley came to interpret the matter even more concretely and materialistically, like when he connected the attainment of transcendence on an individual level to a form of (individual) human enhancement. His view of the phenomena of transcendence was brought together with his activities as an experimental biologist, and, in the 1920s, he explained that he believed the individual experience of transcendence was not supernatural, but the product of

¹⁷¹ Huxley 1929: “Heredity II,” *Essays in Popular Science*, 27.

¹⁷² Huxley 1926: “The Continuity of Life,” *The Stream of Life*, 1.

¹⁷³ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, Notes, Lecture 1.

¹⁷⁴ Huxley 1926: “The Hope of Betterment,” *The Stream of Life*, 50.

¹⁷⁵ Griffin (2013, 73).

¹⁷⁶ Nietzsche (1911, 185): “But thou, O Zarathustra, wouldst view the ground of everything, and its background: thus must thou mount even above thyself—up, upwards, until thou hast even thy stars under thee!” Comparable to “Transfiguration,” a term referring to the moment when Jesus discovers he is divine, an episode the Gospels recount in terms of his ascent up a mountain; Matt 17:1–9; Mark 9:2–8; Luke 9:28–36.

some yet unknown psychological mechanism. Transcendence on an individual experience level was some kind of mental state that had little to do with divine inspiration. It was not a case of something incommunicable. Rather, transcendence could be investigated by science. As such, it would eventually be understood and, more importantly, transcendence could be “democratized” and “made more available to all who wish for it.”¹⁷⁷

3.5 AT THE END OF EVOLUTION, HUMANKIND STANDS ALONE

The period from the 1930s onward is generally associated with the modern evolutionary synthesis, a time that brought together Darwinism and Mendelism, mutationism and modern genetics.¹⁷⁸ Through experimental biology and quantitative methods, the view of natural selection as an agent diminished. According to Smocovitis, natural selection had taken on a causo-mechanical existence by the 1930s. Terms borrowed from the physical sciences, like “cause,” “factor,” and “mechanism”—Huxley’s preferred word—supplanted the older and more vitalistic term and view of selection as agent.¹⁷⁹

Among the generation of scientists working toward the modern evolutionary synthesis, no insignificant number were acquaintances of Huxley. The three men usually credited as the founders of the population genetics that further proved natural selection, Fisher, Haldane, and Sewall Wright (1889–1988), were all close to him. As already mentioned, he had seen Morgan’s experiments on *Drosophila* up close. In his scientific interests, Huxley was up to date and belonging to a British scientific elite. The synthesizing and popularizing orientation of his nature made him open to the new scientific discoveries and their implications, implications that made it increasingly difficult to maintain vitalistic or teleological alternatives to Darwin’s theory of natural selection. Most of the new generation of Darwinians had become convinced that science revealed no evidence of an underlying plan or purpose built into the universe.¹⁸⁰

¹⁷⁷ Huxley 1923: “Science and Religion,” 322–24.

¹⁷⁸ Largent (2009, 3).

¹⁷⁹ Smocovitis (1996, 123).

¹⁸⁰ Bowler (2003, 343–44). Huxley’s close collaboration with Wells probably also had an effect. Wells was of the firm conviction that progress in human society was not reflective of some deeper progressive momentum of nature itself, see Neill (2021, 81).

Awareness of this terrible aimlessness—of the slow and churning evolutionary process by which such a vast amount of undeveloped capacity went to waste in each generation—would increasingly act on Huxley as an incentive. It would instill a sense of urgency for the need to do something about it. If natural selection had turned out not to be an active “agent” for change, there was need for a new agent. And with the new control of life that science had bestowed, human powers might finally match human-kind’s aspirations.

In the early 1930s, Huxley started proclaiming the end of large-scale evolution.¹⁸¹ In 1931, Huxley and Wells had still referred to natural selection as an “agent.”¹⁸² Historian of science Marc Swetlitz has shown that when a new edition of *The Science of Life* was published in 1934, Huxley’s position had changed, from a focus on possibilities in evolution to a focus on the limitations in evolution. Indeed, Huxley would reach the conclusion that biological evolution by natural selection had come to a halt.¹⁸³

Several earlier scientists had advanced the idea that further evolution was restricted. The American biologist Edwin Grant Conklin (1863–1952) is one example. Huxley had corresponded with him and had met him at the Naples Zoological Station in 1910.¹⁸⁴ Conklin, a professor of biology at Princeton University, was from his upbringing religiously influenced. Although a convinced Darwinist, he argued that humans have a unique position in evolution with regard to further advance in evolution.¹⁸⁵ In 1933, Huxley referred to the South African paleontologist Robert Broom (1866–1951).¹⁸⁶ Broom believed in, and was a proponent of, the idea that evolution had essentially stopped. He also held this to coincide with the appearance of human beings on Earth. A spiritual man, Broom believed that there was a higher power that had planned evolution and that its final goal was the human species.¹⁸⁷

Broom was a respected scientist but a controversial theorist. His claims about the end of evolution were generally not well accepted in scientific circles. Swetlitz has argued that this explains why Huxley, while endorsing

¹⁸¹ Swetlitz (1995, 183).

¹⁸² Wells, Huxley & Wells (1931, 362).

¹⁸³ Swetlitz (1995, 188–89).

¹⁸⁴ Sommer (2014, 567–68).

¹⁸⁵ Newton (1953). See also Conklin (1921, 16 ff.) & Conklin (1923, 3).

¹⁸⁶ JSH Papers, RU, MS50, 63:7. “Man’s Place in the Universe,” an unfinished manuscript. For an analysis of the relationship of Huxley and Broom, see Swetlitz (1995, 192).

¹⁸⁷ See Broom (1933).

the idea of the end of large-scale evolution, quickly and completely stopped referring to Broom in the *Science of Life* 1934 edition, despite having written admiringly to Broom in 1933, telling Broom he believed that the idea of evolution having come to an end was very important.¹⁸⁸

Huxley believed Broom's hypothesis was important because it enabled him to further develop the argument that whereas evolution overall was not progressive (and that it may even have come to a halt), the human species could still progress. Huxley was a proponent of the idea that evolution had proceeded from generalized to specialized forms, an idea that had long circulated in evolutionist science.¹⁸⁹ Once an organism was specialized, there was no turning back. Perfect adaptation to an environment also meant vulnerability, were that environment to change. Because of this, Huxley viewed specialization as a "one-sided advance" rather than an "all-around advance," and it was only an all-around advance that could be called progressive. He thus started to make a distinction between specialization and progress.¹⁹⁰

The accompanying assumption was that there was but one truly noteworthy "all-around advance" in recent evolution: the evolution of the human mind. The development of "brain power"—apparently not here viewed by Huxley as a form of specialization—had "culminated in man" and made "man now the dominant, most successful organism." Humans had won the race, so to speak. Only one organism could reach "the top," or the pinnacle of creation, and the human species was that organism. A human could, for example and according to Huxley, "beat the bird at its own game, producing machines more swift and tireless in the air than the birds themselves, and music compared to which even the lark's and the nightingale's songs are but naïve."¹⁹¹ Again, this is reminiscent of the idea of humankind's place in nature as flexible, and of the human as able to be and do anything, whereas everything else in nature was, essentially, fixed in place.

When mind (and the human species) had become the dominant factor in evolution, the possibility of evolutionary advance for any other species was barred. All other species were either too specialized or were being effectively held back by the human species' domination. Hence, the only

¹⁸⁸ Swetlitz (1995, 193–94).

¹⁸⁹ Swetlitz (1995, 183, 188); Bowler (1977).

¹⁹⁰ Huxley 1995, 183, 188); Bowler (1928: "Progress Shown in Evolution," 330–31.

¹⁹¹ Huxley 1928: "Progress Shown in Evolution," 337.

species capable of further progress was humans. Later, Huxley would state that the human species was now the “sole repository” of any possible future progress for life. It was, Huxley concluded, a “biological impossibility” for any other line of life to progress.¹⁹²

So then, in Huxley’s words, humans were the meaningful part of evolution.¹⁹³ This was him reinstating humankind as standing in the center of history’s meaning. Despite giving a naturalistic explanation of humans, in these instances Huxley still nurtured an idea of humankind very much along the lines of a form of Biblical-Christian tradition, where humans have the ability and mandate to govern the rest of creation, and somehow transcend nature.¹⁹⁴ If humans had not already, they at least could transcend nature. In undated private notes, but that are from the 1930s, Huxley wrote that his “scientific humanism” promoted a view that accepted reality but also realized that humans could “transcend and transform reality” by “moulding nature and society to its will.”¹⁹⁵

Huxley had always believed that humans were in a special position, here was a development of argument to further support that belief. Although the idea that humans were the only species capable of progress was new in Huxley’s argument from the early 1930s onward, as pointed out by Swetlitz, Huxley’s earlier law of progress and ideas of mind in evolution had already pointed in that general direction. Human “higher destiny” was to accelerate by means of consciousness the forces of evolution.¹⁹⁶ Following Huxley’s evolutionary phases, in particular the shift between the biological phase of evolution to the psychozoic phase, mind had become the great progressive feature of “life’s evolutionary trend.” Human beings were carrying forward the main trend of evolution.¹⁹⁷

The idea that evolution had come to a halt made the notion of riding along with a benevolent life-force, or simply waiting for future further evolution, impossible. As Swetlitz excellently pointed out, this extended the extent of human responsibility to sole responsibility for further

¹⁹² Huxley 1942: “The Biologist Looks at Man,” *Fortune*, 141, 146.

¹⁹³ Huxley 1933: “Man and Reality,” *Science in the Changing World*, 198.

¹⁹⁴ Formerly a function of the human relationship to a transcendent God. H. G. Wells had a similar conception of humans, see Glover (1972).

¹⁹⁵ JSH Papers, RU, MS50, 64:8. “Man’s Place in Nature and Uniqueness of Man,” 1930s.

¹⁹⁶ Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 40–41; see also JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, lecture 3.

¹⁹⁷ Huxley 1933: “Man and Reality,” *Science in the Changing World*, 198; Huxley & Huxley 1947a: *Evolution and Ethics, 1893–1943*, 13; Swetlitz (1995, 194–95).

progress.¹⁹⁸ The human species had a singularly unique position in the natural order and was responsible for the future.

3.6 CONCLUDING DISCUSSION AND REMARKS

The two chapters of Part I have examined the period of the 1910s to the 1930s, when Huxley began formulating his vision, and have analyzed how by focusing both on Huxley's context and activities as a scientist as well as on his early concrete attempts to develop a coherent religion for the future.

Huxley became convinced that mankind needed a new system of beliefs because he, like many of his contemporaries, had come to believe that traditional religion had played out its role, while still adhering to the idea that humans needed religion as a motivator for hope and change. He was simultaneously grappling with rather large issues, related to the idea of progress and the theory of evolution. In the first, new scientific research quite clearly indicated that there was no progress in evolution, and this coincided with the fear that the belief in human progress might be entirely unfounded. In the second, there was the related problem of the disillusionment with humankind, the problem of the *bête humaine*.

A concept of control permeated Huxley's thinking. In an endeavor to manage living, humans have most likely always in one way or another made efforts to control their physical and social environment. One might say that these efforts are ancient. Nevertheless, the belief that it is possible to extend the scale and scope of control to maximize the material and social benefits of human labor for all members of society can be said to have originated fully with the Enlightenment.

The Enlightenment advocated the idea of the possibility of perfectibility of society and of the individual, based on rationality and scientific investigation. It is closely related to an idea of progress rooted in a belief in science as a good thing, a belief in the onward and upward development of science, and a belief that science will bring good things to humanity. In this context, control is related to the idea of progress, in the sense of progress in the form of successive waves in human history of beneficial technologies used to alter, control, or bypass nature.¹⁹⁹

Are Huxley's ideas of control—an important part of his vision, as discussed in this chapter—an expression of an Enlightenment heritage? Yes,

¹⁹⁸ Swetlitz (1995, 196).

¹⁹⁹ Levin (2000b, 13); Lilley (2013, 63).

but it is certainly possible to be a bit more specific. How we can imagine the future is dependent on context and on technoscientific knowledge. Huxley lived in a post-Darwinian age, and the theory of evolution clearly formed the basis of his thinking in the dual sense that the existential issues it gave rise to acted on Huxley as an incentive and that evolution also became the solution to these issues. Darwin's theory opened for ideas on the possibility of managing the future by predicting or even controlling evolution. The field of experimental biology and the political movement of eugenics further solidified those dreams.

Dividing evolution into phases or stages, as Huxley did, enabled him, or so he believed, to incorporate his idea of progress in evolution without having to argue that all evolution was progress or that progress was an inevitable outcome. The inorganic part of the cosmos was pursuing the direction of "degradation of energy, which, if it is carried to its limit will result in the extinction not only of life but of all activity" (entropy). The organic part, however, was running a different course: "Ascending during evolutionary time to increasing heights of complexity and to increasing control over its inorganic environment." Finally, in the human psychozoic portion of cosmos, mind had made it so that evolution could begin to be "conscious instead of fortuitous."²⁰⁰ This idea of conscious evolution formed the foundation of Huxley's vision, a solution to the problem of the *bête humaine* and the problem of progress.

Huxley made a point of extending the idea of (human) control to include control over organic nature, over life and humans. He claimed that the human was the only animal that could intelligently reflect on its own destiny.²⁰¹ He also believed that they could possibly learn to control it. Control it in a very literal sense, as Huxley seemed to believe that humankind's destiny lay, at least partly, in its heredity and biological constitution. Human nature and our innate biology was governed by "the blind hand of hereditary destiny," as he put it.²⁰² And he confessed to believing "that in the long run human reason, employing the scientific method, will enable us to control our destiny."²⁰³ This relates to and is very much in line with a point made by historian of science Mark B. Adams,

²⁰⁰ Huxley 1923: "Rationalism and the Idea of God," *Essays of a Biologist*, 219.

²⁰¹ JSH Papers, RU, MS50, 97:7. Huxley 1927: "The World with Mechanism Enslaved," *The Evening Standard*, 12 Oct.

²⁰² Huxley 1932: *What Dare I Think? The Challenge of Modern Science to Human Action & Belief*, 78.

²⁰³ Huxley 1934: *Scientific Research and Social Needs*, 149.

who characterized a “1890-generation,” a generation that post-First World War was caught up with the question concerning the potentials of the new biology for the human future and the possibility of deploying the new biology to seize control of human destiny.²⁰⁴

Already by the 1920s, Huxley could not, it seems, retain the idea that a benevolent life-force was propelling the human species forward and upward, toward new successes. Instead, he started to favor a line of thinking that put an increasing emphasis on human agency and will. Human self-achieved progress and the possibility of attaining transcendence through one’s own capabilities was thus quickly put in relation to human powers of control and in relation to science and technology in the modern world. “Civilised man,” wrote Huxley, “is beginning to realise that he can, if he so wishes, in large measure model the world in accordance with his desires.”²⁰⁵

Humankind stood alone. There was no one or no thing to watch over humankind, and so it was humanity’s duty and destiny to take matters into its own hands: “Man is the only arbiter of his own destiny; he alone bears responsibility for his own actions and the fate of the world.”²⁰⁶

Huxley urged that humans needed to create their own values.²⁰⁷ Akin to Nietzsche, he emphasized will and action in relation to the creation of the future.²⁰⁸ As seen, Huxley had read Nietzsche and made use of him in his first book. There was a general fascination at the time—particularly among eugenicists—with the notion of the human “overman” who creates his own new values.²⁰⁹ But one did not need to be a very avid reader of Nietzsche to pick up similar ideas. Discussing the matter, Huxley at a later point commended Karl Marx for having stressed the necessary rôle of

²⁰⁴ Adams (2004, 45). Adams notes that the 1890s group involved some of the leading scientists, philosophers, and writers of their generation, and mentions Julian and Aldous Huxley, Olaf Stapledon (1886–1950), J. B. S. Haldane, C. S. Lewis (1898–1963), and J. R. R. Tolkien (1892–1973). In his *Degeneration* (1880), Lankester ended his account by stating that humans could avoid degeneration by virtue of their minds: “To us has been given the power to know the causes of things, and by the use of this power it is possible for us to control our destinies,” Lankester (1880, 61).

²⁰⁵ Huxley 1927: *Religion Without Revelation*, 324.

²⁰⁶ Huxley 1934: *If I Were Dictator*, 10; Huxley 1942: “The Biologist Looks at Man,” *Fortune*, 146.

²⁰⁷ Huxley 1934: *If I Were Dictator*, 12.

²⁰⁸ Nietzsche (1911, 98–99).

²⁰⁹ Mazumdar (1992, 104). Mazumdar noted this in relation to the Geneva sociologist and social-Darwinist Georges Chatterton-Hill, commentator of Nietzsche.

human will and human effort in bringing change about.²¹⁰ Many of Huxley's friends and colleagues expressed analogous beliefs. H. G. Wells repeatedly held forth the notion that humankind must take charge of its own destiny in a hostile and uncertain universe.²¹¹

A somewhat prophetic tone would start to be present with Huxley in the 1930s. At times, Huxley made it sound as if the new biology that would enable the control of humankind's evolutionary future, and the great changes it would bring on, was fated. Destiny was set for this development: "There will be no preventing its coming, no possibility of holding back the tide. But we can prevent its advance being piecemeal and haphazard, and can use our imaginations ahead of the event."²¹²

Theologian Michael Burdett has differentiated between two different accounts of the future. It can either have an *adventus* approach, meaning the future is understood as an arrival, something which is coming. Or it can have a *futurum* approach, in believing that the future is built on the present and will be a product of what has preceded it. A *futurum* understanding of the future puts emphasis on that future being reliant upon human endeavors, whereas an *adventus* one basically does not.²¹³

By exclaiming that there would be no preventing the coming of a certain development, that it was "destined," Huxley seemed to suggest the view of the future as an arrival (*adventus*). But at the same time and as shown, Huxley strongly emphasized human agency and will in shaping a desired future outcome (*futurum*): "Progress is [...] not automatic in the sense of being a process inflicted upon us inevitably from without, independent of our efforts and ideals."²¹⁴ Here appears something of a paradox in Huxley's vision. Is the future an inescapable destiny or is it entirely dependent upon human actions? It seems in Huxley's thinking, the emphasis was put instead on the idea of learning to control a destiny that was, at least in part, already set, and by extension ensuring future progress.

The future lay ahead, and evolution was far from finished. The biological species that was humankind was in its infancy, Huxley claimed. In case

²¹⁰ Huxley & Huxley 1947a: *Evolution and Ethics, 1893–1943*, 23.

²¹¹ Bowler (2001, 358).

²¹² Huxley 1932: *What Dare I Think?*, 72.

²¹³ Burdett (2015, 3–4).

²¹⁴ Huxley 1932: *What Dare I Think?*, 7.

of disillusionment with the *bête humaine*, it was possible to find solace in the idea that the human species was only yet near the beginning of its evolutionary career. Of course, evolution does not give organisms what they need. Before the appearance of humans, any progress there had been in evolution had been “unpurposed progress,” Huxley claimed. With humankind, progress may instead become purposed.²¹⁵ Evolution by natural selection could not ensure progress, but evolution by humankind could.

²¹⁵Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 41–42.

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PART II

If I Were Dictator: Visionary Practices



CHAPTER 4

Statesman of Science, Vanguard Visioneer

*I for one regard the state of affairs as definitely gloomy.
Huxley 1932: What Dare I Think?, 109.*

Aldous Huxley had encouraged his seven years older brother to write from a scientific point of view about political and social issues. It would be interesting, wrote Aldous in a letter to Julian in 1923, to get a biologist's point of view on the question of leadership in a modern state.¹ Perhaps this brotherly encouragement stayed with Julian when he, a couple of years later, started in earnest to promote his vision.

The two chapters of Part II focuses on the political and practical aspects of Huxley's activities in relation to his vision, and on his possibilities to influence people around him. Huxley promoted action, and the following chapter will examine how Huxley worked to mobilize his vision, explore what practical changes Huxley hoped for and what type of leadership he believed was necessary for realizing them. Chapter 4 maps out Huxley's engagements and social network and discusses some of his political suggestions put in relation to the political atmosphere of the interwar

¹ Huxley (1969, 222–23). Letter of 12 Nov. 1923.

period. Chapter 5 focuses more specifically on Huxley's biopolitics and ideas for implementations of it and continues the discussion of Huxley's vision as a solution to a more generally perceived issue with humans and human nature in the modern world.

4.1 NEW ENGAGEMENTS

It was H. G. Wells who would be responsible for a new development of Huxley's career. In 1927, Huxley was approached by the author and asked to collaborate with him. Wells had been an admirer and student of Julian's grandfather, and this likely played into his choice of asking Julian to work together on writing a new book of popular science directed at the general public about the latest developments in biology, *The Science of Life*. It was to follow Wells' hugely successful bestseller *The Outline of History* (1920).² Work together with Wells and his son Gip started in the spring of 1927, and Huxley was soon being so hard-pressed by Wells that he felt required to resign his chair at King's College to focus on *The Science of Life*.³ The book was published in its 1000-page entirety in 1931 and scored great success. *The Science of Life* (1929–1931) went through many reprintings and earned Huxley a great sum of money.⁴

Already by the early 1920s, the publicity surrounding Huxley's hormone experiments, as well as Huxley's way of presenting them, had been regarded by some of his colleagues as likely to damage his reputation as a serious scientist. It was clear that he, as philosopher of science Michael Ruse put it, worked with an agenda.⁵ Bowler has similarly explained that Huxley's conduct and views broke the rule of "serious science" and that he would be marginalized within the scientific community as a consequence.⁶ But perhaps it was all to the good, because Huxley seemed

² *Outline* laid out the history of humankind and explained the advancement of human civilization as being the result of the progress of science and technology.

³ Wells, who worked with a fury, constantly felt Huxley was working too slowly and was presenting him with undigested material. In a letter to Huxley in Oct. 1928, Wells fumed: "I might just as well be writing the whole bloody thing with Gip myself... Look at this letter! If it was an article I could get 1500 dollars for it. Look at the waste of time and attention, Oh my collaborator!" MacKenzie & MacKenzie (1973, 356). See also Huxley (1970, 156). For more on Wells, see Foot (1995).

⁴ It first appeared in 31 fortnightly parts beginning in 1929.

⁵ Ruse (1996, 350).

⁶ Bowler (2001, 130).

incapable of adhering to what he perceived as the too narrow field of the disciplinary natural sciences.

After 1927, he left his purely scientific career to pursue a new one as a popularizer, a public intellectual and a “vanguard visioneer.” In this he was successful, as the 1930s saw him becoming one of the loudest voices of evolutionary biology, in no small part due to the popularity of his and the Wells’s book. This coincided with a public that was becoming more and more influenced by the popular press and broadcasting, as well as with the publishing industry increasingly publishing popular science, sensing a general interest in science. Expansion of education and ideals of self-education among the middle and working classes created a favorable environment for popular science.

In 1938, he was elected a Fellow of the Royal Society, and apart from several books of a popularizing nature, he completed his monumental *Evolution: The Modern Synthesis* in 1942. By then, Huxley was published frequently and in forums with vast readerships and audiences, some of them in the hundreds of thousands.⁷ Huxley became part of the reading for students, teachers, and the general public as he wrote tirelessly about evolution and visions of humanity’s future, moving quickly from particulars to generalities. He became a definite household name as a member of the BBC radio show *The Brain’s Trust*, a general knowledge program where a group of experts answered questions submitted by the public. The program enjoyed what can only be described as massive popularity: At the end of the Second World War, almost 30% of the listening public tuned in.⁸

Huxley took kindly to his public role. He wanted to carry his vision to a wider readership and clearly felt the need to influence the general life of

⁷His articles were found in science magazines like *Discovery* and *Scientific Monthly*, in the *Strand Magazine*, in the flagship of the American left *The Nation*, in the leading literary magazine of the British empire *John O’London’s Weekly*, as well as in *The Atlantic Monthly* and *The Times*, see Sommer (2014, 565–66).

⁸Broadcaster Donald McCullough acted as the question master and the original three members consisted of Julian Huxley, philosopher C. E. M. Joad, and commander A. B. Campbell. Guest-members came to include art historian Kenneth Clark, philosopher Bertrand Russell, politician Jennie Lee, politician Violet Bonham Carter, social and political theorist Isaiah Berlin, conductor and composer Malcolm Sargent, prison reformer and magistrate Margery Fry, novelist C. S. Lewis, classical scholar Gilbert Murray, and mathematician Jacob Bronowski. The Brain’s Trust was one of the biggest successes of wartime broadcasting. The program appeared in the middle of the January 1941 blitz. It ended in its radio form on May 31, 1949, and moved on to television. The first program screened on Sept. 4, 1955. Huxley again participated. See Lemahieu (1992); Wall (1960).

the nation. Several scholars have pointed out that Huxley stands out for his efforts to disseminate the latest ways of thinking to ordinary readers.⁹ More than that, Huxley turned public media into vehicles for his message.¹⁰ Historian D. L. LeMahieu has suggested that Huxley, in his use of the radio and later television medium, came to represent the intellectual for the English population: “For millions of British people, he embodied the notion of high intelligence. He was the intellectual as celebrity.”¹¹

Working with Wells helped Huxley to develop his ability to promote his own ideas and to organize facts into language non-scientists could understand.¹² Wells—the “One-Man Think-Tank”¹³—had written works of “scientific romances” and texts in consideration of social organization and progress since the last decades of the nineteenth century, and Wells was probably the most widely read advocate for the need for a transformation of society. He exercised an enormous influence over an entire intellectual generation.¹⁴ No doubt he exerted influence over Huxley too, during their collaboration and friendship. Huxley kept all of Wells’s books in his private library (autographed by the author) and was especially fond of the science fiction novels.¹⁵

Huxley attempted to influence political powers and social institutions and wanted to persuade these that science supported and nurtured broad social, political, and religious goals and values and that it was therefore worthy of receiving attention and financing.¹⁶ He cannot, however, be summarized as a spokesperson for institutional science. He consistently extended the concept of evolution to apply to human affairs and the world of humans. Biology to him was the study of life and its laws, meaning it could be brought to encompass virtually everything. He would rarely miss

⁹ Bowler (2001, 331, 335); Nichols (1965); Smith (2003, 231); Sommer (2014, 564); Sommer (2016). Huxley reflects on the popularization of science in Huxley 1927: “Why Popularize Science?”

¹⁰ Cain (2009).

¹¹ LeMahieu (1992, 256).

¹² Huxley (1970, 170); Huxley (1986, 127); see also Ruse (1996, 351–52).

¹³ Aldiss (1973, 127).

¹⁴ Bowler (2017, 17); Adams (2000).

¹⁵ JSH Papers, RU, MS50, 136:5. “Mr. Julian Huxley’s Library,” *John O’London’s Weekly*, 11 May 1937.

¹⁶ The very definition of a public scientist, see Turner (1980).

the chance to emphasize that biology had a cultural value and that without science civilization would collapse.¹⁷

To Huxley, science was the product of “the impulse to control nature for human ends.”¹⁸ With Francis Bacon had begun a new era, and according to Huxley the birth of modern science came out of the realization that abstract knowledge and concrete control were interlocked.¹⁹ Huxley clearly saw himself as an heir to those early vanguards of modern science.²⁰ As such, he believed he had an important role to play not just within science, but in society at large. In a talk on the BBC in the winter of 1930, he proclaimed that “[science] is the only means by which man can go on increasing his power over nature and over the destiny of his race.”²¹

Huxley was an ardent believer in the possibility for scientists to make serious proposals for institutional and political change. As early as the 1910s, during his brief time as an assistant professor in Houston, Huxley was outspoken in his belief that scientists should play a more active role in the planning of society. Knowledge of evolutionary biology and of humankind’s place in nature made possible the layout of plans for the future. Whereas the politicians and the statesmen hesitated in the face of radical change, the scientists with their new point of view were “far better equipped for knowing whether or not our plans are within the bounds set to possibility by the very constitution of things.”²²

The sciences had assumed great significance in the second half of the nineteenth century.²³ Understandings of the nature of evolution, of Darwin, and of Malthus, had become important aspects of British politics, and remained so well into the twentieth century. Darwin had downplayed his own political and philosophical commitments, barely mentioning humankind in his *Origin of Species* for fear he might compromise the reception of natural selection.²⁴ It was not clear from Darwin’s writings

¹⁷ See, for example, JSH Papers, RU, MS50, 136:4. “Value of Biology—Professor Huxley on Science in Schools,” *The Daily Telegraph*, 10 Feb. 1930; see also Huxley 1942: “Science, Natural and Social.”

¹⁸ Huxley 1934: *Scientific Research and Social Needs*, 19.

¹⁹ Huxley 1934: *If I Were Dictator*, 19.

²⁰ Huxley 1934: *Scientific Research and Social Needs*, 16.

²¹ *Science and Religion: A Symposium* 1931, 1.

²² JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes.

²³ Lightman (2007, 4).

²⁴ Hale (2014, 13–15).

what arrangement of human society he believed to be “natural”—one of competition or of cooperation, of individualism or collectivism. Nonetheless, evolutionary theories had entered ever more powerfully into the arena of political and public debate since the late nineteenth century.²⁵

During the first decades of the twentieth century, the public interest in the larger implications of evolution for human society grew. In 1930, the American zoologist Herbert Jennings (1868–1947) noted the popularity of biology, and a new willingness to apply biological science to human affairs.²⁶ Scientists were elevated to positions of power and public service and took on what historian of science Daniel Kevles has described as a new, priestly role.²⁷

Huxley’s decision to leave his purely scientific career to pursue a more public one thus seemed well-timed. The economic crisis resulted in a widespread call from across the political spectrum for the need of a more skillful treatment of economic and social problems. This nurtured the vision of social and political rationality based on a scientific outlook.²⁸

Owing much to his family name, Huxley from the start gained access to the inner circles of intellectuals, politicians, and officials who were discussing possibilities for amending the current situation and building a future. During the First World War, Julian and Aldous had frequented Garsington Manor near Oxford, where socialite Lady Ottoline Morrell (1873–1938) had established a refuge for a number of intellectuals and artists. There were the Bloomsburyites, authors Lytton Strachey (1880–1932), John Middleton Murry (1889–1957), and D. H. Lawrence, painter Mark Gertler (1891–1939), economist Gerald Shove (1887–1947), and Bertrand Russell.²⁹ At an earlier point, Russell had been involved with the socialist organization the Fabian Society but had left it. Nevertheless, he associated himself with the Fabians Sidney and Beatrice Webb (1859–1947, 1858–1943), George Bernard Shaw, and H. G. Wells.³⁰ In the late 1920s, Huxley and his wife attended social meetings together with Wells, Russell,

²⁵ Pick (1989, 196). Historian of science Sandra Herbert suggested that it was Darwin’s extreme caution around the subject that promoted confusion and left the field to others, see Herbert (1977).

²⁶ Jennings (1930, 203); for an earlier, similar observation, see Lankester (1890); Kevles (1995, 69); Freedman (1978).

²⁷ Kevles (1995, 69).

²⁸ Divall (1985, 3).

²⁹ Huxley (1986, 50, 57); Ironside (1996, 21, 90).

³⁰ Anker (2001, 11).

art historian and anarchist Herbert Read (1893–1968), editor of *Nature* Richard Gregory (1864–1952), biologist Alec Carr-Saunders (1886–1966), anthropologist Bronisław Malinowski (1884–1942), editor of *The Realist* Gerald Heard (1889–1971), and writer and feminist Naomi Mitchison (1897–1999).³¹

Huxley would be involved in several organizations and groups and continued to involve himself in the formation of social policy throughout the 1920s and 1930s.³² In an effort to elevate the role of scientific experts in politics and economics, he helped establish the organization Political and Economic Planning (PEP). PEP was founded in 1931, to be a non-governmental research and planning organization based in London. As a think-tank or middle-opinion pressure group, it would come to produce many reports and bulletins and Huxley wrote several articles for the organization.³³ Other members included biologist Alexander Carr-Saunders, environmentalist Max Nicholson (1904–2003), businessman Israel Sieff (1889–1972), Labour party politician Kenneth Lindsay (1897–1991), civil servant Basil Blackett (1882–1935), and entrepreneur Jack Pritchard (1899–1992). Around the same time, Huxley was also asked to become the first President of the new trade union for workers in all branches of science and technology, the Association of Scientific Workers (A.Sc.W.).³⁴ In 1933, he made a tour of British institutional science, including activities in industrially based research associations, as well as universities and state institutions.³⁵

Alongside PEP, Huxley joined The Federation of Progressive Societies and Individuals, created in 1932. It was an organization for social reform and involved philosopher and former Fabian C. E. M. Joad (he had been kicked out of the Fabian Society in 1925 due to sexual misconduct), H. G. Wells, Bertrand Russell, author and feminist Rebecca West (1892–1983), educator A. S. Neill (1883–1973), Leonard Woolf (1880–1969), and Aldous Huxley. Its goal was, similarly to PEP, to promote cooperation to work toward social and economic reconstruction,

³¹ Huxley (1986, 112).

³² For a very thorough analysis of Huxley's political thought and engagements, see Divall (1985).

³³ Huxley (1970, 210–11); Huxley (1986, 197); Weindling (2012).

³⁴ Huxley (1970, 197).

³⁵ The tour resulted in the book *Scientific Research and Social Needs* (1934). Divall (1985, 40).

and to advocate a planned society. The Federation had its own magazine, *Plan*, but a brief career.³⁶

As the 1930s and 1940s progressed, Huxley's visioning did not come without its cost. As stated, he was, to a certain extent, marginalized within a scientific community and would continue to be a controversial figure. In March of 1942, he lost his then job as secretary of the London Zoo.³⁷ A contributing factor was the fact that Huxley was so very caught up with activities outside of his responsibilities at the London Zoo; he was not even present for his own dismissal due to the fact that he had been invited by the Rockefeller Foundation to go on a lecture tour in the USA in the autumn of 1941, lectures wherein he promoted his personal views and vision for the future.³⁸

Following the Second World War, Huxley became heavily involved in the creation of the United Nations Educational, Scientific and Cultural Organization (UNESCO). As a member of the preparatory commission, he helped appoint Joseph Needham and British diplomat John Bowers (1912–2004) to UNESCO. He also stood in contact with the Swedish sociologist and politician Alva Myrdal and her husband sociologist and economist Gunnar Myrdal (1902–1986, 1898–1987), who took charge of the Social Sciences Division.³⁹ Huxley then went on to become UNESCO's first Director-General in 1946, but acted as the Director-General for only two years, instead of the originally decided upon statutory five. Again, the fact that he clearly wanted to use the organization as a platform to push his own agenda was not well received and became part of the reason for his shorter sojourn at UNESCO.

As General-Director of UNESCO, Huxley had stated that a set of general aims was not enough, but that the organization needed a philosophy, defined as "a working hypothesis concerning human existence and its aims

³⁶ Bradshaw (1994, 38–39); Huxley (1994, 38–39).

³⁷ The decision to get rid of Huxley was taken in his absence and caused a mild media sensation around the famous scientist, with the papers publishing interviews with Huxley's wife and friends, see JSH Papers, RU, MS50, 137:1. Mar. 1942. "Dr. Huxley 'Sacked' By Cable," *News Chronicle*; "A Split in the Zoo Council. 'Rebels' Want Prof. Huxley Back," *Evening News*; "Prof. Huxley Loses His Zoo Job," *Daily Sketch*; "Huxley loses Zoo job," *Daily Express*. See also Huxley 1970: *Memories*, 260–61.

³⁸ Huxley 1970: *Memories*, 256.

³⁹ Gunnar and Alva Myrdal had close ties to the Social Democratic Party in Sweden and advocated social engineering. Their political influence was instrumental for the establishment of the Swedish welfare state in the 1930s and 1940s (*Folkhemmet*). Huxley had brief correspondence with Alva Myrdal in the 1940s, see JSH Papers, RU, MS50, 18:1 and Huxley 1973: *Memories II*, 18.

and objects which will dictate a definite line of approach to its problems.” But UNESCO could not, Huxley insisted, base its outlook on any existing theology, nor on any one politico-economic doctrine. They all stood in conflict with one another and carried too much luggage.⁴⁰ Instead, the philosophy needed to be new and tailored for the future. For this purpose, Huxley set out to write *UNESCO: Its Purpose and Its Philosophy* (1946). A large part of the UNESCO pamphlet was essentially Huxley presenting his own vision.⁴¹

Although some had found Huxley’s appointment as Director-General encouraging, hoping he would attempt to “impart order” into the scheme of education, science, and culture, others were wary of Huxley’s ideas.⁴² An observer in the *New York Times* cautioned the “V.I.P. of Unesco” to be very careful with his use of terms. Huxley was identified as an inveterate planner, but this was not necessarily seen as a good trait. Planners like Huxley, one article claimed, were unable to appreciate the unpredictability of individual decisions and failed to realize that not everything could be controlled.⁴³ The fact that the UNESCO pamphlet also touched on subjects such as population-control and eugenics, on top of suggesting that the existing world-religions and politico-economical systems were antiquated and impossible to reconcile, made matters worse. *UNESCO: Its Purpose and Its Philosophy* was voted down as an official statement of UNESCO and allowed to be printed only on the condition that it explicitly disclosed that it presented the personal views of Huxley.

Despite controversies, however, Huxley arguably gained an even wider audience through UNESCO and with it, new opportunities to promote his vision. To journalist Laura Vitray, he explained that humankind “must lay a conscious basis for a new world order, the next step in our human evolution.”⁴⁴

⁴⁰Huxley 1946: *Unesco: Its Purpose and Philosophy*, 6–7.

⁴¹The pamphlet also included a more practical working program for UNESCO, but its contents fall outside the theme of our analysis and so will not be discussed here.

⁴²FR PUNES AG 06-DG, subseries Speeches of the Director General, Sir J. Huxley, 10 Dec. 1948–15 Dec. 1948. Dr. Torres-Bodet, First Meeting of the Programme Commission, 1946. See also JSH Papers, RU, MS50, 137:1. “Profile—Julian Huxley,” *The Observer*, 15 Dec. 1946.

⁴³JSH Papers, RU, MS50, 137:1. “Profile—Julian Huxley,” *The Observer*, 15 Dec. 1946; JSH Papers, RU, MS50, 137:2. Chamberlain 1947: “Mr. Huxley Reappraises Man’s Role in the Universe,” *The New York Times*, Oct.

⁴⁴Vitray (1946, 24). See also Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 61. For a post-colonial critique of Huxley’s ideas during his time at UNESCO, see Sluga (2010).

4.2 THE PRACTICAL IDEALIST

The 1930s has been referred to as a period of Huxley's generation's radicalization.⁴⁵ The decade did see a leftward trend among intellectuals and an overall leftward turn in British political thought.⁴⁶ Several of Huxley's acquaintances within the scientific community propagated a form of "scientific socialism" in the 1930s. Figures such as J. D. Bernal and Joseph Needham saw the advance of science and socialism as part of the same process.⁴⁷

Huxley's friend Haldane had taken a materialist philosophical position in the early 1930s and became a Marxist by the end of the decade. He would hold this position until 1950, when he left the Communist Party of Great Britain.⁴⁸ Huxley visited the USSR in the late spring of 1931, on a trip organized by Intourist, the official Soviet agency for dealing with foreign visitors. The object was to bring British scientists in contact with their Russian colleagues.⁴⁹ Huxley did not, however, join any political party and would remain an independent progressive left-leaning liberal.⁵⁰

More than anything, what radicalization there was, was fueled by disillusionment with the economic and democratic order, prevalent among intellectuals in the 1920s and 1930s. In the period after the First World War, a criticism of the ambivalence of modernity had grown louder. Post-First World War, several politicians' and intellectuals' response to the collapse of the old-world order came in form of the argument of the need for greater control, politically, economically, and culturally. A "1890-generation" was particularly caught up with the question concerning the potentials of political control for the human future and engaged in a public debate.⁵¹ The control theme that was examined in the first chapter as an important aspect of Huxley's vision—then in relation to evolutionary and experimental biology—is highly relevant when continuing to explore

⁴⁵ Werskey (1978, 13).

⁴⁶ Jones (1980, 169); Stapleton (2000, 263). One should not, however, exaggerate the number of politically active scientists in the 1930s, see Bowler (2001, 360).

⁴⁷ Werskey (1978, 67, 70, 185, 210).

⁴⁸ Hammond (2009).

⁴⁹ Huxley (1970, 199).

⁵⁰ Michael Freeden has pointed out that Huxley veered slightly toward the left in the 1930s, due to Fascism and the Depression, see Freeden (1979).

⁵¹ Adams (2004, 45).

Huxley's extra-scientific activities. The vision of control contains meanings going far beyond the confines of scientific communities.⁵²

Huxley belonged to a group of public individuals who came to associate *laissez-faire* economic growth with chaos, indulgence, and intellectual stagnancy. As the economic conditions worsened in the late 1920s, intellectuals started questioning the effectiveness of democratic institutions, even cultivating anti-democratic tendencies. In 1920, Inge had somewhat sardonically noted that democracy had few worshippers any longer except in America.⁵³ E. Ray Lankester, an active columnist in the *Daily Telegraph* during the 1920s, criticized both aristocracy and democracy as methods of government.⁵⁴ D. H. Lawrence, with whom Huxley had spent vacations in the late 1920s and who derived much of his thinking from Nietzsche, had written in 1921 that he did not believe in liberty or democracy. Instead, he believed in "inspired authority" and the divine right of natural aristocracy, since he did not think the average man fit to elect political leaders.⁵⁵ Julian's own brother was disillusioned. Aldous had become intensely caught up with the social and political crisis that had unfolded in the wake of the Wall Street Crash of 1929.⁵⁶ In 1931, Aldous sat in the Stranger's Gallery of the House of Commons to listen to a debate on the national economy and was contemptuous of Parliament and its "twaddling" politicians.⁵⁷ Then-Marxist Haldane wrote in the 1930s that liberty in a parliamentary democracy was at the mercy of Big Business. Under Socialism, which he hoped for, certain liberties would only be practiced by groups.⁵⁸

Amid the economic troubles of the late 1920s and the early 1930s, intellectuals had become overall more sympathetic toward the idea of a planned society. With the National Government set up in August 1931 to cope with the economic depression, Britain had switched from a policy of free trade to one of protection in 1932, following the collapse of the world market of October 1929.⁵⁹ The group to which Huxley belonged explored ideas and practices of social engineering and the possibility of control by

⁵² Burdett (2015, 3).

⁵³ Inge (1920, 17).

⁵⁴ Barnett (2006, 216).

⁵⁵ Carey (1992, 10–12, 75, 77).

⁵⁶ Huxley (1994, viii).

⁵⁷ Murray (2002, 244–45).

⁵⁸ Haldane (1946, 207, 224). Essay "The Comparative Study of Freedom," from 1939.

⁵⁹ Overy (2010, xvii, xxi).

increased rationalization of political and economic processes.⁶⁰ Many hoped that more science in politics would mean a better overall organization of society.

Although he had given glimpses of his aspirations in the 1920s, Huxley's first exclusively political book, containing a comprehensive outlook, was published in 1934. His political vision of this year, with the not-so-flattering title *If I Were Dictator*, set forth some of the possibilities that seemed to him to be inherent in a planned society.

Phillips has described *If I Were Dictator* as a book that “reveals” Huxley's agenda.⁶¹ The book arguably does give a clear picture of what Huxley wished for at the time, but neither the book nor his sentiments were a secret. *If I Were Dictator* was a book-series and a title under which several persons were allowed to write about how they would plan their ideal future society.⁶² Huxley's ambitions were well known enough that when he obtained his new position as secretary of the London Zoological Society in 1934, the *Edinburgh Evening News* jokingly referred to him in the headlines as “The Zoo Dictator.”⁶³

In *If I Were Dictator* Huxley referred to himself as an idealist, because he believed in the possibility of unlimited progress.⁶⁴ He emphasized a strong faith in science and in certain passages the book seemed a utopian science fiction fantasy. Under Huxley's dictatorship, there would grow gleaming and bright cities, no longer enveloped in coal smoke. Big aerodromes over the roofs of the buildings in London would take in air traffic, and within uncorroded buildings healthy people would live long lives of leisure, education, and enjoyment.⁶⁵ And why should he not have a go at imagining such futures? He was surrounded by creators of science fiction.⁶⁶

⁶⁰ Murray (2002, 199); Beniger (1986, 15).

⁶¹ Phillips (2013, 60).

⁶² Among other authors who published in the uniform volume were Lord Raglan Fitzroy Richard Somerset, Lord Dunsany Edward Plunkett, Hugh Richard Lawrie Sheppard, and Vernon Bartlett. Extract from Huxley's text was reprinted in Browne (1946), see Huxley 1946: “A Philosophy for Dictators.”

⁶³ JSH Papers, RU, MS50, 136:5. *Edinburgh Evening News*, 25 Aug. 1934. Several other newspapers reported on Huxley's new position.

⁶⁴ Huxley 1934: *If I Were Dictator*, 17.

⁶⁵ Huxley 1934: *If I Were Dictator*, 16, 115–17.

⁶⁶ Several of Huxley's friends and acquaintances tried their hands on or made a living of writing science fiction. Aldous Huxley and H. G. Wells are perhaps the two most notable examples, but Huxley's friends J. D. Bernal, J. B. S. Haldane, and Haldane's sister Naomi Mitchison all wrote tales about the future. Huxley himself had made a modest attempt at the

Huxley certainly showcased his tendency toward idealism. Nevertheless, most of the book's content was far removed from lofty and happy anticipations. Huxley made various practical suggestions and firmly wanted to promote the application of the scientific method to reach a deeper understanding of the forces that shape societies. He truly seemed to embody all those traits that made up the "practical idealist," of whom Bertrand Russell had cautioned just a few years earlier. The type to fear, according to Russell, was the individual who was a mixture of a dreamer and a manipulator. The dreamer alone would amount to nothing, and the simple-minded manipulator would care only for personal success. But the idealist who incorporated both these types (dreamer *and* manipulator) had the potential to become dangerously productive. This was the type of individual who desired not only things for himself, but who desired a certain kind of society.⁶⁷ To Russell's mind, practical idealists were found perhaps most commonly among scientists, among men and women who combined energy with intelligence and found pleasure in planned construction: "They are likely to suppose themselves actuated by some idealistic motive, and it is possible that such motives may play a part in determining what sort of society they shall aim at creating."⁶⁸

In *If I Were Dictator*, Huxley delivered a searing critique of the liberal capitalistic economic system. For too long the economic forces had been free to exert their effects upon society blindly and automatically. The international inter-state trade and chaotic economic system had come about through an unplanned development of financial agencies.⁶⁹ Order could not be created in a society that aimed at cheapness of goods through unrestricted free trade. No, for order to be established the State or the rulers needed to take the role of overseer or guardian.⁷⁰

genre, writing a science fiction short story, first published in *Cornhill* magazine and then in *Amazing Stories*, 1927. The same issue also featured Wells's "The War of the Worlds," as well as a story titled "The Ultra-Elixir of Youth," by the American zoologist and science fiction author A. Hyatt Verrill. For Huxley's story in *Amazing Stories*, see Huxley 1927: "The Tissue-Culture King," *Amazing Stories*.

⁶⁷ Russell (1931, 236–40).

⁶⁸ Russell (1931, 211–12).

⁶⁹ Huxley 1934: *If I Were Dictator*, v–vi, 20.

⁷⁰ Huxley 1934: *If I Were Dictator*, 22–24. Compare Huxley (1936): "The State and the Consumer."

As already mentioned, Huxley clearly saw no problem speaking of biology and culture simultaneously.⁷¹ Huxley described the liberal *laissez-faire* democratic economic system in much the same terms as he would describe the state of nature and evolution by natural selection. In the individualist, democratic industrialism (“in whose decay we English are still living,” as Huxley expressed it) economic and social affairs were left to blind, impersonal forces. Within this tumultuous vortex, the individual “struggled for advancement” and was “competing for survival.”⁷²

Unlike some of his Marxist or socialist friends (Haldane and Muller, for example), Huxley would never be wholly prepared to overthrow the British or Western capitalist system. Nevertheless, he did call for a reorganization of the structure of society. Albeit writing from a progressive liberal viewpoint in *If I Were Dictator*, Huxley expressed a very similar opinion to those that Haldane gave voice to in the 30 s: Freedom of opinion in Western industrialism was largely illusory; it gave no real power over economic events. The democratic vote was only the freedom to choose between two party policies, neither of which expressed particular will or intelligence.⁷³

4.3 TECHNOCRACY AND THE INDIVIDUAL

As discussed in Part I, Huxley believed that biological principles upheld the primacy of the individual. On the other hand, he was aware that human progress evidently relied on the human community and the organization

⁷¹ Ruse confirms this, see Ruse (1996, 335); Renwick, on the other hand, has seen reservations coming from Huxley about efforts to draw conclusions about society from biology, see Renwick (2016).

⁷² Huxley 1934: *If I Were Dictator*, 4.

⁷³ Huxley 1934: *If I Were Dictator*, 5. Huxley’s left-leaning sentiments were later cited by poet and close friend of Huxley, Stephen Spender, as the reason for his dismissal from UNESCO. He was viewed as “too leftist” by other members of the organization. Spender (1986, 93). See also Huxley (1986, 201). In truth, Huxley had no real experience qualifying him for the job as Director-General. He had limited understanding of international organizations. Almost immediately, he found the work of UNESCO boring. He felt that the board and advisors worked against him, and this led to quarrels and bad relations. Huxley appears to have had problems with the management of the organization and found the necessity of teamwork a hindrance. He characterized it as an “unworkable system of divided authority,” where discussions lasted for days. In protest, he took refuge in doodling during meetings, which cannot have been popular among his co-workers, see Huxley 1973: *Memories II*, 19–21; Huxley (1986, 202), excerpt from Hoggart (1978).

of this community. In the early 1920s, Huxley drew the conclusion that “pure individualism is condemned, and so is what we may call ant-and-bee socialism”—a combination based on human flexibility was preferred.⁷⁴

In the 1930s, Huxley was, at least politically, critical of individualism. Whereas Russell had written in the early 1930s of what he saw as a problematic diminution of individual liberty in modern society, due to the troubling fact that modern life had made society more organic, Huxley instead welcomed the organic change. As a dictator, Huxley stated he did not want *laissez-faire* individualism for the very reason that it was “not organic.”⁷⁵ In 1936, Huxley continued to urge that society must try to ditch individualism and promote collective group incentives.⁷⁶

The idea of a more collective or organic society went hand in hand with the idea of a planned society. The visit to the Soviet Union in 1931 left Huxley fascinated by the level of planning the Soviets had undertaken.⁷⁷ Following a lecture tour in the USA in 1932 he also got the chance to see the beginnings of the Tennessee Valley Authority project. TVA was an attempt at modernizing the Tennessee Valley region through managing and regulating electric power, flood control, health, agriculture, and education. It was an example of public policy shaped with the aid of scientific experts. Huxley was deeply impressed with this experiment in scientific “multi-planning over a whole region.”⁷⁸

That Huxley imagined a planned community, marked by organic collectivism rather than individualism, by no means mean he necessarily viewed humans as equal. The planned society—with a common social order and central control—presupposed that an individual or a group of individuals would centrally control it. The feeling was that the intelligent and more informed should rule over the less intelligent and less well-informed portions of society.

⁷⁴Huxley 1923: “Biology and Sociology,” *Essays of a Biologist*, 89–90.

⁷⁵Russell (1931, 225); Huxley 1934: *If I Were Dictator*, 24.

⁷⁶Huxley 1936: “Eugenics and Society,” *The Eugenics Review*, 27.

⁷⁷He remained unimpressed, however, by the vast bureaucratic machinery he observed and criticized the overstaffing, the shifting of responsibility and the slowness in arriving at a decision. The lesson Huxley seemed to take with him back home to England was that if you were going to work according to a central plan, the plan had to be really comprehensive: “If part of your system is planned and part not, or if part is planned right and part planned wrong, the most alarming consequences are due to follow,” Huxley 1932: *A Scientist Among the Soviets*, 79.

⁷⁸Huxley (1970, 258).

The technocratic and elitist sentiments that characterize parts of Huxley's thought have made Pilsch speak of Huxley's political ideas as a "managerial futurism."⁷⁹ This is a fitting term, if used to characterize Huxley's vision in the interwar period.

Huxley was a member of the British elite. By birth and through education he had access to friendship with a big number of Britain's men (it was a male-dominated environment) of science, intellectuals, and influentials. Of this kind of character, Werskey has written: "As a member of an intellectual élite [...] it would be remarkable if he did not begin to think in elitist terms."⁸⁰ Haldane, even when Marxist, continued to exhibit an aristocratic self-confidence, to assert that the upper classes were innately more able and intelligent and that it was regrettable that unskilled workers bred faster than the skilled classes.⁸¹

Many of the intellectuals in Huxley's circle of acquaintances were as elitist as they were *avant-garde*. The influence of Nietzsche was present in the implicit or explicit sense that democracy was viewed as the tyranny of the majority. Literary scholar John Carey has suggested that Nietzsche is one of the earliest products of mass culture: "The immense popularity of his ideas among early twentieth-century intellectuals suggests the panic that the threat of the masses aroused."⁸² It was, Carey notes, not uncommon for intellectuals in the 1930s to segregate themselves from the non-intellectual majority.⁸³ While discussing the need for a more organic society, many of these intellectuals pictured a future "new life" for themselves, as an opportunity for an "intensification of individuality" among their select few.⁸⁴

Furthermore, Huxley was a scientist in a time when "High Scientists" had great power within and without the scientific community.⁸⁵ Coming from a privileged milieu, he had a conception of science based in elitist

⁷⁹ Pilsch (2017, 136).

⁸⁰ Werskey (1978, 22).

⁸¹ Paul (1984, 585); Mazumdar (1992, 177); Werskey (1978, 97).

⁸² Carey (1992, 4–5); see also Nietzsche (1924, 365 ff).

⁸³ Carey (1992, 39).

⁸⁴ This can be understood in relation to the "life worship" and striving to become more actualized as an individual, discussed in Chap. 3. On a similar note, William Greenslade has pointed out that Fabian socialist thinkers at the time were perhaps not so much democratic as they were elitist, Greenslade (1994, 194). For more on religious politics among Victorians and Edwardians, see Mead (2010).

⁸⁵ Werskey (1978, 41).

institutions of higher learning. It was common for scientists to complain that the state's attitude toward science was too *laissez-faire* (and that this had led to a decline of science in Britain). However, as historian Peter Alter has shown, these complaints were often exaggerated; the relationship between science and the state in Britain was only to limited extent *laissez-faire*. On the contrary, relations between science and the state had become stronger after the turn of the century and institutional conditions for science had improved markedly.⁸⁶

Science had become part of national life in Britain by the First World War. Politicians increasingly argued, along with other spokesmen, for the national significance of science (especially considering the German economic and military threat).⁸⁷ Between 1911 and 1920, a number of state institutions had been founded to encourage medical, military, agricultural, and industrial research. It is fair to argue that science was very much interconnected with the British idea of civilization. Scientific advances and industrial developments were seen to lead to higher levels on the scale of civilization.⁸⁸

The second half of the nineteenth century and the first decades of the twentieth century truly had seen revolutionary new inventions and discoveries: Electric lights, trams, cinema and radio, fertilizers and gasoline, anesthesia, and diagnostic X-rays. These were the developments that had turned the scientific worker into a kind of hero. Huxley lauded humankind's power to control the environment through inventions of tools and machinery. When Huxley and Wells considered humankind's scientific achievements, they seemed to be hardly able to contain themselves: "We are dazzled by the conquests we deduce; we laugh; our minds gasp like newborn children when they first meet the free air."⁸⁹

⁸⁶ Alter (1987, 246–47, 249).

⁸⁷ Turner (1978); see also Cardwell (1972); Haines (1969); Searle (1971).

⁸⁸ Alter (1987, 122). Additionally, Smocovitis has described as a "unification of science-quest" in the 1920s and 1930s. It was driven by the belief that all sciences were unifiable. Several scientists, such as Needham, Bernal, Waddington, and Haldane, were following the Enlightenment imperative to formulate a coherent worldview, see Smocovitis (1996, 102–3, 108). On a similar note, Esposito has argued that synthetic works of the time, such as Wells's *Outline of History*, Wells and Huxley's *The Science of Life*, and also, later, the *Modern Synthesis* presented relevant knowledge accumulated by scientists in the late nineteenth and the first decades of the twentieth century as converging in a single focal point: the realization of a utopian dream, a civilization characterized by endless progress, see Esposito (2011, 46).

⁸⁹ Wells, Huxley & Wells (1931, 880).

In connection to these scientific and technological developments, historian James R. Beniger has termed the course of events in the United States, England, France, and Germany—starting around the turn-of-the-last-century and reaching well into the twentieth century—the “Control Revolution.” By Beniger’s account, the Control Revolution followed and was unleashed by the Industrial Revolution. The need to manage and control production in an industrial society unleashed a steady increase of machinery for the purpose of control (termed “control technology,” i.e., the typewriter, the transatlantic cable, telephone, motion pictures, radio). The new infrastructures of transportation and telecommunications, and system-wide communication via the new mass media were according to Beniger all means that enabled an increase in economic and political control.⁹⁰

The increase in the possibility of control enabled imagining new forms of government, attractive in the minds of a group of scientists, experts, and intellectuals who in the 1920s and 1930s became enthusiastic about technocracy and who firmly believed science and technology was a good tool to use in society and politics. “Control” as a term and a concept certainly figured in the language of these professionals. During the interwar period, the word appears in the language of industrial management and psychology, in economics, production, distribution, and advertising.⁹¹

In *If I Were Dictator*, and clearly annoyed that scientists did not have more to say in the political discussion in Britain, Huxley complained that the current economic system dictated to science where it should grow, which of its practical applications should be used, and which of its possibilities should be put into cold storage.⁹² He repeated this opinion in other texts from 1934: Economics and politics dictated—and stifled—the way science was or was not being applied to practical social needs.⁹³ The effect was that the political and economic order counteracted scientific

⁹⁰ Beniger (1986, 6–7). Beniger’s interpretation of the new inventions as made for the purpose of control can be said to be somewhat simplifactory and may run the risk of constructing a course of events that seems unnecessarily insidious. The new inventions were surely created and used for other reasons besides control, such as better communication and collaboration. Nevertheless, Beniger does make a good point in suggesting that these inventions—whatever their original purpose—did enable an increase in the possibility of control, as well as the possibility of imagining that this control could enable new forms of government.

⁹¹ Levin 2000: “Contexts of Control,” 25–26.

⁹² Huxley 1934: *If I Were Dictator*, 84.

⁹³ Huxley 1934: *Scientific Research and Social Needs*, 64.

and industrial progress. Huxley recommended instead appointing a Science Council to advise as to the possibilities inherent in existing science and then to adjust the social and economic system to these possibilities.⁹⁴

Huxley clearly had technocratic leanings and believed that scientists and experts should pull the strings. Again, the influence of Wells was significant. At the time he befriended Huxley, Wells had already long been enamored with the idea of an elite group of intelligent individuals leading society forward.⁹⁵ In *Anticipations* (1902), Wells had proposed a functional body of engineering, managing scientifically trained men with common ideals and interests.⁹⁶ In *A Modern Utopia* (1905), he had envisioned a world state, encompassing and controlling the whole population of the Earth. The world state was to be led by a technocratic ruling class of rational, scientifically trained leaders called “the Samurai.”⁹⁷ The line between Wells’ science fiction and his real political opinions was drawn thin, in many of his texts he was “flexing his Fabian and political muscles.”⁹⁸

As touched upon, Wells was not alone in wishing for an aristocracy of intellect rather than democracy for the masses. Around this time, D. H. Lawrence had bluntly suggested that the masses should not learn to read or write, and poet T. S. Eliot (1888–1965) believed that educating “everybody” would lower the standards of education.⁹⁹ Aldous Huxley was also suspicious of mass culture in the interwar years and wrote of “the intrinsic and congenital stupidity of the majority.”¹⁰⁰ In one letter, an irritable Aldous wrote that 99.5% of the population of the planet were “stupid,” and stressed the importance of trying to see to it “that the 0.5% survives, keeps its quality up to the highest possible level and, if possible, dominates the rest.”¹⁰¹

It is not a coincidence that the concern about mass culture intensified following the First World War. The concept of “group mind” was an object of discussion among political and social thinkers in the 1920s.¹⁰²

⁹⁴ Huxley 1934: *If I Were Dictator*, 84.

⁹⁵ Greenslade (1994, 196); Bowler (2001, 354); Coupland (2000).

⁹⁶ Wells (1902, 143).

⁹⁷ Similar technocratic visions presented in Wells’s *Men Like Gods* (1923) and in *The Shape of Things to Come* (1933).

⁹⁸ Aldiss (1973, 126).

⁹⁹ Carey (1992, 15).

¹⁰⁰ Huxley (1949, 100–1).

¹⁰¹ Huxley (1994, xx). Aldous in a letter to J. Glyn Roberts of 19 Jul. 1933.

¹⁰² Ironside (1996, 107).

Books by Freud, with his *Group Psychology and the Analysis of the Ego* (1922), or William McDougall, with *The Group Mind* (1920), speak of the mass and attempt to explore how it can turn the individual into a barbarian or an animal—humans in groups became violent and easily duped or persuaded. The aforementioned socio-biological theory of degeneration was in some cases used as a counter-theory to mass democracy.¹⁰³ In connection to the theory of degeneration, the idea was that the masses were overpowering the better individuals. And again, the discussion of group mind and the masses also spoke to the fear of the human beast. This fear was still being expressed clearly by an older Huxley of the 1950s. On a visit to Allahabad (Prayagraj) in Northern India, to witness the Hindu Kumbh Mela festival, Huxley described the spectacle of an “enormous transitory human ant-heap”: “Crowds of this magnitude made a frightening and elemental impression: they seemed so impersonal and so uncontrollable.”¹⁰⁴

Huxley certainly picked up on the intellectual tendencies. The Huxley-Wells collaboration in *Science of Life* resulted in arguments for the need to bring “life under control.” Humankind, wrote Huxley and Wells, needed to start thinking about planning their societies “as carefully as a board of directors plans a business.”¹⁰⁵ In *If I Were Dictator*, Huxley proposed that a central authority should make sure those allowed to pursue a University education was the elite of the country, in the sense that they were intellectually the elite.¹⁰⁶ For his imagined dictatorship, Huxley envisaged this intellectual scientific elite applying science to society “on a scale and in ways hitherto hardly dreamt of.” He repeatedly emphasized the method of experiment, involving the use of controls, as the opposite to random

¹⁰³ Pick (1989, 218).

¹⁰⁴ Huxley 1957: “Population and Human Fulfilment,” *New Bottles for New Wine*, 205.

¹⁰⁵ Wells, Huxley & Wells (1931, 617). Concern about the masses and modernity can also be detected, for example, in the discussion at the time of the problem of decaying and dysfunctional cities. Huxley’s dictatorial dream cities stood in sharp contrast to contemporary development, which appalled many intellectuals at the time. The early twentieth century had seen rapid development in transport and growing commuterism among the increased number of white-collar workers. This had led to a building boom and to a rapid growth of suburbs. House building in England and Wales rose from 91,653 in 1923 to 202,060 in 1930. Along with many of his contemporaries, Huxley disliked this situation and requested that new, planned towns be established. These should be decentralized but run by central authority. He also made clear he disliked private ownership of land and wished for attempts at Housing Corporations. See Nye (1993); Carey (1992, 46–47); Huxley 1934: *If I Were Dictator*, 106, 113–14.

¹⁰⁶ Huxley 1934: *If I Were Dictator*, 138.

tinkering, and proposed dividing up the country into a number of small areas where large-scale experimentation and control was to be carried out.¹⁰⁷

Huxley considered how the use of new technology might help in controlling the masses from a center. In *If I Were Dictator*, he wrote that it was clear many would object to his dictatorship. He would therefore make it more difficult for contrary opinions to exert influence, through control of the educational system, and the press, through propaganda and through “various types of machinery for engendering mass enthusiasm and unified belief.” Such machinery had, Huxley explained, been tried lately in Italy, Germany, the United States, and Russia.¹⁰⁸

There was another subject on which Huxley borrowed ideas from Wells for his *If I Were Dictator*. His vision rejected the philosophy of nationalism.¹⁰⁹ Although he would readily make plans for Britain as a nation, he stated that his ultimate goal was a “World Society.”¹¹⁰ In 1936, he again called for the abandonment of the idea of national sovereignty, opted for international organization and a supernational power.¹¹¹ Arguments for “world government,” many of them quite radical, were fairly common during the interwar era.¹¹² In 1928, Wells had published *The Open Conspiracy: Blue Prints for a World Revolution*. To Wells, the open conspiracy was not a utopian dream, but a necessity. Huxley’s wife, Juliette, accurately observed that it was clear that Wells’ political ambitions of future world planning were serious.¹¹³

The open conspiracy proposed that existing governments were to be seen as provisional. In their place, Wells wished for a development toward a global system of government that was to supersede democracy on a national level. The new World Directorate would support a minimum standard of individual freedom and welfare in the world. However, the

¹⁰⁷ Huxley 1934: *If I Were Dictator*, 99, 101.

¹⁰⁸ Among other things, he wanted a controlled, non-commercialized national broadcasting system, where two separate organizations would represent the conservative and the progressive spirit. Having one Right-leaning and one Left-leaning program would satisfy everyone, Huxley believed. Huxley 1934: *If I Were Dictator*, 32–33, 38–39.

¹⁰⁹ Huxley 1934: *If I Were Dictator*, 15.

¹¹⁰ Huxley 1934: *If I Were Dictator*, 18, 21.

¹¹¹ Huxley 1936: “Eugenics and society,” 27.

¹¹² Apart from Wells, Lancelot Hogben comes to mind. Hogben proclaimed belief in “scientific humanism” and a world-government, see Hogben (1939a).

¹¹³ Huxley (1986, 112).

personal life would have to be subordinated to the creation of the world directorate.¹¹⁴

The call for a New World Order grew louder as the 1930s progressed. In 1936, Britain begun its own rearmament. It accelerated in 1938, in response to German expansion in Austria and Czechoslovakia. The Wellsian sentiments would continue to be present with Huxley, as is apparent in the two books on politics and planning he published in 1941, *Democracy Marches* and *Reconstruction and Peace: Needs and Opportunities*.¹¹⁵ To Huxley, the war clearly demonstrated that the doctrine of unlimited absolute national sovereignty had been pushed to extremes.¹¹⁶ This unrestricted national sovereignty was the root of the problem of international politics (it had, e.g., allowed the Nazis to carry on in Germany). It also led to difficulties in reaching agreements on a global scale.¹¹⁷ Huxley hoped for an international framework to be superposed upon nationalism after the Second World War.¹¹⁸

¹¹⁴That same sentiment was repeated in the Huxley-Wells's collaboration of 1931. Individualism would have to give way to the collective. Huxley and Wells guessed that the subordination of self would play a part in the world society of the future. Wells, Huxley & Wells (1931, 880). For a discussion of Wells's *Open Conspiracy* in relation to modern transhumanism, see Fuller (2018).

¹¹⁵Huxley 1970: *Memories*, 255–56.

¹¹⁶Huxley 1941: *Democracy Marches*, 99.

¹¹⁷Huxley 1941: *Reconstruction and Peace: Needs and Opportunities*, 31, 39–40.

¹¹⁸It was of absolute necessity, Huxley claimed, that the reconstruction of Europe after the Second World War should be handled by a single official body. He proposed a Reconstruction Commission, wherein Britain and the United States would be the major partners and the “main guarantors of order.” This commission would have complete control of all credits for reconstruction purposes. The governments in charge would also control the world's raw materials and shipping, to ration the commodities, see Huxley 1941: *Reconstruction and Peace: Needs and Opportunities*, 29–31; Huxley 1941: *Democracy Marches*, 103. Huxley's proposed Reconstruction Commission would be “armed with large powers of control” and would, he added optimistically, “be in a position to impose almost any structure it liked upon European industry.” Huxley 1941: *Reconstruction and Peace: Needs and Opportunities*, 37. To meet the challenges to stability and unity, Huxley also suggested that the nations needed to join a global “Security Club,” with a supply of arms to uphold world security. Huxley 1941: *Democracy Marches*, 102. As an example of an international framework, Huxley used the British Commonwealth of Nations, unified by a set of common values and interests shared by its members. He believed that the substitute for imperialism was a political, social, and economic internationally planned development of the colonies. Huxley was active in attendance of Colonial Office education committee meetings and in mid-January 1944 travelled to West Africa as a member of the Commission on Higher Education in the British Colonies there. See Huxley 1942: “Colonies in A Changing World”; Huxley 1941: *Democracy Marches*, 96–97; Huxley 1970: *Memories*, 265–66.

Not everyone appreciated Huxley's popularity and certainly not everybody shared his opinions. Following the First World War and by no means diminishing as the 1920s and 1930s progressed, there were voices continually raised in critique of developments in science and its applications in society. One of the more famous skeptics was probably Bertrand Russell. In response to Haldane's very scientifically optimistic *Daedalus* (1924), Russell had countered with *Icarus* (1924). Russell agreed with Haldane (and Huxley) that modern society had seen and would see more of an increase in organization. New inventions and techniques truly did make possible control from a center.¹¹⁹ Russell stressed that a technocracy was possible but not desirable. Technical scientific knowledge, he warned, did not make people more sensible. Administrators in the future would not be less stupid or less prejudiced than they were at present.¹²⁰ Russell continued to be critical of the way the scientists' lust to create and construct was driven by what he believed to be a love of power. These scientists would use their power to create even if the results were undesirable.¹²¹

Russell was far from alone with his skepticism. The economic depression intensified the fears about science's practical consequences. Many realized the potential for industrial technology and scientific knowledge to be politically misused, and many found the technocratic justifications for the control from above of the masses below suspect. Antiutopian visions, like Aldous's *Brave New World* (1932), were a critique of the control society and a comment on the totalitarian movements rising in Europe. Aldous let Mustapha Mond, the supreme leader of *Brave New World* and ruler over a genetic caste system, be referred to as the "World Controller."¹²² As historian Miriam Levin noted, this was a time during which the word control

¹¹⁹ Russell (1924, 24).

¹²⁰ Russell (1924, 55).

¹²¹ Russell (1931, 211–12).

¹²² It should be noted, however, that *Brave New World* is not the straight-forward dystopian or anti-utopian vision it has been made out to be in later interpretations. At the time of writing the novel Aldous, like his brother, curious about eugenics and harbored an interest in a planned society inspired by H. G. Wells's *Open Conspiracy*. Bradshaw has shown that Aldous did not necessarily find the idea of a eugenic caste system abhorrent, but rather entertained it in his private time. This is arguably what gives *Brave New World* its tension—Aldous was not sure whether to despise or admire such a society. Huxley (1994, xii–xvii, 31–38); see also Huxley (1965).

began to take on a resonant power of its own, in films such as “Metropolis” and “Modern Times,” as well as in *Brave New World* and *1984*.¹²³

In an essay titled “Men Like Ants” from 1934, author and journalist Montgomery Belgion (1892–1973) accused George Bernard Shaw, H. G. Wells, Julian Huxley, and J. B. S. Haldane of “exhorting the rest of us to let the life of mankind be transformed.”¹²⁴ Belgion found the fact that the ideas of these men were being seriously entertained unsettling. Huxley and Haldane may be brilliant biologists, he wrote, but that did not give them any qualification for advising how society should be run. Belgion claimed the opposite: Scientists often lacked political wisdom and Huxley and Haldane had no knowledge of the “real world” and the “real desires of human beings.” They had spent their lives in the laboratory and the university.¹²⁵

Indeed, Belgion warned that if Wells’s or Huxley’s political proposals be carried out, it would mean the setting up of a central authority of absolute power, planning and controlling all the activities of the mass of humankind. If such a regime was to be set up—even for a short time—the loss would be great. Humans would cease to be individuals and instead become like ants.¹²⁶

¹²³ Levin 2000: “Contexts of Control,” 27; see also Mills (1998).

¹²⁴ Belgion (1934, 366). Essay originally published in *The English Review*.

¹²⁵ Belgion (1934, 370).

¹²⁶ Belgion (1934, 376).

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CHAPTER 5

The Politics of Life

Huxley had reviewed favorably Wells's science fiction in the early 1920s, appreciative of the fact that Wells dealt with the implications of the new biology in his books. The Wellsian futurism often dealt with the long-range implications of the new biology for human destiny. Huxley wrote that he believed Wells attempted "genuine" utopias as opposed to satirical utopias.¹ By "genuine utopias," Huxley seemed to imply future visions that were true and sincere and that might be possible to achieve.² Wells himself had insisted that his utopias not be static, but instead forward moving. They were to represent a hopeful stage in a long ascent of stages.³ In her study of utopian thinking, political scientist Elisabeth Hansot noted a marked difference between a classic and a modern utopia; unlike classical utopias, modern utopias had become time-oriented and viewed change as desirable.⁴ To both Wells and Huxley, rather than being final destinations,

¹Huxley 1923: "Biology in Utopia," 67.

²Huxley's view of this matter is slightly reminiscent of Ernst Bloch's idea of abstract and concrete utopias. Whereas abstract utopias were unreal dreams with no real implications for history, Bloch held that concrete utopias were characterized by objective possibilities. Through concrete utopias, it was possible to describe and anticipate a possible future, see Bloch (1986).

³Wells (1905, 5).

⁴Hansot (1974, 95–96).

a utopia of the modern age was dynamic and with unlimited possibilities for change and progress.

Part I of this book established that Huxley's vision entailed conscious human evolution. The following chapter will examine more closely what this meant on a practical level, but to put it up front and bluntly, it called for intervening in or controlling human reproduction by such means as, for example, contraception and artificial insemination. During a time when even talk of birth control roused controversy, Huxley realized his vision would mean a radical departure from established practice and belief. Yet he firmly believed that this kind of control over human reproduction marked a "new and essential upward step in mankind's progress towards full control of nature and destiny."⁵

Statements such as these make it clear that Huxley was looking at the issues long-range. Historian Garland Allen has noted that Huxley seemed to place eugenic questions in an evolutionary as opposed to a purely genetic context.⁶ This is important in connection to Huxley's vision. He quite consistently argued that new science and technology should be used to affect and control humankind's evolutionary future. Many times, he seemed less interested in specific topical negative eugenic concerns and more interested in envisioning a future of human enhancement on an evolutionary scale. It should be said of Huxley that he was never mainly interested in eugenics as a means to improve or stunt specific groups of humans (physically, ethnically, religiously, or nationally defined). His focus was directed mainly on the human species, and this species' improvement.⁷

Increasingly, Huxley realized that he needed to affect people's thinking about their role in shaping a specifically envisioned future and needed to influence the way people thought about these matters. Huxley referred to the changes he envisioned as radical and proposed to look at biology and human evolution as part of politics. He saw the long-range implications of the new biology and showed a clear and quite early awareness of what today is referred to as biopolitics.

Biopolitics relates to the field of politics where the State is summoned to intervene in people's lives on a biological level. Historian of science Marius Turda has described biopolitics as a set of ideas and practices that, from the 1930s onward, shaped or sought to shape patterns of social

⁵ Huxley 1934: *If I Were Dictator*, 104.

⁶ Allen (1992, 201).

⁷ See as a good example Huxley 1936: "Eugenics and society," *Eugenics Review*, 18–19.

behavior.⁸ Biopolitics can also be understood as the political spectrum that concerns and reflects positions toward the sociopolitical consequences of the biotechnological development, as discussed by sociologist James Hughes. Biopolitics includes the political application of biotechnology and bioethics, but also the political advocacy in support of, or in opposition to, applications of biotechnology. Biotechnology is used to mean any technology that seeks to use or affect biological systems, living organisms, or derivations thereof.⁹

In the early 1930s, Bertrand Russell realized that science had enormously increased the power of governments. It was now possible to produce more profound intimate changes in social structure in a way that had not been viable for a Jefferson or a Robespierre.¹⁰ Huxley also saw the political change and wanted to promote an understanding of it to generate change faster. Political philosophy, he claimed, was still shaped by previous centuries and had not yet consciously concerned itself with *life*. It was wrongfully caught up with a focus on economy and trade and the relationship between nations.¹¹

Huxley was clearly promoting a shift in political thinking. To his mind, biology played—or ought to play—an important part in politics. In 1930, he had addressed the members of the School Nature Study Union at University College, London, and proposed that biology be made a cultural subject rather than merely a technical one. It was important that biology was viewed as a necessary school subject, because children and youth needed to take “an intelligent interest in the politics of the future.”¹²

The politics of the future would entail acquiring power over biology. The question for Huxley was not in this instance whether humanity could

⁸ Biopolitics is connected to the idea that humans could be seen as “population” amenable to management. It is closely related to Michel Foucault’s “biopower”—tracing the application and impact of political power on all aspects of human life. Foucault used the term biopolitics to point to a particular phenomenon that he had identified in modernity, a new expression of power and knowledge that he wanted to analyze and criticize, but it is not here used in the specific Foucauldian discursive sense. To speak of a “discourse” of biopolitics and control brings with it more specific assumptions about “power” and/or “hegemony” that would require a different study. See Turda (2010, 112); see also Esposito (2008); Mills (2016, 90–91); Liesen & Walsh (2012).

⁹ Selective breeding would be one form of biotechnology, but so would a pacemaker, see Hughes (2004, 55–63).

¹⁰ Russell (1931, 210).

¹¹ Huxley 1934: *If I Were Dictator*, 22.

¹² JSH Papers, RU, MS50, 136:4. “Biology and the Humanities,” *The Times*, 10 Feb. 1930.

or even if it should enhance itself and the world around it, but how and what the best ways were to bring the enhancements about: “If we do not wish the alterations to be chaotic, disorderly and often harmful, we must do our best to control them, and constitute new balances to suit our purposes.”¹³

5.1 EUGENICS

In “Men Like Ants,” the journalist Montgomery Belgion had been particularly upset with Huxley’s and the other technocrats’ ideas of eugenic practices and social engineering. Belgion warned that these men wanted to centrally and dictatorially direct the physical and mental development of the young, to make the mass of humans think and feel in a certain way and decide who were the socially inefficient “to weed out.”¹⁴ Belgion and other critics were perhaps right to worry. Eugenics movements had developed in at least two-dozen countries in the period 1900–1925, and interestingly gained renewed popularity with the new science of early genetics.¹⁵ The quantity and “quality” of human populations became a subject of scientific experiment and political struggle.¹⁶

It is well known that Huxley was one of the most prominent and influential biologists to participate in the eugenics project, serving as President of the British Eugenics Society from 1959 to 1962.¹⁷ After the First World War, at the time when his biological experiments made headlines in the press, Huxley immediately used the spotlight to argue for eugenic measures. While he had the journalists’ attention, Huxley took the chance to say that it was advisable that the human population should be “carefully and scientifically controlled.”¹⁸ In 1924, Huxley stated that his own aims were in complete accord with the Eugenics Education Society’s main aim of studying scientifically human heredity and its sociological bearings.¹⁹

¹³Huxley 1931: *What Dare I Think?*, 18.

¹⁴Belgion (1934, 376).

¹⁵Paul (1995); Adams (2004, 43).

¹⁶Connelly (2008, 3).

¹⁷Kevles (1995, 69); Connelly (2008, 106–7); Renwick (2016).

¹⁸JSH Papers, RU, MS50, 136:1. “Birth Control Instruction: ‘Good Far Outweighs Possible Evils,’” *Birmingham Gazette*, 1 May 1921.

¹⁹Huxley 1924: “Eugenics and Heredity,” *The New Statesman*, 14 Jun. 1924.

Huxley was not alone; eugenicists in Britain during the 1920s, 1930s, and 1940s could count on the aid of many prominent scientists as well as intellectuals, of which no small amount were Huxley's associates. An interest in and openness to eugenic ideas thrived in biology, psychology, and sociology departments of universities and colleges. Counting among the eugenic enthusiasts, to varying degrees, were the statistician Ronald A. Fisher (1890–1962) and J. B. S. Haldane, the psychiatrist and eugenicist C. P. Blacker (1895–1975), who promoted birth control and used the British Eugenics Society's resources to promote research in genetics and social planning, the Fabians Beatrice and Sidney Webb, as well as physician Havelock Ellis. H. G. Wells, Joseph Needham, C. P. Snow (1905–1980), and H. J. Muller (1890–1967), to name a few more, all at one point or another advocated some form of eugenics.²⁰

From the start, eugenics was in many respects a response to worries about the decline of progress rather than a reason for the initial belief in progressionism.²¹ E. Ray Lankester had warned of decline and claimed that humans could escape a degenerate fate only by using their power of reason.²² The idea of degeneration could become the ideological underpinning for a program of action. Controlling evolution through eugenics was a way of preventing or overriding degeneration. The fear was that the “human stock” was somehow deteriorating, for each consecutive generation losing some of its vital force. The cause of degeneration could be explained either by a general lack of “trial by fire” in civilized society, where people were generally cared for and thus did not need to struggle for survival, or because of a differential birthrate, which meant the idea that “undesirable elements” in society had more children than “desirable” groups. The danger of “racial degeneration” posed by differential class fertility rate was much discussed in the Eugenics Society in the 1920s and 1930s.²³

As already noted, the idea of degeneration was certainly in Huxley's mind when he was at Rice in Houston. In one of his lectures, he echoed Lankester's credo, stating that the only way to prevent our civilization from being extinguished, “degenerating into a degraded image of its former self,” was to gain more knowledge. By finding the general laws that

²⁰ Paul (1984, 567–68); Kevles (1995, 63, 101); MacKenzie (1976).

²¹ Bashford & Levine (2010, 28); Ruse (1996, 335); Connelly (2008, 39); Searle (1976).

²² Lankester (1880, 58–62); Lankester 1925: “Progress!”.

²³ Ray (1983, pp.214–15).

governed the progress and extinction of organisms, Huxley stated, humankind could attain control.²⁴

Some of Huxley's eugenic ideas—especially during the 1910s, 1920s, and 1930s—were expressions of a “classic” eugenic viewpoint.²⁵ At the very least, they existed in the realm of negative eugenic measures. For example, he was at this point in time in support of segregation and sterilization of people suffering from “feeble-mindedness.” He firmly believed that some individuals should not be allowed to have children and stated a wish for society or for the state to have “control of the individual's right to bring children into the world.”²⁶ In the 1920s, he also adhered to the common belief that modern civilization hindered natural selection from “cutting off those who fell below a certain standard.” Echoing the fear of degeneration, he claimed that this had disquieting results on humanity's inheritance. Our humanity (the human sense of pity) was in effect affecting humankind long term in a negative way.²⁷ Huxley was highly interested in the founding of the state Institute for Racial Biology in Sweden (1922) and recommended that the British government follow Sweden's example.²⁸

The notion of a singularly responsible humankind and of the importance of human will and effort, as explored in Chap. 3, also pervaded a eugenic agenda. It was not uncommon to speak of a human eugenic responsibility for creation or further evolution.²⁹ Francis Galton's eugenics included the notion that individuals have responsibility—indeed, a moral obligation—to care for the future of the human race.³⁰ In a lecture of 1911, Shaw spoke of the moral responsibility to implement eugenics.³¹ As already touched upon, many argued (and believed) that eugenics would be a more humane and morally satisfying procedure of voluntary control

²⁴ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes. On a sidenote, Esposito has argued that questions of degeneration and extinction were important issues for Haldane, see Esposito (2011).

²⁵ What Daniel Kevles would refer to as “mainline eugenics.”

²⁶ Huxley 1924: “Nature or Nurture,” *New Leader*; Huxley 1926: “The Hope of Betterment,” 55.

²⁷ Huxley 1926: “The Hope of Betterment,” 51–52.

²⁸ Huxley 1926: “The Hope of Betterment,” 56. See also Broberg & Roll-Hansen (1996).

²⁹ Childs (2001, 4).

³⁰ See Galton (1883, 304): “Man has already furthered evolution very considerably, half unconsciously, [...] but he has not yet risen to the conviction that it is his religious duty to do so deliberately and systematically.” See also Adams (2004, 43); Greenslade (1994, 26).

³¹ Shaw (1911); Childs (2001, 7).

of human reproduction, in contrast to natural selection.³² Huxley had been impressed by Inge's statement that the implications of the new biology were so important, that eugenics should be considered one of the "supreme religious duties."³³

The idea that humankind stood alone could be hope-instilling. Instead of attempting to control nature indirectly through appeal to a supernatural being for help and protection, humans could be controlling nature directly: "The long-range improvement of the human race by eugenics is obviously destined [...] to be a major outlet for human altruism and human hope," Huxley believed.³⁴

The eugenics movement was often (but not always) nourished by the idea that the higher classes, or an élite of intellectually gifted people, had a duty to control the involuntary, labile, and emotional activities of the lower classes, or of the "unfit."³⁵ In this sense, eugenics fit well together with other technocratic ambitions. Several of Wells's books not only canvassed possibilities of social control by an elite, but oftentimes imagined the control to involve eugenic measures in one way or another.³⁶ Wells's novels probably did much more to popularize the ideas of eugenics than any academic study or political pamphlet.

In the second half of the nineteenth century, Spencer had seen natural selection as being the biological equivalent of the societal process of *laissez-faire*, and urged that society should essentially mimic the processes of life.³⁷ During the first half of the twentieth century this Spencerian Social Darwinism came to be associated in Britain with a commitment to the unrestricted *laissez-faire* and individualism that had failed, whereas eugenics was associated instead with planned order and the development of a social, and often a state, concern with reproduction.³⁸ The case can clearly be illustrated by the sentiment of Fabian leader Sidney Webb. When

³² Adams (2004, 43).

³³ Huxley 1932: *What Dare I Think?*, 119.

³⁴ Huxley 1934: *Scientific Research and Social Needs*, 200.

³⁵ Smith (1992, 29).

³⁶ In *Anticipations* (1902), Wells imagined a new rational ruling class that would—among other things—eliminate the unfit through eugenics. In *Men Like Gods* (1923), he pictured a future with no "dull or really defective people." In Wells's *Open Conspiracy* (1928), the new World Directorate would work toward recognition of the necessity for biological controls for (among other things) population and disease. See also Wells 1921: *The Sleeper Awakes & Men Like Gods*, 235.

³⁷ Ruse (2004, 137).

³⁸ Paul (1984, 570).

Webb discussed eugenics, he clearly stated that the “survival of the fittest” (i.e., Social Darwinism) was not compatible with civilization. Instead, it was the responsible eugenicist’s duty “deliberately to manipulate the environment”: “No consistent eugenicist can be a ‘Laissez Faire’ individualist unless he throws up the game in despair. He must interfere, interfere, interfere!”³⁹

Historian of science Michael Freedman has proposed a departure from what he sees as the over-simplistic identification of eugenics, as political theory, with racism or ultra-conservatism, claiming it was instead predominantly left wing in the 1930s.⁴⁰ Later, historian of science Daniel Kevles defined a shift within the eugenics movement that took place around 1930, when an older or more original “mainline” eugenics—conservative and right wing—was replaced by a newer, “reform” eugenics that was to a higher degree based on knowledge of human genetics, tended to attempt to move away from the race and class bias of mainline eugenics, and ranged, Kevles claimed, from the moderate left to Marxist left.⁴¹

In reality, there was no sharp divide between mainline and reform eugenics, either in political orientation or suggested practices, although a new opposition to older eugenic ideas was heard in the 1930s that had been more silent up until then.⁴² Additionally, the leftward trend seen among some British eugenicists during the 1930s did not come from within the eugenics movement.⁴³ Eugenics caught on with radicals, middle-of-the-roaders, and conservatives alike. Indeed, in many cases the political question was not whether eugenics should be permitted at all, but instead what sort of eugenic policy should be adopted.⁴⁴

A new generation did, however, promote eugenics in a new way. An older form of eugenics was criticized for resting on certain ideologically determined assumptions.⁴⁵ As previous scholars have shown, eugenics can serve as a case study illustrating the complexity and overlapping that characterize many modern ideologies.⁴⁶ The Eugenics Society program itself can be seen as politically “enigmatic”: it involved both the idea of

³⁹ Webb (1910, 236–37).

⁴⁰ Freedman (1979).

⁴¹ Kevles (1995, 126, 170).

⁴² Jones (1982, 718); Mazumdar (2002, 48).

⁴³ Jones (1982, 728).

⁴⁴ Fuller (2018, 197); Paul (1995, 17).

⁴⁵ Mazumdar (1992, 146).

⁴⁶ Freedman (1979).

consolidation and preservation of social hierarchy through selected breeding, but also took a critical stance against traditional views on marriage, parentage, and human rights, clearly featuring a tension between stability and change.⁴⁷

The science of human inheritance had—through the development of the theory of classical genetics in the second decade of the twentieth century, mathematic calculations of gene frequencies, early population genetics, and a dawning realization of multiple gene inheritance—quickly turned out to be far more complex than older eugenic theories had presumed.⁴⁸ New knowledge in the fields of mental and physical health led to terms such as “feeble-minded” being criticized as too vague and carelessly used to define mental disabilities. Many of the disorders were caused by deprivation or disease, rather than by inheritance.⁴⁹

Older theories that postulated that unemployment could be explained by so-called racial decay (the lower classes being eugenically unfit) seemed increasingly absurd as the Economic Depression unraveled. As Mazumdar has stated, by 1931 there was simply too much unemployment for it to be regarded as being due to hereditary social failure, as older theories based on crude social Darwinism had done.⁵⁰ During the 1930s, zoologist Lancelot Hogben accused British eugenics of its neglect of the environment and for contriving “ingenious excuses for combating the amelioration of working-class.”⁵¹

Partly because of these circumstances, it became more common for eugenicists—when speaking of population and health—to underline the importance of environment, education, decent housing, a good diet, and exercise. A good example of this was the American geneticist and friend of Huxley, H. J. Muller, who had emigrated to the Soviet Union in 1934 and started working at the Institute of Genetics in Moscow. There he completed his futuristic, eugenic vision *Out of the Night* (1935).⁵² *Out of the Night* was well thought of within as well as outside of leftist circles in Britain and was distributed by the Left Book Club. Paul has noted with

⁴⁷ Ray (1983, 213).

⁴⁸ Bashford & Levine (2010, 84–85).

⁴⁹ Kevles (1995, 166).

⁵⁰ Mazumdar (1992, 156).

⁵¹ Hogben (1938, 1053–54, 1074); see also Mazumdar (1992, 149).

⁵² Muller presented the book to Stalin. Shortly afterward Muller found it advisable to leave the Soviet Union for Spain, see Paul (1984, 578–79).

some surprise that there was widespread assumption that Muller's program was scientifically unproblematic.⁵³

In *Out of the Night*, Muller declared that eugenics had, for the most part, become a "hopelessly perverted movement" of race and class prejudice, Fascists, and reactionaries. But he also argued that gross inequalities in environmental conditions (between the classes) obscured many of the *real* hereditary differences existing between individuals.⁵⁴ Huxley wrote approvingly of his colleague Muller's book in the *Eugenics Review* in 1936. Eugenic advance, he believed, would be made through "the economic liberation of the masses," and of women in particular.⁵⁵

Huxley explained that much of the old eugenic ideas had been based on class bias. The "lower classes" were not shorter in stature because of genetic heritage, but because of environmental factors. The same could be said, Huxley stated, regarding a racial bias. Most so-called racial traits were in fact national (sociocultural) traits. As such, they had no genetic or eugenic significance.⁵⁶

Like Muller, Huxley emphasized that the equalization in relation to a eugenic program needed to encompass a raised standard of diet, the provision of facilities for exercise, and equal opportunities of education.⁵⁷ He had expressed similar views since the early 1920s. In 1924 he had proposed in the British socialist newspaper *New Leader* (earlier *Labour Leader*) that the State should raise the general standard of living for people.⁵⁸ In 1934, Huxley said that the "great eugenic movement" could only truly begin when the physical and social environment, and the social opportunities, had been equalized for the whole population.⁵⁹

Historian of science Marianne Sommer has argued that Huxley, along with Haldane and Hogben, used new insights into the genetics of heredity to argue against any biological foundations for antidemocratic ideologies, and that they developed an understanding of diversity cutting across divisions of race, class, or gender.⁶⁰ These insights, she stated, also made it so

⁵³ Paul (1984, 575, 580).

⁵⁴ Muller (1936, 8–11).

⁵⁵ Huxley 1936: "Marxist Eugenics," *Eugenics Review*, 67.

⁵⁶ Huxley 1936: "Eugenics and society," *Eugenics Review*, 14, 16–18.

⁵⁷ Huxley 1936: "Eugenics and society," *Eugenics Review*, 26.

⁵⁸ Huxley 1924: "Nature or Nurture," *New Leader*.

⁵⁹ JSH Papers, RU, MS50, 106:1. Public Health Congress and Exhibition Voluntary Sterilisation, 1934.

⁶⁰ Sommer (2014).

that “for Huxley eugenics as a natural science to steer evolutionary progress mostly receded into the future.”⁶¹ This statement arguably downplays Huxley’s eugenic engagements and technocratic sentiments. The 1930s did see Huxley arguing for equality of social opportunity (and against race and class bias among eugenicists). He did so, however, because he believed it would enable a truly scientific eugenic program that could start working on the heredity, the genetic difference and variability, of individuals. Equalizing the environment was important to Huxley because it would enable a eugenic movement and the next step in human evolution. It grew out of the belief that for biology to be controlled, environment needed to be controlled as well.

Interference was on Huxley’s mind. He could certainly try to picture a eugenic program adjusted to a nationalist, capitalist class-system (which is how he described the political-economic system of the 1930s). Such a program was not, however, what Huxley claimed to want. The present competitive, individualist, capitalist social system was dysgenic and distorted life.⁶² It failed to utilize reservoirs of “valuable” genes, and it failed in the long run to increase them. He preferred it if the environment (society) was changed as well as human genes: It would be unscientific and wasteful not to attempt to control environment at the same time as genetic quality.⁶³ Huxley, along with several of his associates, was for an equalizing of the environment but was not necessarily in support of a view that held all human individuals as equals.

In 1931, Huxley and Wells had been sure of the fact that there was a proportion of the population that would need to be sterilized. These so-called unteachables did not have to be forced, however. Wells and Huxley ensured that no brutality was needed, as these individuals could be “bribed or otherwise persuaded to accept voluntary sterilization.”⁶⁴ On a congress of public health in 1934, Huxley spoke of the sterilization operation as “humane,” and claimed that no responsible person would ever propose compulsory sterilization. If sterilization laws were put in place, Huxley believed that would represent a real advance in social justice.⁶⁵

⁶¹ Sommer (2014, 574); Sommer (2020, 210).

⁶² Huxley 1934: *If I Were Dictator*, 20; Huxley 1936: “Eugenics and society,” *Eugenics Review*, 26.

⁶³ Huxley 1936: “Eugenics and society,” *Eugenics Review*, 26.

⁶⁴ Wells, Huxley & Wells (1931, 875).

⁶⁵ JSH Papers, RU, MS50, 106:1. Public Health Congress and Exhibition Voluntary Sterilisation, 1934.

He had been attempting to push this agenda for some time. In 1925, the British Social Hygiene Council was formed. It concentrated on educational propaganda and the personnel overlapped between the Social Hygiene Council and the Eugenics Society. Huxley was among the members.⁶⁶ In 1929, Huxley and his former student the psychiatrist C. P. Blacker (who had been a member of the Eugenics Society since 1927) worked on a plan to fund a sterilization clinic at University College Hospital, London. The clinic's work would demonstrate the benefits and lead to more widespread adoption of sterilization. The plan was never set into action because of legality issues.⁶⁷ In 1930, the Eugenics Society established a Committee for Legalising Eugenic Sterilisation, where Huxley again was among the members.⁶⁸

Sterilization was never legalized in Britain. The organized British eugenics movement adopted a relatively moderate position and gained significantly less political and legal ground than eugenics did in several other countries (the United States, Norway, Sweden, Finland, Denmark, Iceland, Japan).⁶⁹

It should be noted, however, that sterilization, voluntary or not, was not Huxley's main concern. He was a supporter of several other medical methods, technologies, and ideas that to him were connected to the future of human evolution. Characteristically, Huxley would move quite effortlessly between science facts and science fiction and was not afraid to speculate. His political proposals for the use of real and existing science and technology combined with bigger dreams of revolutionary departures in human procreation.

Additionally, campaigning for legalizing sterilization became viewed as possibly suspect after the German Government published its scheme of compulsory sterilization in July 1933. Historian G. R. Searle has pointed out that British eugenicists henceforward ran a considerable risk of being found guilty by association.⁷⁰ However, Nazi population control could

⁶⁶ Mazumdar (1992, 34).

⁶⁷ Thomson (1998, 183–84).

⁶⁸ Freedden (1979, 666).

⁶⁹ Thomson (1998, 198); Paul (1995, 73). In Britain, the lack of implemented sterilization or other eugenic laws has been explained by a politically unified and powerful working-class movement, that did not see kindly to being targeted as the urban poor “problem group” by eugenicists (apart from organized labor, opposition was also strong from Catholics), see Paul (1995, 72–73).

⁷⁰ Searle (1979).

also be seen as differing from other suggested eugenic plans because of its single-minded pursuit of the Jews and its talk of “racial purity.” Promoters of eugenic measures—many of whom considered themselves progressive—felt Nazism distorted their ideas.⁷¹

Huxley drew a sharp line between his own suggestions of voluntary sterilization and the German compulsory sterilization methods. He claimed that the Nazis in Germany had a “different, crazy mentality” with regard to eugenics, one that the British would never adopt.⁷² In 1937, he raged against “the way the scientific method was being prostituted to perpetuate the Aryan myth.”⁷³ In other words, Nazi policies did provoke an anti-eugenic response, but critique of Nazi eugenics also came from people in support of eugenics. Such a response came from Huxley, who in 1935 had co-authored the anti-Nazi *We Europeans: A Survey of ‘Racial’ Problems*, together with anthropologist A. C. Haddon (1855–1940).

The book set out to argue, based on scientific knowledge, that the concept of race was a myth and had no scientific meaning.⁷⁴ Huxley and Haddon concluded that the word “race” should not and could not be used concerning human beings at all but should be replaced by the descriptive term “ethnic group.” Furthermore, they concluded that the mixing of genetical types historically had been a positive thing that had led to biological variation.⁷⁵ The book was well received, was given the Ansfield-Wolf Book Award in the United States in 1937, and was an important public document to make the scientific case against Nazi race theories.⁷⁶

⁷¹ Connelly (2008, 80).

⁷² JSH Papers, RU, MS50, 106:1. Public Health Congress and Exhibition Voluntary Sterilisation, 1934.

⁷³ JSH Papers, RU, MS50, 136:5. “Huxley Envisages the Eugenic Race,” *New York Times*, 6 Sept. 1937.

⁷⁴ Huxley and Haddon pointed out that the concept was too vague, based on nationalistic ideological notions. Concerning the European peoples, the authors stated, there was nothing such as a “pure race” in any biological sense of the term. Huxley & Haddon (1939, 23–26).

⁷⁵ Huxley & Haddon (1939, 217–21).

⁷⁶ Nye (1993, 699). For a discussion of *We Europeans*, see Kevles (1995, 133). Huxley’s view of race is a subject in and of itself. He had expressed racist ideas earlier in his life, particularly after his sojourn in America. See, for example, Huxley 1924: “America Revisited III: The Negro Problem,” *The Spectator*, 133: 821–22. During the 1930s he was fully aware of race bias and emphasized cultural rather than biological differences, while simultaneously expressing racist views. The time during which Huxley proposed scrapping the race-concept as irrelevant and to speak instead of ethnic groups, he also expressed the belief that there might be genetic differences in intelligence and temperament between different ethnic groups. See Huxley 1936: “Eugenics and society,” *Eugenics Review*, 18–19. For further discussion of Huxley’s view of race, see Allen (1992); Barkan (1992).

5.2 CONTRACEPTIVES

Another technique Huxley believed was important in relation to his vision was contraceptives. Some eugenicists (particularly during the latter part of the nineteenth century) had promoted conservative notions of moral and sexual purity and emphasized the importance of marriage and motherhood. But around the turn of the century, several critics came to see traditional sexual morals and the institution of marriage as the problem rather than the solution to the problem of degeneration.⁷⁷

A new generation of eugenicists of a more socially radical vein deemed the restrictions against divorce “dysgenic” because it encouraged the production of children by mismatched parents.⁷⁸ By the 1920s, several eugenicists promoted sexual compatibility in marriage, women’s sexual liberation, and sexual pleasure dissociated from procreation. Bashford and Levine have pointed out that eugenics often dovetailed with broad public health and hygiene practices and have noted the preoccupation of eugenics with fertility control. Eugenicists aligned themselves with advocates of contraception.⁷⁹ With regard to birth control, then, different motives could rally behind one flag: Proponents of individual sexual freedom, political activists wishing to make family life more tolerable (especially for the poor), women’s rights activists, and eugenicists all found common ground. In several cases, all these causes intermingled. Historian of medicine Greta Jones noted the mixture of radical and conservative ideas.⁸⁰

Huxley was clearly a member of a new generation of eugenicists.⁸¹ The 1920s saw Huxley claiming that humanity was in an evolutionary transition

⁷⁷ Robb (1996, 590).

⁷⁸ Kevles (1995, 65–66).

⁷⁹ Bashford & Levine (2010, 8, 99). Female rights activist Marie Stopes believed birth control could be used to balance out the birth rate of the working classes against the professional middle class. Stopes had been a member of the Eugenics Society since 1912. In 1921, she had founded the organization “Society for Constructive Birth Control and Racial Progress.” A vigorous support for birth control did not necessarily mean supporting the idea to have it made available to all women. Rather, it could be directed at counteracting the effects of differential class fertility by lowering the fertility of the “social problem group,” see Allen (2000); Pickens (1968, 71); Searle (1979); Ray (1983, 215).

⁸⁰ Jones (1980, 168).

⁸¹ For his early lectures, Huxley included a book by the popular progressive English physician Havelock Ellis (1859–1939). Ellis had gained fame for his studies in human sexuality. He had written the first medical textbook in English on homosexuality in 1897, and introduced the notions of narcissism and autoeroticism, later adopted by psychoanalysis. His *Man and Woman* (1894), included on Huxley’s list of literature, was an analysis of the alleged

as regards sex. He labeled the “mechanical and chemical control of conception one of the few important biological inventions made in historical times.”⁸² He promoted as fundamental the idea of the deliberate control of parenthood and was highly critical of contemporary moral and sexual norms, which he called “uncivilized” and based on pseudo-religious fears about sexuality.⁸³ He supported the right to have sex without procreation, arguing that there was nothing wrong with sexual pleasure in and of itself.⁸⁴

He was outspoken about his belief in contraception during a time when the distribution or even discussion of contraceptive methods was highly controversial.⁸⁵ He caused a scandal when he openly advocated birth control on the BBC in 1930.⁸⁶ Even before that, he had called for the equal distribution of knowledge of birth control methods to all classes in society and criticized the Ministry of Health for refusing to allow information on birth control.⁸⁷ He had attended the “International Neo-Malthusian and Birth Control Conference” in New York in 1925, a conference organized by the American birth control activist and sex educator Margaret Sanger, who in fact coined the term “birth control.”⁸⁸ Huxley also corresponded with the British botanist and female rights activist Marie Stopes. He argued that contraception and free abortion must be used to render motherhood completely voluntary.⁸⁹

physical and psychological differences between men and women. Ellis was interested to see whether attributes such as intelligence and emotional capacity had their grounding in sexual difference, or whether they were simply the result of artificial cultural differences. He concluded that woman was no more an undeveloped man than man was an undeveloped woman. Ellis, who supported eugenics and was a member of the Galton Institute, argued for a social reform in maternity laws and in the view of contraceptives. See Ellis (1894, 390, 396); “Havelock Ellis: 1859–1939,” *American Journal of Sociology*, vol. 45, no. 2: 259; “Havelock Ellis,” *British Medical Journal*, vol. 2, no. 4097: 123. See also Rowbotham & Weeks (1977); Grosskurth (1980); and JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Literature lists, as well as lecture notes.

⁸²Huxley 1924: “‘Sexual Sublimation’: A Biologist’s View,” *The New Republic*, 23 Jan.; Huxley 1925: “Birth Control—Individual and Social Ethics,” *Nature*, 26 Sept.

⁸³Huxley 1934: *If I Were Dictator*, 124.

⁸⁴Huxley 1929: “Birth Control,” 134.

⁸⁵Kevles (1995, 88).

⁸⁶Weindling (2012).

⁸⁷Huxley 1926: “The Hope of Betterment,” 52–53.

⁸⁸Connelly (2008, 51, 63–64).

⁸⁹Huxley 1936: “Marxist Eugenics,” *Eugenics Review*, 67.

In 1938, he signed a protest against the law against abortion together with Havelock Ellis, geneticist Reginald Ruggles Gates (1882–1962), physicians John Alfred Ryle (1889–1950), Walter Langdon-Brown (1870–1946), and C. P. Blacker. The group was in favor of widening the grounds upon which it should be legally permissible to have an abortion, and for facilities made open for voluntary termination of pregnancy. One of the arguments was that a termination of pregnancy was a much less drastic procedure than a sterilizing operation.⁹⁰

In his own imagined future society, Huxley pictured instituting Sex Education Clinics, where advice on all matters concerning sex would be freely available.⁹¹ He was convinced that there would be a Ministry of Sex in the British Government in a hundred years' time.⁹² Huxley also believed strongly in the technical possibility of artificial insemination (by selected donors). He even considered "ectogenesis," the growth of an embryo in an artificial environment outside of the mother's body. It was an idea and a word that had figured in Haldane's *Daedalus* of 1923, later used by Aldous in his *Brave New World*.⁹³

In *If I Were Dictator*, Huxley declared that no religious, philosophical, moral, or class beliefs should be allowed to prevent the knowledge of these methods being available to all. People would be free to believe that birth control and other methods were sinful, but they would not be allowed to propagate this view. Any attempt to interfere with the liberty of others in this matter would, he claimed, be "rigorously suppressed."⁹⁴ It is apparent that Huxley, in questions relating to eugenics and human enhancement, was torn between promoting the individual's rights and the idea of a technocratic society.

The control through eugenics could involve coercion, and perhaps even compulsion, especially perhaps regarding so-called negative eugenic

⁹⁰Huxley et al. 1938: "Abortion and the Law," *The British Medical Journal*, 198.

⁹¹Huxley 1934: *If I Were Dictator*, 124. The nation under the dictatorship of Huxley would be a laboratory, regionally testing the effects of sale of birth control, legalization of abortion, and the consequences of voluntary sterilization. He also envisioned routine measurements of physique and fitness of every member of the population, and special awards to communities for producing the Best Hundred Babies, the Best Hundred Girls, the Best Hundred Young Men, the Best Hundred Old Ladies, and so on. See Huxley 1934: *If I Were Dictator*, 105, 133.

⁹²JSH Papers, RU, MS50, 136:4. "Peter Pan Professor," *Aberdeen Evening Express*, 3 Oct. 1930.

⁹³See, for example, Huxley 1942: *Evolution: The Modern Synthesis*, 573.

⁹⁴Huxley 1934: *If I Were Dictator*, 104.

practices that focused on prevention. But such crude methods would not be feasible in the long run. Clearly, Huxley viewed as essential the need to change peoples' thinking and (sexual) morality. The masses could be helped or guided to making the right decisions. Many eugenicists were motivated by the idea of educating the public to be "eugenic minded," and lectures and meetings were commonplace.⁹⁵ The Eugenics Society aimed to influence the legislative process by permeating the media, academic institutions, and the medical profession.⁹⁶

5.3 PROMETHEAN PRESUMPTIONS

Huxley would often allow himself to openly consider the improvement of the human species in numerous possible ways. He hoped that the new discoveries in biology would soon enable the changing of the human constitution and called for more experiments and investigations into physico-chemical processes, chromosomes, etc. in order to advance toward attaining a "full measure of control over the life-cycle of man."⁹⁷ In connection to his own hormonal experiments and to experimental biology in general, he made sure to emphasize the coming revolution in applied life sciences. Controlling organic nature also meant moving toward the control of human nature: "The stuff that will be controlled is the basis of our thoughts and emotions and very existence."⁹⁸

Huxley's words did not fall on deaf ears. As seen in Chap. 2, his experiments entranced the public. The changes Huxley's spoke of being able to produce in axolotl, flatworms, and tadpoles were immediately considered in relation to humans. The promise of the biologist's or medical doctor's control of life nurtured desires of therapies and enhancements. Following the public attention given to his experiments, Huxley received letters from individuals who had seen the announcements in the press and were hoping that the new science could help them. People asked the "Discoverer of the Thyroid gland action" for hormonal treatments. A desperate man wrote hoping for a penis enlargement.⁹⁹ Another, writing to Huxley on January 19, 1922, after having read the account of a Huxley lecture at the Royal

⁹⁵ Kevles (1995, 60).

⁹⁶ Searle (1979).

⁹⁷ Huxley 1921: "The Control of the Life-Cycle (iv)," 496; JSH Papers, RU, MS50, 97:2. Huxley 1921: "Living Backwards," *Discovery*, Feb.

⁹⁸ Huxley 1921: "The Control of the Life-Cycle (iv)," 497.

⁹⁹ Bashford (2022, 354).

Society regarding “Reversing the Sexes,” asked Huxley to help a friend who had been pronounced a “hermaphrodite” to become more pronounced for a male: “I know that sometimes these cases are interesting to Gentlemen who make a study of this special thing & I am sure my friend would go to any reasonable expense to be made right.”¹⁰⁰

Such individual and intimate yearnings were only a small part of a much bigger field of future possibilities. There really were revolutionary developments being made in experimental biology and medicine in the early twentieth century. Besides research on hormones, the early geneticists produced mutations by means of X-rays, and biologists had also discovered vitamins, which would become the cure for beriberi, scurvy, and pellagra. Huxley was fond of emphasizing these developments and, in 1921, guessed (correctly) that rickets could soon be similarly treated and cured with vitamins.¹⁰¹ In addition, experimental biology and research in endocrinology and embryology opened up new means to tackle the problems of fertilization, development, sex, and heredity.¹⁰² The inventor of the birth control pill, Gregory Pincus (1903–1967), had come to Cambridge in the late 1920s and began to work on artificial insemination, in vitro fertilization, and artificial parthenogenesis.¹⁰³

As discussed in the previous chapter, Huxley clearly expressed the experimental spirit, claiming observation was insufficient and that biologists could and should attempt to manipulate organisms. To him, evolutionary biology was never simply a means by which to explain or describe nature and natural history. He was from the start fascinated with the possibility of putting the new biology to use in humankind. He considered both treatments and enhancements on an individual level (somatic), as well as on a more extensive germline level. He believed that eugenics would become widely practiced.¹⁰⁴ He was convinced that research in new

¹⁰⁰ JSH Papers, RU, MS50, 7:1.

¹⁰¹ Huxley 1921: “The Control of the Life-Cycle (ii),” 301; Huxley 1933: “Man as a Relative Being,” 109–10; Huxley (1935, 427).

¹⁰² Erlingsson (2013, 80).

¹⁰³ Parthenogenesis is a form of asexual reproduction in which growth and development of embryos occur in a gamete without combining with another gamete (e.g., egg and sperm fusing). Pauly (1987, 187).

¹⁰⁴ Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 51.

drugs and in new methods for fighting disease would make people in the future healthier.¹⁰⁵

Huxley talked of a future world where more and more people would reach an advanced age and where the infant mortality would continue to fall.¹⁰⁶ In the 1910s, he had expressed a firm belief that humans could create life artificially. It was simply a matter of finding “the chemical architecture of a piece of living matter and then learn how to make just such another combination.”¹⁰⁷

Several of his imagined cures and enhancements had to do with the human mind. He dreamt of removing inherited factors—such as various mental illnesses—altogether. He believed this could be done in just a few dozen generations of artificially controlled reproduction.¹⁰⁸ The idea of removing mental illnesses on a hereditary level must have been of personal significance to Huxley. His family line battled with melancholy and depression. Following the end of the Great War, Julian had suffered his second in what would turn out to be a life-long series of severe nervous breakdowns, and his younger brother Trevelyan Huxley had committed suicide in 1914 after a period of clinical depression.¹⁰⁹

As for enhancements, Huxley was clearly fascinated with the idea of the genius, the remarkable man and the original thinker. He was willing to state that natural selection in humans worked on the group and to a lesser extent on the individual, and that this was regrettable: “the exceptional man has suffered from his exceptional endowment.” In the early 1920s, Huxley claimed that there was no theoretical objection whatsoever to the idea that new types of minds could be developed. “Other types of mental mechanism are possible,” he stated, “which would make our grasp of complex situations appear pitiful and henlike in its limitations, which would enable their possessors to *see* and solve in a flash where we can only grope and guess.” He then called for the “deliberate biological encouragement” of such new possibilities to be developed.¹¹⁰ He was even in contact with the classical scholar Gilbert Murray (1866–1957) about experiments

¹⁰⁵ Huxley 1921: “The Control of the Life-Cycle (ii),” 309; “The Control of the Life-Cycle (iii),” 412.

¹⁰⁶ Huxley 1929: “The Meaning of Death,” *Essays in Popular Science*, 125–27.

¹⁰⁷ JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916, notes.

¹⁰⁸ Huxley 1926: “The Hope of Betterment,” *The Stream of Life*, 55–56.

¹⁰⁹ For more details on Huxley’s struggles with mental health, see Bashford (2022, chap. 3).

¹¹⁰ Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 50–51.

in telepathy in the late 1910s. Murray had a deep interest in psychical research and, purportedly, a telepathic gift himself (Huxley once attended a séance at his home).¹¹¹

Huxley's curiosity regarding this subject is explained by the fact that he was fascinated by the idea of an "intimate union of mind with mind," and more generally the idea of the rational mind freed from the limitations that confined it. Mind, he wrote, enabled an escape from imprisoning limitations of matter.¹¹² In continuing the discussion of Zarathustra, Huxley had written that although the personality of the human individual was free compared with the individuality of the lower animals, it was still "weighted with a body." The perfect individual would perhaps be eternal, unaffected by time and space. Life, however, had not through natural selection been able to reach this kind of perfection, but had instead to content itself with the continuance of the *kind* of individual instead of the individual *itself*.¹¹³ Huxley speculated that there may somewhere be personalities that had "not merely transcended substance, but are rid of it altogether." Such an individual would, if it existed, crown Life's progress "free and untrammled."¹¹⁴

An individuality free from the shackles of a biological body would truly be one to whom accidents could not happen. Images of suprahuman disembodied intelligences figured frequently in Wells's scientific romances.¹¹⁵ When molecular biologist and political activist J. D. Bernal imagined a future humanity in *The World, the Flesh and the Devil* (1929), he envisioned one "that has become completely etherealized, losing the close-knit organism, becoming masses of atoms in space communicating by radiation, and ultimately perhaps resolving itself entirely into light."¹¹⁶

As Bashford has pointed out, Huxley also considered the prolongation of life.¹¹⁷ His own and others' experiments with hormones for rejuvenating purposes in the 1910s and 1920s got him thinking. He was interested in the works of the Austrian pioneer in endocrinology Eugen Steinach

¹¹¹ See JSH Papers, RU, MS50, 5:15. Letter from Gilbert Murray, 24 Feb. 1917; Huxley (1970, 139–40); Mauskopf & McVaugh (1980, 331).

¹¹² Huxley 1923: "Religion and Science," *Essays of a Biologist*, 283.

¹¹³ Huxley 1912: *The Individual in the Animal Kingdom*, 21.

¹¹⁴ Huxley 1912: *The Individual in the Animal Kingdom*, 30–31.

¹¹⁵ *The War of the Worlds* (1898), *When the Sleeper Awakes* (1899) and *The First Men in the Moon* (1901); see Greenslade (1994, 194–95).

¹¹⁶ Bernal (1929, 57).

¹¹⁷ Bashford (2013); Bashford (2022, 355).

(1861–1944) and the American zoologist Charles Manning Child (1869–1954), who experimented on flatworms regarding regeneration.¹¹⁸ The 1920s was also the time during which the French-Russian surgeon Serge Voronoff (1866–1951) became famous for grafting monkey testicles onto human subjects for the sake of rejuvenation.¹¹⁹ Voronoff was later ridiculed as a quack, but nevertheless experienced a brief period of great fame for his enhancement techniques.

Experimental biology made Huxley consider the meaning of death. Was death a necessary consequence of life? Perhaps not, he thought. Modern experimental science could succeed where the medieval alchemists had failed: The equivalent of an elixir of life might be obtainable and the possibility of altering the normal cycle of human life was “scarcely beyond the horizon of practical politics.”¹²⁰ He also believed eugenic germline measures would enable the raising of the average span of human life. Experiments on the regeneration of ascidian *Clavelina* (a type of sea squirt) and infusoria (a collective term for minute aquatic creatures) showed that cells could regenerate, revert, and take on new specialization. In certain species death could be put off, it would seem, indefinitely. Eager to generalize, he wondered if it would also be possible to postpone or even halt death in human beings.¹²¹

It is important to note that Huxley was sincere in considering these possibilities. Although many of his ideas were far removed from serious and practical science, he firmly believed that such imaginings were important. He gave human history as an example: “Almost every great extension of man’s thought has been opposed as a Promethean presumption.”¹²² To hesitate before the fantastic was cowardly. Modern humans needed to overcome any feelings of hesitancy or repugnance they may experience in the face of new science.¹²³

¹¹⁸ Huxley 1929: “Elixir Vitae,” *Essays in Popular Science*, 128.

¹¹⁹ Voronoff (1920).

¹²⁰ JSH Papers, RU, MS50, 60:3. Notes, undatable material from the 1920s. “The Prolongation of Life.”

¹²¹ Huxley 1929: “The Meaning of Death,” 113–15, 118, 123, 127.

¹²² Huxley 1929: “Birth Control,” *Essays in Popular Science*, 134–35.

¹²³ Huxley 1926: “The Evolution of Man,” *The Stream of Life*, 44.

5.4 ADAPTED TO THE WRONG CONDITIONS

As discussed in Part I of this book, a belief based on the idea of progress, evolutionary or otherwise, was being viewed with increasing skepticism. When Huxley attempted to convince people of evolutionary progress, he came up against a number of uncomfortable truths and insights. Evolution happened by adaptation through natural selection, a process entirely devoid of direction and meaning, that also worked exceptionally slowly. Furthermore, evolutionary biology made it clear that organisms will at times be well adapted to conditions that have long since ceased to exist.¹²⁴

The *bête humaine* continued to rear its ugly head. Huxley's law of progress—an organism's increase in control of and independence from the environment—somehow seemed to fall short. Humankind's control over its environment had not corresponded with advances in individual and social morality. There were so much still humans seemed not to be in control of at all. In a BBC talk in 1930, the anthropologist Bronisław Malinowski objected directly to Huxley and his confident scientific progressivism and suggestions. Modern science in the western world, said Malinowski, was arrogant and aggressive: "Does our science, of which we are so proud and confident, never leave us in the lurch? It has not yet domesticated luck, chance, and accident."¹²⁵

Luck, chance, and accident, these were the antitheses to control. Huxley was keenly aware. The very core of human existence, reproduction, the creation of a human being in the joining of the sperm and egg, was, as he put it, "entirely a matter of chance."¹²⁶ When Huxley had quoted *Zarathustra* in *The Individual in the Animal Kingdom*, he concluded that the human individual, despite being the most independent of any animal, was far from that "happy state" of perfect independence from accidents.¹²⁷

Philosopher Michel Foucault at one point defined life as "that which is capable of error."¹²⁸ Perhaps one of life's most distinctive characters is that of chance and error. It is unforeseeable. Human beings, on the other hand, dislike the unforeseeable and seem to like to manage error and correct it. In a sense, this was what Foucault had in mind when speaking of

¹²⁴Shanahan (2004, 113).

¹²⁵*Science and Religion: A Symposium* 1931, 71–72.

¹²⁶Huxley 1932: *What Dare I Think?*, 81.

¹²⁷Huxley 1912: *The Individual in the Animal Kingdom*, 7.

¹²⁸Foucault (1978, 476).

“biopower,” the power over or control of life, the power to correct error.¹²⁹ On a different note perhaps than the one Foucault had in mind, it is possible to claim that ideas of controlling evolution and of human enhancement reflect the human unwillingness to accept oneself as partly an unknown, unimportant, or uncontrollable entity.

The facts of evolution clearly stated that evolution worked slowly and indifferently to human interests. Huxley understood that evolution by natural selection did not work teleologically, did not work according to anyone’s or anything’s preconceived plan or wishes. Shaw had summarized the dilemma in 1921: According to the Darwinists, there was no hope of human improvement “because improvement can come only through some senseless accident which must, on the statistical average of accidents, be presently wiped out by some other equally senseless accident.”¹³⁰ The careful reader of *The Origin of Species* recognized a world dominated by accident and chance. As any other species, humankind’s continued existence was subject to slow natural laws beyond our control.¹³¹

In the final pages of *The Science of Life*, Huxley and Wells wrote that there was no evidence of any uncontrollable degeneration in *Homo sapiens*. People talked about the rapid multiplication of the unfit, but this was based on the assumption that the prosperous classes were somehow eugenically superior to the laborer masses. It was doubtful, wrote Wells and Huxley, if there was any such superiority. On the contrary, there was no indication that any part of humanity had been or was improving. There was little evolutionary change going on in human beings whatsoever.¹³²

To a generation born in the late nineteenth century, a generation that had already seen great changes in society, the idea that human beings may not be changing was a frightening prospect. In the period after the First World War, the criticism of the ambivalence of modernity grew louder. By the 1930s, there was a general feeling among a number of intellectuals that they were living in a time unraveling so fast as to be disorienting. An ageing Wells summed it up in 1939, writing about the modern world: “We know that the everlasting hills are not everlasting,” and that everything was “carried along upon an irreversible process of change.”¹³³

¹²⁹ Mills (2016, 97–98).

¹³⁰ Shaw (1921, xvii).

¹³¹ Ebbatson (1982, ix); Adams (2004, 41).

¹³² Wells, Huxley & Wells (1931, 875).

¹³³ Wells (1939, 19).

This collective experience was already prominent after the First World War, and the feeling persisted in the interwar period. Although the perceived problem of a chaotic political system ruled by a *laissez-faire* attitude and political unrest was thought to be solvable through a more rational planning of society, there was a deeper and more haunting issue at stake: the problem with human nature. Despite all the achievements that had come with new knowledge, technology, and machines, there was a sense of disillusionment and disappointment that humankind's development had failed to keep pace. As Bowler has pointed out, the 1930s marked a time when it became increasingly difficult to retain the belief that humankind could rise to new moral heights.¹³⁴

The issue of the human beast, discussed in Chap. 3, was a gateway of sorts. It presented the more general idea of humans being animals (or rather, beasts) as problematic, in particular because of the realization that humans were driven not only by common sense and reason, but by a host of baser instincts and unruly emotions. This idea was then combined with anxiety about modernity. The fact that humans had not evolved in any major way since first appearing on Earth was seen as particularly problematic in light of how fast modernity was unraveling. Our biological evolutionary heritage was, simply put, ill fitted to a modern age.

Bernal had explained the issue in *The World, the Flesh and the Devil*: The processes of natural evolution were so much slower than the development of humankind's control over environment, the human body was still "constant and unchanging" whereas human surroundings were not.¹³⁵ Building on similar sentiments, Huxley and Wells warned that *Homo sapiens* was in a biological status quo, a dangerous standstill considering the rapidly changing cultural circumstances. Humans simply could no longer biologically keep up with the swift development of new political, social, and economic arrangements. Not even the most competent and brilliant minority of individuals were able enough, they too had their imperfections and lacked organized solidarity.¹³⁶

Thusly, *The Science of Life* presented an idea of modernity as a problem for humankind as a species. Huxley and Wells wrote that modernity meant a tremendous and accelerated cultural development resulting in ever more complex and technologically advanced civilizations. Meanwhile,

¹³⁴ Bowler (2001, 24).

¹³⁵ Bernal (1929, 37–38).

¹³⁶ Wells, Huxley & Wells (1931, 875).

humankind had for the most part simply been “carried along” in the vortex, biologically remaining as it had been thousands of years ago.¹³⁷ A similar thought was present in *Science in the Changing World* (1933), a book based on a series of broadcast talks around the problems facing humanity in the modern world, in which both Julian and Aldous Huxley, Haldane, and Russell had participated, the Principal of the University of Edinburgh Thomas Henry Holland’s (1868–1947) introduction spoke of the issue of the phenomena of the human mind, which had given humankind all the modern advantages over the living world in material things but had also “brought us all the troubles of an imperfectly controlled imagination.”¹³⁸

There was a tension between control and the uncontrollable, as Huxley and his contemporaries struggled with the idea of the failure of control, both in the sense that there were still things humans were not in control of and in the sense that human technology could backfire or at times seemed not to be within control at all.¹³⁹ For all of Huxley’s triumphant emphasis on humanity’s independency from and mastery of its environment, he was still the first to admit that it seemed this had not been enough. In many cases, humans had no idea how they had made the economic, social, and legal systems present in modernity (although they were decidedly manmade). These societal organizations had taken on a momentum of their own.¹⁴⁰

Earlier but in a similar manner, Bertrand Russell pointed out that although science had increased humankind’s control over nature, it had not increased its happiness and well-being. Instead, the rapid growth of scientific discovery and the change to society it had brought with it had “upset the balance between our instincts and our circumstances.”¹⁴¹ Human beings were not rational but driven instead by passions and instincts and science did not change this fact but only increased human power to gratify their selfish desires and lust for prestige.

The point to note, again, is the conviction or realization that human nature was or had become ill adapted to the new modes of life required in modernity. That humans were still instinctually and emotionally driven

¹³⁷ Wells, Huxley & Wells (1931, 875).

¹³⁸ Adams (1933, 22–23).

¹³⁹ Regarding the general idea of the failure of control, see Hughes (2000, 5–6).

¹⁴⁰ Huxley 1934: *If I Were Dictator*, 160.

¹⁴¹ Russell (1924, 13).

animals was particularly problematic when considering how much modern technology had increased and extended humankind's destructive powers.¹⁴²

How could this problem be solved? In Huxley's vision, certainly not by going back but by going forward, by fitting humankind into modernity. Huxley entertained this idea in various ways, sometimes quite crudely. In 1931, he enthusiastically imagined (and not in the context of science fiction) a future combination of pharmacological substances that would be capable of "toning up" human faculties without having any bad after-effects. These pharmacological enhancements could then be engineered to help people become better at performing their jobs. There would be a drug to enhance hard labor like that of a miners', routine jobs like those of a civil servants', or "pure brainwork" like that of a mathematician. An even greater triumph for medicine would be if it could invent a drug that would make the average human being simply "feel better." It would then befall scientists and statesmen to "persuade the population at large to adopt it, so that not thousands but millions would simultaneously be taking their 'little daily dose.'"¹⁴³ Meanwhile, Julian's brother Aldous was working on *Brave New World*, wherein he depicted a scenario where the population was kept in line artificially fulfilled by the drug *soma*.

Such proposals for solutions did not, however, get to the root of the problem. Early on, Huxley understood well the difference between the kind of human betterment that entailed improvement in the conditions in life surrounding humankind and the human betterment that instead set its sights on "the betterment of the human type itself." Human progress so far depended on new achievements and fuller realization of already existing innate possibilities, rather than upon improvement of those possibilities in and of themselves.¹⁴⁴

¹⁴²The sense that modern civilization was accelerating faster than human biology could keep up with had been present in the late-Victorian era too. Spencer, for example, entertained the idea that civilized humans were marked by characteristics that were suitable for the conditions of their earlier predatory life, see Bury (1920, 337–38). Comparable also, and relevant for the discussion, is Freud's concept of the death drive and human aggressive and destructive impulses. Freud's work implied a contradiction between civilization and happiness, in a "Freudian pessimistic denial of the utopian hope," see Manuel 1971a: "Toward a Psychological History of Utopias," 87.

¹⁴³Huxley 1932: *What Dare I Think?*, 68–69.

¹⁴⁴Huxley 1926: "The Hope of Betterment," *The Stream of Life*, 50.

Huxley had stated that the “problem of mankind” was that “man had to live in a world in which he was confronted with forces and powers other than his own.”¹⁴⁵ Ironically, it seemed as though the most unforeseeable factor emanated from human nature itself. For all its formidable willpower, the human mind could still not control the effects of itself. The idea was clearly with Huxley in the 1930s and had by that time grown into a call for action. The mystery of external nature was no longer a mystery, or so it seemed to Huxley. Humankind had, according to him, learned to exert control over most of nature’s forces. The new mystery to understand and to learn to control was human nature itself (and its expression in society).¹⁴⁶

For anyone concerned with the problem of the *bête humaine*, it may have been reassuring to hear that it was Huxley’s firm belief that it was entirely possible to understand and learn to control human nature, to change it. In 1933, he defined the human as a “Relative Being,” comparable to the way he had previously described humans as living a “multiple existence.” Biology was, he explained—and as discussed in the previous chapter—helping us understand that the human was not a finished being, but a product still in progress.¹⁴⁷ Additionally, wrote Huxley, psychology was beginning to teach “that human nature is not unchangeable, as so many people believe, but, on the contrary, is plastic within very wide limits.” Indeed, the old dictum “you cannot change human nature” had lost a great deal of its meaning.¹⁴⁸ The intent of Huxley’s vision—conscious human evolution—was to improve human nature. In 1934, he wrote of eugenic methods and measures “by means of which we may eventually hope to change the limits now set to human nature.”¹⁴⁹

¹⁴⁵ Huxley 1923: “Science and Religion,” 287.

¹⁴⁶ Huxley 1934: *If I Were Dictator*, 159. The idea, virtually unchanged, stayed with Huxley: “Man has learnt in large measure to understand, control, and utilize the forces of external nature: he must now learn to understand, control and utilize the forces of his own nature,” Huxley 1957: “Knowledge, Morality, and Destiny,” 268.

¹⁴⁷ Later, in his private notes from the 1950s, he described the human being as a “multiple animal,” see JSH Papers, RU, MS50, 71:6. Notes, 1950s; Huxley 1933: “Man as a Relative Being,” 109–10. Contribution to a series of broadcast talks on science, which formed part of a comprehensive symposium on *The Changing World*. Contributors included Aldous Huxley, J. B. S. Haldane, Bertrand Russell, H. Levy. Part II of the book, entitled “What is Man?” was composed by Julian Huxley and fellow biologist John R. Baker.

¹⁴⁸ Huxley 1934: *Scientific Research and Social Needs*, 177, 191.

¹⁴⁹ Huxley 1934: *Scientific Research and Social Needs*, 177–78.

G. K. Chesterton remarked that the eugenic measures Huxley spoke of sprung from a despair on his part and a pessimism about human nature.¹⁵⁰ He had a point, but it was arguably a point that Huxley himself would have agreed on. Huxley did feel like the human species was lacking, and he was not alone.

Should it be necessary, a Huxley and a Wells had asked in the 1930s, that a “multitude of dull and timid people” be born for just a few “bright and active” people to be born alongside them? It should not; not once the eugenic phase was reached.¹⁵¹ A few years earlier, Schiller had proposed an “adequate reform of human nature” and wrote, in *Tantalus, or the Future of Man* (1926), of the paradox of Christian ethics: Human beings had been dosed with Christian ethics for 2000 years without showing any improvement. A safer bet would be eugenical reform.¹⁵² Already by the turn of the century, Shaw had been convinced that “we must either breed political capacity or be ruined by Democracy [...]”¹⁵³ In Wells’s books there is to be found sentiments of near disgust directed at the human species. In *The Shape of Things to Come* (1933), Wells let a narrator guide the reader into a better future where eugenics would be put to use to form a better humanity, “differing widely from that weedy, tragic, pathetic, cruel, fantastic, absurd and sometimes sheerly horrible being who christened himself in a mood of oafish arrogance *Homo sapiens*.”¹⁵⁴ Humankind, he wrote in another book, needed a “reconditioning.”¹⁵⁵

Huxley offered an optimistic solution to the pessimism. As discussed, he was convinced that biology was entering into the phase where knowledge could be translated into practical control of a new kind. This was control not over the nature around humankind, but over the nature of humankind.¹⁵⁶ The goal should be to “improve the general quality of the human race, its physique and intelligence, its general capacity for living.”¹⁵⁷

¹⁵⁰JSH Papers, RU, MS50, 136:5. Chesterton 1934: “Who is the ascetic?” *G.K.’s Weekly*, 1 Feb.

¹⁵¹Wells, Huxley & Wells (1931, 875, 879–80).

¹⁵²Schiller (1926, 54–59). Schiller had cofounded the Eugenics Education Society in 1907. It became the Eugenics Society in 1926. Regarding Schiller as a pragmatic philosopher and enthusiastic eugenicist, see Skodo (2017).

¹⁵³Shaw (1903, xxiv).

¹⁵⁴Wells (1935, 330).

¹⁵⁵Wells (1939, 65).

¹⁵⁶Huxley 1932: *What Dare I Think?*, 72.

¹⁵⁷Huxley 1934: *Scientific Research and Social Needs*, 200.

To Huxley, as well as to several peers who shared his sentiments, biology in general and eugenics in particular offered a cure for the human beast, on both a philosophical and a practical level. Huxley had described natural selection as a method for evolution for organisms “below man.”¹⁵⁸ In 1931, Huxley and Wells contrasted nature’s method of “selection-by-killing” with the alternative and better human method of “selective reproduction.”¹⁵⁹

A few years later, eugenicist Herbert Brewer, whom Huxley agreed with, defended eugenics by stating that it was the opposite of anything remotely animalistic: “Instead of reproduction being the blind consequence of an animal mating, it is an act of deliberate creativeness to which animal life holds no parallel.” Indeed, the father of a child born from artificial insemination would feel a deeper bond to the child than if it were derived materially from himself: “He might feel himself to have created, by the deliberate exercise of his will and thought, a being in whom his ideal aspirations were embodied.”¹⁶⁰ The suggestion was that the human species should try and transcend the vulgarity and crudeness of the natural selection mechanism for a more human method, one that could also produce better and more impressive results.

Freeden has suggested that the British variant of eugenics rarely strove for breeding a single type of Superman, unlike some of its European, American, or East Asian counterparts. Popular and scientific opinion more frequently pictured eugenics as a means of improving the whole human species into a more noble humanity.¹⁶¹ In the very least, this is how eugenics was often presented. It furnished an idea of producing a more complete human being, tailored to the modern age.¹⁶² This also explains how individuals like Huxley could continue to promote eugenics while vehemently denouncing Nazi policies.

A solution to the problem of the *bête humaine* was, then, deliberately controlling our own development, not leaving it “to nature,” and removing such traits that were seen as part of a baser or problematic biological heritage while perhaps enhancing desirable human traits. But what characterized the specifically human, that innermost aspect of a human being

¹⁵⁸ Huxley 1923: “Science and Religion,” in *Science and Civilization*, 298.

¹⁵⁹ Wells, Huxley & Wells (1931, 874).

¹⁶⁰ Brewer (1935). “Euteleogenesis,” *Eugenics Review*, 124–25.

¹⁶¹ Freeden (1979, 648). There was, however, never consensus regarding what eugenic goal to pursue within a eugenics movement, globally or nationally, see Paul (1995, 72–73).

¹⁶² Griffin (2013, 80–81).

that was of greatest value? There were many visions of what an enhanced human would entail. Nietzsche spoke of the *Übermensch* as having great healthiness, being stronger, sharper, tougher, bolder, and merrier. Bergson, on the other hand, had envisioned a next evolutionary stage being a more intuitive, more perfectly moral and spiritual humanity.¹⁶³

Brewer, who advocated making artificial insemination by selected donors the new way of procreation, stated that the techniques of human intervening scientific methods were more human. A husband would delegate his procreative functions to someone else who was “better endowed” if he was truly human: “Ethically, jealousy must be regarded as a quality appropriate to the animal rather than to the human.” To let egotism, prejudice and “blind behaviour patterns” dominate our view of sex and parenthood was to remain animal.¹⁶⁴ On a related note, Huxley had entertained the possibility of bringing up children in the future without “the abnormal preoccupation with sex, which have in the past hindered the free use of the energy of human minds.”¹⁶⁵

As touched upon in the previous chapter, behaviors and emotions deemed by humans as negative or ignoble could be associated with something instinctual, irrational, and “animal” rather than something “human.” Huxley’s friend Haldane, although more skeptical about the possibilities of eugenics than Huxley, hoped that if humanity could learn to control its own evolution, it would direct it so that it took “man further from the ape.”¹⁶⁶ Then, allowing himself to dream, he envisioned an enhanced super-human, able to think like a Newton, paint like the van Eycks, and to compose like Bach. This future being would be incapable of hatred and completely fearless. Every minute of his life would be lived “with all the passion of a lover or a discoverer,” and his life would last for thousands of years.¹⁶⁷

The positive traits, the “human traits” to encourage or enhance seemed for Huxley and his like-minded peers to be intelligence, social intelligence, creativity, and compassion. Making the human more human entailed increasing all traits that were seen as constituting “humaneness,” an

¹⁶³ Gallagher (1970, 53); Bergson (1911, 281–82).

¹⁶⁴ Brewer (1935, 125–26).

¹⁶⁵ Huxley 1932: *What Dare I Think?*, 70.

¹⁶⁶ Haldane (1938, 95–96).

¹⁶⁷ Haldane (1938, 144).

intensification perhaps of what constituted the ideal humanistic human being. In the 1920s and 1930s, some eugenicists hoped eugenics would mold the human nature into a more socially intelligent being. The new human would be one slow to dogmatize and who would regard the toleration of differences of opinion.¹⁶⁸

In *The Scientific Outlook* (1931), Bertrand Russell (although not a eugenicist) had concluded that the human instinct to power and rivalry had to somehow be curbed if society was to succeed further: “If a scientific world is to survive, it is therefore necessary that men should become tamer than they have been.”¹⁶⁹ Such thinking was present among eugenicists as well. In a paper read before the Eugenics Society in 1948, Paul Bloomfield would suggest “supplying society with improved men instead of only supplying men with an improved society.” The utopia could not be a prerequisite for producing what could only be produced *by* it—society could not be changed for the better if humans were not first improved.¹⁷⁰ The solution, then, lay perhaps in making humankind more “tame,” more sociable, more sympathetic toward others? Huxley’s colleague Muller believed that humankind was in urgent need of the development of “sympathy, a social idealism, a degree of co-operation higher than that which now exists.”¹⁷¹

Huxley was fondest of ideas of enhancement on a grand scale such as this. As previously stated, for Huxley eugenics pointed not only to immediate solutions but to more distant goals. He criticized his fellow eugenicists for being too narrow minded, seeking only an improvement of qualities that would prove successful in the present and in the existing social system. The time had come, he insisted, for looking at the matter on a broader basis.¹⁷² For the younger generation of eugenicists, to which Huxley belonged, the preoccupation with sterilization of so-called mental defectives started, in the 1930s, to be increasingly seen as a distraction from more important eugenic work.¹⁷³

¹⁶⁸ Schiller (1926, 61).

¹⁶⁹ Russell (1931, 221–22).

¹⁷⁰ Bloomfield (1949, 191–94).

¹⁷¹ Muller (1936, 53–54). Regarding Muller’s utopian eugenics and emphasis on eugenics to improve cooperativeness and social behavior in humans, see Paul (2005, 132–33).

¹⁷² JSH Papers, RU, MS50, 136:5. “Future of our Species,” *The Morning Post*, 18 Feb 1936.

¹⁷³ Thomson (1998, 187).

T. H. Huxley had been skeptical of the possible practice of eugenics. Direct selection “after the fashion of the breeder,” he had believed, could not be practiced in human society without running the risk of seriously weakening or even destroying “the bonds which hold society together.”¹⁷⁴ Now, Julian instead suggested that eugenics was the very thing needed to hold society together. In 1936, he claimed that the genetic composition of the present population was “largely and perhaps essentially antisocial.” The present state of humankind was therefore unstable, which led to conflict and war. The biological makeup of humans needed to be changed. Huxley wrote of wanting to encourage the spread of what he called “genes for social virtues,” such as altruism, readiness to co-operate, sensitiveness, and sympathetic enthusiasm. All while avoiding “antisocial traits” such as egoism, insensitiveness, and “ruthless concentration.”¹⁷⁵

The idea of creating a more humane humankind can also be found when a group of leading biologists, among them Huxley, Haldane, and Needham, issued a statement on eugenic improvement in *Nature* 1939. It focused on the altruistic aspect of human behavior, the social aspects of what it meant to be human. Besides working on improving health and intelligence, the most important objective according to the statement was to focus on certain “temperamental qualities which favour fellow-feeling and social behaviour” rather than individualistic egotism.¹⁷⁶ It displays a thinking concerned with the problem of the human beast and with aspects of human behavior; egotism and aggression that were seen as problematic in a modern and future societal context.

5.5 CONCLUDING DISCUSSION AND REMARKS

A vanguard vision cannot gain traction without exercises of power and sustained acts of coalition building and public promotion. The vanguard visioneer therefore needs to be a key actor, in a position to mobilize resources and with channels for spreading the vision. Huxley was clearly in such a position and acted intentionally to try to promote and realize his vision of the future. He did not simply deliver lofty philosophical dreams, but also offered practical suggestions for how to reorganize society and how to put science to use for enabling conscious human evolution.

¹⁷⁴ Huxley (1896b, 36).

¹⁷⁵ Huxley 1936: “Eugenics and Society,” *Eugenics Review*, 28.

¹⁷⁶ Crew, *et al.* 1939: “Social biology and population improvement,” *Nature*, 521–22.

The two chapters of Part II have highlighted the fact that Huxley was a figure of authority from a privileged milieu, and that he, by birth, name, and profession, was in a position to influence people. He was a synthesizer. His ideas were radical and futuristic enough to gain attention, while at the same time picking up on a general mood and intellectual currents of his time in a way that made the ideas resonate. Rather than true political power, it is more fitting to say that he had the power of voice. Through channels of public media and popular science, he was actively trying to promote his views. Because he was respected, people listened.

When a figure like Huxley is continually speaking of intervening in reproduction, of using science and technology applied on human beings in various ways and is underlining the importance of these questions as well as the validity of his own position, it can affect the general imagination. His adamant and consistent emphasis on the inherent possibilities of science to control human evolution, along with his promotion of a certain view of humankind's role in future development of techniques for human enhancement, likely helped promote a shift in the way people thought about matters of self-controlled evolution, biopolitics, and the future. The fact that he was, at times, controversial arguably gave his vision more traction.

These chapters have also shown that Huxley saw the long-range implications of the new biology and showed a clear and quite early awareness of biopolitics. Caught up in an interwar intellectual and political climate that favored collective measures and state control, he showcased his elitist sentiments. At the same time, some of his suggested human enhancements considered the individual and even individual choice. It is apparent that Huxley, in questions relating to eugenics and human enhancement, was torn between promoting the individuals' rights and the idea of a technocratic society. This conflict between the individual and the collective would, as will be discussed, become a key issue for the later development of transhumanist thought.

Huxley's vision held that human destiny was no longer governed by outer nature, due to the modern human capacity to control its surroundings. Historically, humans had been frightened and threatened by external nature; the environment had then been the thing beyond control, had been "the uncertainty surrounding us." Now, instead, Huxley argued, it was human nature itself and human creations that generated disaster and

uncertainty.¹⁷⁷ The problem of the evolutionary stand-still, the fact that humans had not evolved or changed over the course of its species, was linked to the sense of an accelerating tempo of development in the modern world. Fear of human inadequacy put in relation to new powerful and dangerous technology and a complex society heightened the sense of urgency for shift in thinking and political action.

¹⁷⁷ Huxley 1934: *If I Were Dictator*, 160.

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PART III

Prophet of Destiny: The Vision as
Transhumanism



CHAPTER 6

Evolutionary Apocalypse

Any scientist who emerges from the safe rabbit-burrow of his special subject and takes a good look at the world's general situation is virtually forced to assume the mantle of a prophet. He prophesies doom; but, being a scientist, the doom he prophesies is a conditional doom: he prophesies doom—unless we do certain things; if we do them, doom is avoided; and he can become a prophet of destiny.
Huxley 1971: "Science and Synthesis," 34.

In this, the final part that concerns Julian Huxley directly, the analysis will revolve around the time after the Second World War, when his vision solidified, so to speak, and was christened with a new name: "Transhumanism", the name under which it would—possibly—stop being a vanguard vision and instead take shape as a sociotechnical imaginary. This chapter will discuss the coining and meaning of the term transhumanism, as well as take a closer look at the philosophical components of Huxley's vision, now that it had "become" transhumanism. The chapter also discusses questions of influence and focuses on the relationship between Huxley and Pierre Teilhard de Chardin.

The Second World War had made Huxley unwell and launched him into a bout of manic work. He felt the restlessness of not knowing where

humanity was headed.¹ The intense period culminated in Huxley again suffering a severe case of depression 1944–45 (he had been similarly ill in 1919, following the First World War). This time, it got so serious that he underwent electric shock therapy.²

After the war, Huxley spoke of a new situation in the world, characterized by split thought and the collapse of traditional confidence-giving beliefs.³ A decade later, he would go so far as to claim that humans at present lived “in an apocalyptic age, destined to bring forth a new revelation about nature, ourselves and our significance in the cosmic process.” The four horsemen of this “evolutionary apocalypse” were the H-bomb, capitalism, nationalism, and over-population.⁴

And again, there was the problem of the human beast. Huxley described the problem as “man’s fear of his own self”—the fear that came out of the revelation of sadism and bestiality that had surfaced in the last war.⁵ Belief in the “rationality and goodness of man,” he wrote, had first been undermined by psychoanalysis and then sent “crashing in ruins by the organized cruelty of Belsen and the mass folly of the two world wars.”⁶

Huxley was not the only one struggling. Wells, who professed to have no delusions about the natural goodness of human beings, was still disheartened by the violence and stupidity in the 1930s.⁷ In Wells’s very last book, *Mind at the End of Its Tether* (1945), written at the age of 78 and only months before his own death, the author admitted to having lost his previous hope in the human ability to overcome obstacles through the use of reason and rationality. He could no longer, he wrote, discern the “pattern of Things to Come” and his optimism had given place to a stoical cynicism.⁸ It was a very bleak book from “the man who invented

¹ Huxley (1986, 180–81).

² The treatment was suggested by neurologist Russell Brain in 1944. Huxley consented to the operation and his wife Juliette had to sign a form accepting possible damage (dislocations, broken bones, etc.). The electric shock treatments helped him, but he would note that they affected his memory. See Huxley 1970: *Memories*, 280; Huxley 1973: *Memories II*, 104; Huxley (1986, 188–89).

³ Huxley 1957: “Knowledge, Morality, and Destiny,” 258–59.

⁴ Huxley 1971: “Science and Synthesis,” 28–29.

⁵ Huxley 1957: “Knowledge, Morality, and Destiny,” 259.

⁶ Huxley 1955: “Man’s Place and Role in Nature,” 80.

⁷ Wells (1934, 540); Wells (1939, 85, 37–38).

⁸ Wells (1945, 6, 30).

tomorrow.” Huxley described seeing his old friend becoming bitter and broken down in his search for the solution to human perversities.⁹

Julian and his brother Aldous were both preoccupied with the problem of how people were to be good. The idea of the need for an authority higher than humankind also intensified with the Second World War. The Munich crisis in November 1938 had made Aldous again contemplate the darker aspects of human psychology and he wrote to Julian he felt this needed to be considered more closely.¹⁰ In a later letter, Aldous commented to Julian on the problem of how aggression and world-wrecking could be prevented among humans when the ethical restraints of Christianity no longer had any effect.¹¹

How, indeed. To Julian, of course, the answer had been clear for a while. Humanity needed a new religion. Huxley’s private handwritten notes during and after the Second World War continued to be filled with thoughts on and sketches of a religious nature as he attempted to understand religion and its relation to the human species as an evolutionary product. By now, he was convinced that every human society in every age needed a system of beliefs, or, as he often called it “a conception of human destiny.”¹² Such a system needed to be updated with a new and more modern approach to the problems of existence. And like science, it needed to be universalized, with a common pool of thought and body of ideas for all humans everywhere.

During the Second World War, Aldous had written to Julian that any successful future ideology must use the “technique of applied religion” to speak to the emotions of people.¹³ Religion, it was thought, could persuade people in a way that perhaps reason never could. This again echoed the elitist sense, previously discussed and present in both Aldous and Julian, that the masses were unreasonable, not rational. The masses—“people”—needed to be governed and were moved and persuaded through emotion. In 1934, writing in *Plan*, the magazine of the Federation

⁹ Huxley 1970: *Memories*, 173.

¹⁰ Dunaway (1990, 116).

¹¹ Huxley (1969, 486–87). Aldous to Julian, 4 Mar. 1943.

¹² Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 245, 274. This definition may have been borrowed from Morley, whom Huxley had quoted in *Religion Without Revelation* as having defined religion as “our feeling about the highest forces that govern human destiny,” see Huxley 1927: *Religion Without Revelation*, 152. See also Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 17.

¹³ Huxley (1969, 453). Aldous to Julian, 24 Apr. 1940. See also Huxley (1992).

of Progressive Societies and Individuals, Aldous had concluded that “History makes it fairly clear that most people will accept reason only in small doses and [...] only on irrational grounds, generally of a religious nature.”¹⁴ A decade later, Julian wrote of his belief that “Human beings in the mass, at any rate in the present phase of our social evolution, unfortunately aren’t guided by pure reason.”¹⁵

The need for a new religion, for changed values and a new moral framework, was also connected at least in part to practices. The problem with applying radical human enhancements, Huxley had explained in 1936, was that people in general did not want to practice artificial insemination and other methods, due to “vague but powerful feelings, on the ground that it is unnatural.” A new attitude to these problems was needed, “an attitude we may still call religious. We need to replace the present attitude fostered by established religions by a new but equally potent attitude.”¹⁶ He would continue to urge his fellow countrymen to be more modern, to get over their traditional prejudices and accustom themselves to the new.¹⁷

It was not uncommon for eugenic ideas to be expressed in the language of religion. Galton himself had spoken of a “eugenic religion”; Shaw had done so too.¹⁸ Brewer spoke of a eugenic program of a religious kind, breeding for a “religious purpose” with techniques that would constitute the new evangel.¹⁹ Noteworthy, too, is that Christian philosophy during the 1920s had some modernists advocating a new form of spiritual evolution that could be helped by eugenics, moving toward an intended goal.²⁰ These sentiments were also present with Huxley, when he claimed to be sure that eugenics would become part of “the religion of the future.”²¹ Kevles was alluding at least in part to this when he called the eugenically interested scientists of this era a “modern priesthood.”²²

¹⁴Huxley (1994, 40).

¹⁵Huxley 1944: “The Future,” *Reshaping Man’s Heritage: Biology in the Service of Man*, 91.

¹⁶Huxley 1936: “Eugenics and society,” *Eugenics Review*, 29.

¹⁷Huxley 1945: “Science and the House,” *Science at your service*, 11–17.

¹⁸Ray (1983, 216).

¹⁹Brewer (1935, 126).

²⁰One example of this is evolutionary biologist and geneticist R. A. Fisher, a Christian who interpreted evolution in terms of an unfinished creation within which God’s imperfect image would learn to manage the affairs of the planet, see Bowler (2001, 240–41, 156).

²¹Huxley 1936: “Eugenics and society,” *Eugenics Review*, 11.

²²Kevles (1995, 69).

Convinced that the quest for a “unified and unifying background of thought for the modern world” was urgent, Huxley had become disappointed when his pamphlet and the vision it promoted was rejected as an official document for UNESCO.²³ Disappointed, but not discouraged. After having left UNESCO, Huxley continued to promote his vision.

6.1 ENTER THE WORD TRANSHUMANISM

When discussing the origin of the term transhumanism, there is a common error among scholars and writers to claim that transhumanism was coined by Huxley in 1927, in *Religion Without Revelation*.²⁴ Several others instead maintain that he coined the term in 1957.²⁵ A third group of researchers state that Huxley first coined the term in a lecture in 1951.²⁶ It seems necessary, therefore, to first clear things up a bit regarding the actual invention of the term transhumanism.

When working out and promoting his vision, Huxley had first called it “scientific humanism” in the 1920s and had continued to do so throughout the 1930s and 1940s. He had used it in his *Uniqueness of Man* (1941) and as late as 1944 again championed the idea of a scientific humanism in a broadcast talk on BBC, later reprinted in various forms.²⁷ Over time, he became unconvinced that the term was adequate. In the first, and as already discussed, scientific humanism was a wide label, used by many at the time and within various contexts. As such, it was quite unspecified. In the second, scientific humanism clearly emphasized science as against other human activities in a way Huxley no longer wanted, since it risked becoming too materialistic.

On the other hand, as Huxley saw it, humanism was always in peril of becoming too static or ideal in its worldview, which is why his vision adopted an “evolutionary approach.” After the Second World War, he

²³Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 41; Huxley 1973: *Memories II*, 15–16.

²⁴Hughes (2004, 158); Bostrom 2005c: “A History of Transhumanist Thought,” 7; Gore (2013, 239); Hauskeller (2012, 39); Manzocco (2019, 26–27); Cordeiro (2019, 69).

²⁵Tirosh-Samuelsson (2011); Cole-Turner (2011); Bashford (2013); Bostrom in the *Transhumanist FAQ* of 2003, version 2.1; Farman (2023).

²⁶Harrison & Wolyniak (2015, 466); Deese (2015, 180); Zakariya (2016); Bohan (2018); Agar also refers to 1951 in his texts.

²⁷Huxley 1941: *The Uniqueness of Man*; JSH Papers, RU, MS50, 99:3. “Scientific Humanism,” *The Literary Guide*, Jan. 1944.

proposed to call his vision “evolutionary humanism.”²⁸ In a new, revised edition of his 1927 *Religion Without Revelation* from 1957, Huxley had substituted “scientific humanism” for “evolutionary humanism.”²⁹

It is clear that to Huxley, evolution and the word evolutionary had come to mean dynamic as opposed to static. It linked the past with the future and showed a way into the future. Yet Huxley was not completely satisfied with evolutionary humanism. The human species, he wrote in his private notes of 1949, was in urgent need of an ideological “weapon” in its “long-term campaign for evolutionary advance.”³⁰ That same year, writing to theologian Charles E. Raven (1885–1964), Professor of Divinity at Cambridge, Huxley described how he was still “groping towards a new angle of approach towards things.” This new angle of approach “would have to be evolutionary (‘dynamic’—‘historical’—what you will) in insisting on the unity of *process* throughout the universe” and “thinking in terms of trends instead of absolute or static states.”³¹

Huxley continued groping and then, in 1951 and on the cusp of yet another nervous breakdown, coined the term transhumanism. In his private notes of 11 February, Huxley wrote:

The Doctor—O’Reilly—in T. S. Eliot’s *Cocktail Party* uses the word trans-human. Why not Transhumanism for the religion of the future? The trans-implies transformation, and so is a substitute for evolutionary, while focusing on the future more than on the biological past (this is ~~the~~ one inevitable implication of the word evolutionary). And the -humanism, through its combination with trans- indicates that in its accepted sense it is not enough, and indeed that the average of humanity is not enough, also indicates that the Transcendence of humanity is what is aimed at, and that flesh-and-blood human beings are the necessary foundation.³²

This unpublished private note gives a clear picture of Huxley working out the concept of transhumanism. His friend T. S. Eliot’s play the *Cocktail Party* had been published in 1949 and involves a group of people

²⁸ Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 7–8, 39.

²⁹ Huxley 1959: *Religion Without Revelation*, revised edition first published in 1957.

³⁰ JSH Papers, RU, MS50, 67:7–8. 1949.

³¹ From Raven’s papers, see Dillistone (1981, 30–31).

³² JSH Papers, RU, MS50, 69: 1–3. Note dated 11 February 1951 (date written in left top corner of note). Huxley’s own underlining. This note has seemingly been replaced and is now found in JSH Papers, RU, MS50, 70:9. “Scientific Humanism, Evolution, and Human Destiny,” 1954. A photograph of the note is in the authors possession.

experiencing and discussing feelings of helplessness, solitude, and sin. It is with regard to a spiritual journey—one from suffering to an experience of divinity—that Eliot lets one of the characters in the play use the word “transhumanised.”³³

Although Huxley himself mentioned Eliot as the source of inspiration for the word in his own private notes, the question of influence is most likely not that simple. The words transhuman and transhumanism have complex origins and have been “coined” multiple times in different circumstances. The word “transhuman” began figuring in the *New Standard Dictionary of the English Language* in the 1940s, with the meaning “superhuman,” and “transhumanize; to make superhuman,” and later under the “trans- prefix 3. Surpassing; transcending; beyond; as in... transhuman.”³⁴

Some have claimed that the word transhuman originates from Dante’s *Divina Commedia*, denoting a transcendent human experience. In the standard Victorian translation of Dante’s *Divine Comedy*, translator Henry Francis Cary used the term “transhuman” in 1814, describing Dante’s heaven-wards journey with Beatrice.³⁵ When Huxley first introduced transhumanism, *The Times Literary Supplement*’s reviewer guessed that he had derived the term from Dante.³⁶

A candidate for the origin of the word is the French Jesuit Pierre Teilhard de Chardin, with whom Huxley had become friendly in the late 1940s. In connection to his theology, which will be discussed at greater length below, Teilhard had used versions of the word “trans-humaine” since the late 1930s.³⁷ In an essay published in 1951, Teilhard referred to a “trans-humanity.”³⁸

³³ Eliot (1950, 147). Julia to the doctor: “You and I don’t know the process by which the human is Transhumanised: what do we know of the kind of suffering they must undergo on the way of illumination?”

³⁴ Funk (1946, 2550); Funk (1954, 1384); see also Krüger (2021, 61).

³⁵ Dante speaks in Italian of *transumanar*. Harrison & Wolyniak (2015); Deese (2015, 180); Klerkx (2006, 61); Humanity+ “Transhumanist FAQ”; Mercer & Trothen (2021, 19).

³⁶ JSH Papers, RU, MS50, 137:4. “Evolutionary Humanism,” *The Times Literary Supplement*, 1957.

³⁷ Teilhard de Chardin 1937: “L’énergie Humaine,” 174; Teilhard de Chardin 1942: “La montée de l’autre,” 74: “Pourquoi ne pas imaginer, par exemple, que, conformément à toute l’histoire de la Vie passé, elle [“cette pluralité des molécules pensantes,” l’homme] représente la possibilité et contient le potentiel d’une synthèse ultérieure, trans-humaine, de la Matière organisée?” transl.: “Why not imagine, for example, that, in accordance with the whole history of past life, it [“these thinking molecules,” humankind] represents the possibility and contains the potential for a later, trans-human synthesis of organized matter?”

³⁸ Teilhard de Chardin (1950, 296–97); see also Lubac (1967, 216).

Another candidate is the French engineer Jean Coutrot (1895–1941), who used the word *transhumanisme* in 1937. To Coutrot, transhumanism denoted humans coming together in a unified ideology bridging various groupings and categories: “Coutrot alludes to an overarching *-trans* presiding over various humanisms [...]”³⁹ Coutrot’s transhumanism did not consider an evolutionary development of human nature, and so was not “Darwinian.”⁴⁰ Nonetheless, it is interesting to note that Coutrot knew Aldous Huxley well, their wives were friends. Together, Aldous and Coutrot founded the Centre for Studies of Human Problems in the late 1930s. Historians of science Olivier Dard and Alexandre Moatti have asked themselves whether Coutrot might not have mentioned the term to Aldous before Coutrot died in 1941. Aldous might then have mentioned it to his brother. This is possible, but as Dard and Moatti themselves have concluded: “We will probably never know for sure.”⁴¹

In a letter of 23 November 1942, Aldous had warned his brother that any religion occupied with a better future ran risk of becoming ruthless. The drive to achieve some distant goal could cause people to behave terribly. Aldous, who at this point in time had begun to delve deep into the world of Hindu philosophy and meditation, believed that mysticism was the better option. Mysticism, he explained, was concerned with an eternal present. Therefore, wrote Aldous to Julian, a “transcendental religion” would be less occupied with wars and revolutions.⁴² As has been discussed here, Julian had been drawn to the concept of transcendence, both as a personal experience and as an overarching idea, since the 1910s. Already back in 1918, he had complained that the atheist rational school of thinking, to which he counted himself, lacked a purpose transcending humankind.⁴³

³⁹ Dard & Moatti (2017).

⁴⁰ For more on Coutrot, see Moatti (2020).

⁴¹ Dard & Moatti (2017). It should also be mentioned that Harrison & Wolyniak has pointed to the fact that the Canadian author, historian and philosopher W. D. Lighthall (1857–1954) coined the term transhumanism before Huxley, in an article from 1940 published in the *Proceedings and Transactions* of the Royal Society of Canada. They speculate that Huxley may have picked up his term transhumanism from Lighthall’s article, believing it is “likely that he had read it,” see Harrison & Wolyniak (2015, 467). Harrison & Wolyniak produce no precise evidence for this claim. Huxley had not met Lighthall and there is no correspondence between them.

⁴² Huxley (1969, 483).

⁴³ JSH Papers, RU, MS50, 58:6. Notes, 1918.

Huxley first publicly used his newfound term in a two-part lecture titled “Knowledge, Morality and Destiny,” in the third series of William Alanson White Memorial Lectures delivered in Washington, DC, on April 19 and 20, 1951. The lecture was published that same year in the journal *Psychiatry*.⁴⁴ Transhumanism would then gain a wider audience in 1957, in Huxley’s collection of essays *New Bottles for New Wine*.⁴⁵ The first essay in this book was titled “Transhumanism.” His older “Knowledge, Morality, and Destiny” from 1951 was also republished in this collection, as well as an essay titled “Evolutionary Humanism” from 1953.

Reporting on the book, *TLS*’s reviewer noted Huxley’s inconsistency in use of terms, switching back and forth between transhumanism and evolutionary humanism.⁴⁶ Judging by Huxley’s private notes, he did this because he felt that the terms were essentially interchangeable. As is apparent from the note of 1951, Huxley wanted to view transhumanism as having basically the same meaning as his earlier evolutionary humanism, although with a somewhat stronger focus on the future. He wrote that he saw trans- as substitute for evolutionary. In the index to *New Bottles for New Wine*, he cross-referenced transhumanism and evolutionary humanism.⁴⁷

That Huxley’s book *Religion Without Revelation* from 1927 was republished in a revised edition the same year as *New Bottles for New Wine* (wherein transhumanism figures), in 1957, is most likely what has resulted in some scholars stating that transhumanism was coined in 1927. Neither 1927 nor 1957 is correct, but rather February of 1951. However, concerning much of the visionary underpinning for transhumanism, it would be appropriate to state that this existed long before 1951, seeing as Huxley had obviously worked out many of his transhumanist ideas long before coining the word, as has been shown throughout these chapters. Additionally, the word transhumanism was arguably not fully popularized until 1957.

⁴⁴ Huxley 1951: “Knowledge, Morality, Destiny,” *Psychiatry*, xiv: 129–51.

⁴⁵ Huxley 1957: *New Bottles for New Wine*. Published in the US as *Knowledge, Morality, Destiny*, 1960.

⁴⁶ JSH Papers, RU, MS50, 137:4. “Evolutionary Humanism,” *The Times Literary Supplement*, 1957.

⁴⁷ After 1951, Huxley would continue to use both Evolutionary Humanism and Transhumanism. He used transhumanism occasionally in his private notes, when speaking of a future creed. At one point also “trans-naturalism,” see JSH Papers, RU, MS50, 69:10. 1952 notes.

In his lecture of 1951, Huxley suggested:

Such a philosophy might perhaps best be called Transhumanism. It is based on the idea of humanity attempting to overcome its limitations and to arrive at fuller fruition; it is the realization that both individual and social development are processes of self-transformation.⁴⁸

In his “Transhumanism” essay of 1957, he formulated it thusly:

The human species can, if it wishes, transcend itself—not just sporadically, an individual here in one way, an individual there in another way, but in its entirety, as humanity. We need a name for this new belief. Perhaps *transhumanism* will serve: man remaining man, but transcending himself, by realizing new possibilities of and for his human nature. ‘I believe in transhumanism’: once there are enough people who can truly say that, the human species will be on the threshold of a new kind of existence, as different from ours as ours is from that of Peking man. It will at last be consciously fulfilling its real destiny.⁴⁹

Huxley confidently contrasted his transhumanism to any previous existing system of thought, underlining the novelty of it.⁵⁰ He now claimed that there were “four possible main ways of thinking about the universe.” The first was dualistic and static, a thinking found in Plato, Aquinas, Descartes, or Newton. The second was dualistic but processual, found with Hegel or Marx. A third was unitary and static, like in Buddhism, or the philosophy of Spinoza. The fourth would be unitary and processual and had presumably not yet existed before the transhumanism that Huxley launched in the same text.⁵¹

“The truth of the transhumanist approach,” boasted Huxley, “is larger and more universal than any previous truth, and is bound in the long run

⁴⁸ Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 260.

⁴⁹ Huxley 1957: “Transhumanism,” 17.

⁵⁰ The title of the essay collection, *New Bottles for New Wine*, derives from the Bible (Luke 5:36–39, KJV) and relates to the relationship between Jesus’s teachings and traditional Judaism. Jesus pits his own new way against the old way of the Pharisees: “And no man putteth new wine into old bottles; else the new wine will burst the bottles, and be spilled, and the bottles shall perish. But new wine must be put into new bottles; and both are preserved.” Huxley had already experimented with the expression back in 1923, for the title of one of his essays in *Essays of a Biologist*.

⁵¹ Huxley 1957: “Knowledge, Morality, and Destiny,” 251.

to supersede lesser, more partial, or more distorted truths, such as Marxism, or Christian theology, or liberal individualism.” According to him, transhumanism actively took over elements from a vast array of sources. Specific ideas he suggested should be “assimilated” into transhumanism were, for example, the idea of the importance of the individual; the idea of the value of variety for individuals and cultures; the scientific method; quantitative thinking and precision control; the idea of the value of exploration and control of nature; and ideas from the tradition of mysticism.⁵²

In the end, however, transhumanism was centered around a by now very familiar Huxleyan story about evolution and humankind’s place—or rather, role—in it. Huxley utilized his previous ideas and theories to form the backbone of his transhumanism, in a collection of scientifically sounding arguments forming a colonnade of promises about the future of humanity.

6.2 VISION SOLIDIFIED: HUXLEY’S TRANSHUMANISM

Huxley’s transhumanism was bolstered by his now solidified story of evolution, as the all-encompassing process of the universe, having moved through the phases of the inorganic, the organic, and the human phase of evolution.⁵³ According to Huxley, science—especially evolutionary biology—discovered the relatedness of all things in the universe.⁵⁴

Huxley’s most famous contribution to science was his neo-Darwinian synthesis *Evolution: The Modern Synthesis* (1942). Most of *EMS* consisted of an assemblage of biological research and breakthroughs made by other scientists up until that point. Huxley’s contribution was to utilize his strong ability to synthesize massive amounts of information into a whole.⁵⁵

⁵² Huxley 1957: “Knowledge, Morality, and Destiny,” 260–61.

⁵³ Examples of this narrative are found, for example, in, Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 8; Huxley 1957: “Knowledge, Morality, and Destiny,” 246–47.

⁵⁴ Huxley 1942: “The Biologist Looks at Man,” 139.

⁵⁵ The evolutionary synthesis meant more to Huxley than a mere collection and incorporation of new facts to the Darwinian theory of evolution. For an excellent account of the quest to unify biology, which includes Huxley and *Evolution: The Modern Synthesis*, see Smocovitis (1996). For more on the modern synthesis, and historical actors and texts related to it, see Mayr & Provine (1980). Also, regarding the evolutionary synthesis, Divall (1992), and Renwick (2016), have argued that because Huxley’s career was shaped by a Victorian inheritance, he had a generalist spirit and a commitment to the unity of all things. Smocovitis has discussed Huxley’s striving for unity and of the establishment of biology’s own fundamental

Previous scholars have shown that Huxley's packaging of the evolutionary synthesis was immediately efficacious to a wide audience.⁵⁶

The decades leading up to the 1940s and 1950s had seen what Smocovitis has called a "narrowing or streamlining" of acceptable evolutionary theory.⁵⁷ Historian of science William Provine has referred to it as "evolutionary constriction," the process of reaching the evolutionary synthesis, whereby ideas of directed evolution, Lamarckism, and emergent evolution were ejected from evolutionary studies.⁵⁸

The evolutionary constriction put pressure on Huxley. He was clearly trying, and trying hard, to navigate the modern field of evolutionary studies and yet retain the possibility of a highly personal interpretation of evolution in a way that could still be regarded as scientific. On the one hand, he would defend Darwin's theory and concept of natural selection, as he did in his collaboration with H. G. Wells in *The Science of Life* or in the very first chapter of the *Modern Synthesis*. Huxley opposed proposals to replace the term natural selection to mark the new connotations it had acquired since Darwin, instead defending the doctrine of Darwin and advocating continuity in the use of Darwinian terms.⁵⁹ He would combat religious and vitalistic elements in relation to Darwin's theory. He professed opposition toward any simplificatory evolutionism or Creationism and wanted to make sure that natural selection was not misunderstood to embody any idea of a Divine Creator or a higher purpose.

On the other hand, in the one major part of the synthesis Huxley could take credit for, the last chapter of the book bearing the title "Evolutionary Progress," he presented a view that was wholly his own and a summary of his own scientific hypotheses regarding the subject up until that point. The content was familiar. Huxley argued that progress existed in evolution. Progress was something other than specialization. Specialization was an improvement in efficiency of adaptation for a particular mode of life, a one-sided advance. Progress, instead, was an improvement in efficiency of living in general, an all-round advance. The more specific definition remained unchanged: Progress was development that led to greater

principles as a central feature of Huxley's lifework, see Smocovitis (1996, 139). Esposito has observed that Huxley's *Modern Synthesis* was a "Darwinian program where the bio-sciences served as a blueprint for the future," see Esposito (2011, 41).

⁵⁶ Smocovitis (1996, 131, 146); Beatty (1992).

⁵⁷ Smocovitis (1996, 130).

⁵⁸ Provine (1988, 61 ff).

⁵⁹ Huxley 1942: *Evolution: The Modern Synthesis*, 27–28.

control over the environment, and to greater independence of the environment.⁶⁰ Progressive evolution was not universal or inevitable. It was very rare.⁶¹

The later Huxley did not reassess the claim that the process of natural selection was limited, nor the conclusion that evolution by natural selection had come to a halt, concerning large-scale and “progressive” change such as the evolution of mammals from reptiles. Instead, he clung to the conviction that no major natural evolutionary change could longer be expected.⁶² The limit of natural selection had manifested itself in the majority of species and lines. There was, in short, a “bar to evolutionary advance, resulting from the inexorable limitations of some form of physiological mechanism.”⁶³ These limits manifested themselves in restrictions in size, efficiency in metabolism, and specialization, among other things, and depended simply on the finite possibilities of physiology in relation to the environment.

When Huxley in 1950 was asked to point out some major developments in natural evolution, he would ultimately find but one: “Certainly, since the early Pliocene, about 10 million years ago, the only piece of large-scale progressive evolution has been the evolution of man.”⁶⁴ Indeed, Huxley’s criterion of progress essentially led to the conclusion that only humans are progressive in evolution.

⁶⁰Huxley 1942: *Evolution: The Modern Synthesis*, 562; see also JSH Papers, RU, MS50, 68:5–6, folder 5. Notes from 1950. As previous chapters have discussed, Huxley’s definition of progress in evolution was developed in the 1910s and 1920s. It had stuck with him throughout. The definition had also been present in *The Science of Life* of 1931, where Huxley and Wells had defined progress in evolution as an improvement in life’s machinery in general, when the organism gained more control and became more independent, see Wells, Huxley & Wells (1931, 477). The definition is also present in Huxley 1941: *The Uniqueness of Man*, 9.

⁶¹Huxley 1942: “The Biologist Looks at Man,” *Fortune*.

⁶²JSH Papers, RU, MS50, 100:1. Huxley 1950: “Man Has Taken Over from Nature,” *News Chronicle*, 17 Oct.; see also Huxley 1955: “Man’s Place and Role in Nature,” *The Unity of Knowledge*, 85. Swetlitz has described an “entrenchment” happening in the 1940s regarding Huxley’s idea of evolution having come to an end, see Swetlitz (1995, 197–98).

⁶³JSH Papers, RU, MS50, 99:3. Publications 1946–47, “A Re-Definition of ‘Progress’,” 18.

⁶⁴JSH Papers, RU, MS50, 100:1. Huxley 1950: “Man Has Taken Over from Nature,” *News Chronicle*, 17 Oct.

6.2.1 *Evolutionary Transcendences*

The idea that evolution by natural selection had come to an end is best understood in connection to Huxley's way of thinking in terms of phases or stages in evolution. In biologist Theodosius Dobzhansky's (1900–1975)—a contemporary colleague of Huxley—criterion of progress in evolution, the key progressive attribute was adaptability.⁶⁵ To be fair, Dobzhansky had a point; evolution entails adaptation. But in Huxley's line of thought, there had been critical points in the past of evolution; points at which the process Dobzhansky spoke of transcended itself. Huxley was prepared to say that although evolution was a gradual process for the most part, it could sometimes display “a sudden rapid passage to a totally new and more comprehensive type or order of organization, with quite new emergent properties, and involving quite new methods of further evolution.” Examples of this kind of occurrence would be the passage from inorganic matter to life, and between “pre-human life and man.”⁶⁶

This was a process of transformation by which products or a product of evolution could transcend to a new evolutionary plateau. Indeed, Huxley's phases were like a series of evolutionary transcendences that represented breaks in the evolutionary continuity (although the process as a whole constituted an underlying continuum). The latest such “break” was the human species, the appearance of which Huxley now referred to as a “radically new phase of evolution.”⁶⁷ By the late 1940s, Huxley had substituted his earlier name for the human phase of evolution, “psychozoic,” for the term “psychosocial,” a term he had borrowed from Teilhard de Chardin.⁶⁸ Huxley used psychosocial when speaking of that new

⁶⁵ Ruse (1996, 392).

⁶⁶ Huxley & Huxley 1947b: *Touchstone for Ethics 1893–1943*, 131–32.

⁶⁷ Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 247; see also JSH Papers, RU, MS50, 71:2. 1955, “The Evolution of Man,” “The Adventure of Humanity.”

⁶⁸ The compound adjective “psychosocial” had been used by psychologists since the late nineteenth century. Early on, the word was used to describe the developmental stage around adolescence in which childish individualism is replaced by a sense of communal duty and integration. It could also be broadly used to denote social life in relation to biological instincts. The concept started circulating more frequently among psychoanalysts, biologists, and anthropologists in the interwar period. Hayward (2012, 4–5). For examples of Huxley's use of the term, see “Knowledge, Morality, Destiny,” *Psychiatry*, 130; Huxley 1953: *Evolution in Action*, 3; Huxley 1955: “Man's Place and Role in Nature,” *The Unity of Knowledge*; Huxley 1973: *Memories II*, 243.

evolutionary phase that had been entered after the critical point in evolution when mind and the human species had started dominating.

This fundamental point in Huxley's transhumanism also allowed him to, on the one hand, argue that evolution by natural selection had come to an end, while, on the other hand, simultaneously speak of an accelerating tempo in evolution. This was another point Huxley had kept and developed from his early years. In evolution overall, there had been an acceleration between the phases.⁶⁹ The acceleration became especially marked with the advent of mind and humans. During and after the Second World War, he would more frequently emphasize the quickening tempo of the modern world and connect this to what he saw as the scientific fact that human evolution had shown general acceleration throughout its course.⁷⁰

In this, he particularly underlined his own generation's feeling of accelerating change, seemingly incorporating it in a grander evolutionary narrative: "Those of us who, after beginning their careers in the golden Edwardian sunset of the Victorian day, have had to live through two world wars, know what this involves."⁷¹ Despite being somewhat disorienting and bewildering, this acceleration in the rate of advance of human progress also gave cause for optimism, as it hinted at "literally unimagined possibilities of further advance."⁷² The idea that evolution could, at times, make leaps and that it was accelerating added a promise to Huxley's transhumanism. Humans perhaps did not have to wait for change. Things could change and transform rapidly.

Related to the evolutionary transcendences to new phases of evolution, Huxley's transhumanism promoted the idea that humans were "the universe conscious of itself."⁷³ Fuller and Lipinska have accurately described Huxley's view of *Homo sapiens* as the one species that—by chance—had acquired an unprecedented second-order understanding of the universe and the evolutionary process.⁷⁴ Evolutionary biology provided the knowledge

⁶⁹Huxley 1957: "Knowledge, Morality, and Destiny," *New Bottles for New Wine*, 246–48.

⁷⁰Huxley 1944: *On Living in a Revolution*, ix; see also Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 9; Huxley 1964: *Essays of a Humanist*, 30–31.

⁷¹Huxley 1944: *On Living in a Revolution*, ix; see also Huxley 1971: "The Crisis in Man's Destiny," 406.

⁷²Huxley & Huxley 1947a: *Evolution and Ethics, 1893–1943*, 231–32.

⁷³Huxley 1957: "Transhumanism," *New Bottles for New Wine*, 13.

⁷⁴Fuller & Lipinska (2014, 87).

that “the mindless universe has generated mind, and, through the mental capacities of man, can now begin to contemplate and even comprehend itself.”⁷⁵

Since evolution had become conscious of itself in the sense that the human mind could understand the process, it could also become conscious in the sense that it could be consciously controlled. Huxley had spoken of the idea that evolution could begin to be conscious through the human mind in his first collection of essays in 1923.⁷⁶ This idea had been refined and clarified and by the 1940s and 1950s was something Huxley would repeat often. He would describe human action and control as “the injection of consciousness into the heart of the evolutionary process—conscious purpose based on conscious knowledge and inspired by conscious emotion.”⁷⁷ Whereas natural selection operated blindly and had no inherent meaning or goal, with the continuation of evolution in the human phase selection did have meaning and goal and, more importantly, could set an even higher standard for itself with the right set of ideas behind it.⁷⁸

6.2.2 *Humankind Gets a Job*

Huxley insisted that humankind did not stand over against nature but was a part of it; incorporated in the universal evolutionary process. And yet, transhumanism made the human species out to be something incredibly special. By the 1940s and 1950s, Huxley’s message had reached a certain fervent pitch. His main points about Darwinian evolution and its meaning for humankind had solidified, but his way of expressing these points had grown more solemn. A higher message could be from the theory of evolution: It had shown “man’s place in nature.”⁷⁹

⁷⁵ Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 247. For other instances when Huxley said this, see Huxley 1941: “Scientific Humanism,” *The Uniqueness of Man*, 260; Huxley 1941: “Life can be worth living,” 297; and Huxley 1971: “Science and Synthesis,” 35.

⁷⁶ Huxley 1923: “Rationalism and the Idea of God,” *Essays of a Biologist*, 219.

⁷⁷ JSH Papers, RU, MS50, 67:3. “Evolution Lecture no. 2,” 1949.

⁷⁸ JSH Papers, RU, MS50, 71:2. 1955, “The Evolution of Man,” “The Building of Living Bodies.” For other instances when Huxley spoke of conscious human evolution, see, for example, JSH Papers, RU, MS50, 100:1. Huxley 1950: “Man Has Taken Over from Nature,” *News Chronicle*, 17 Oct; Huxley 1964: *Essays of a Humanist*, 33–34, 141, 218.

⁷⁹ Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 8.

The Christian and the Cartesian view of humankind had certainly exaggerated the unbridgeable barrier between all men and any animals. However, wrote Huxley, Darwinism had falsely led to the dictum that “man is an animal like any other”: that there was no special meaning for humankind, that human life had no more meaning in the light of eternity than those of a bacillus or a tapeworm.⁸⁰ Although Darwinism had shown that the human is an animal, a primate, Huxley clearly wanted to repudiate the idea the human is nothing but an ape with a few extra tricks.

Huxley therefore claimed that there was a new tendency, due, among other things, to the recent “increase of knowledge and extension of scientific analysis.” This was a tendency toward a (re-)broadening of the “man-animal gap.” Darwin had made it so that humans could not avoid considering themselves as animals. But now, stated Huxley, they could begin to see themselves as a very peculiar and in many ways unique animal.⁸¹

In order for the idea of progress in evolution to work, Huxley needed to continue to believe in and spread the idea that all organisms could be ordered on a scale of lower to higher and that evolution could give rise to new and objectively higher types.⁸² Huxley argued that humankind possessed greater control over nature and lived in greater independence of its environment than any other animal.⁸³ The environment and other animals had not been created to serve human needs, but humans had evolved and seen to it (of our own accord) so that we could use them for our needs. Humans were not simply “different” for any other organism, but pro-founder and more essential.⁸⁴ Huxley would continue to defend this view, claiming it was not just anthropomorphic wish-fulfillment, but a direct deduction from biological fact: “Man may not be the measure of all things, but the difference between man and the simplest organisms is certainly the measure of biological progress.”⁸⁵

The widespread criticism from scientists of the idea of progress in evolution had—as has already been discussed—led Huxley to adopt a less holistic take on progress, to instead emphasize humankind’s role in

⁸⁰ Huxley 1941: “The Uniqueness of Man,” *The Uniqueness of Man*, 2. Originally published in *Yale Review*, 1939.

⁸¹ Huxley 1941: “The Uniqueness of Man,” *The Uniqueness of Man*, 2–3.

⁸² Huxley 1964: “Higher and Lower,” *Essays of a Humanist*, 35.

⁸³ Huxley 1942: *Evolution: The Modern Synthesis*, 565–66.

⁸⁴ Huxley 1941: “The Uniqueness of Man,” *The Uniqueness of Man*, 5, 16.

⁸⁵ Huxley 1953: *Evolution in Action*, 126.

evolution. “Progress,” wrote Huxley in *Evolution: The Modern Synthesis*, “hangs on but a single thread. That thread is the human germ-plasm.”⁸⁶

This insight led to an important conclusion and entailed an assignment. In his 1936 Galton Lecture, Huxley argued that it was humanity’s role to manage the evolutionary process on this planet. He would re-use similar work-related formulations, later referring to the human species as the “business manager” for the cosmic progress and, in his Transhumanism essay claim that humanity was the “managing director of the biggest business of all, the business of evolution.”⁸⁷

Commenting on these metaphors, Swetlitz has written that they pointed directly to the centrality that social and economic planning continued to have in Huxley’s life and work.⁸⁸ The metaphors certainly summon up connotations to the “Managerial Futurism” discussed in Chap. 4. However, the reason for Huxley assigning this special role and job to humankind went beyond him simply wanting to promote political and economic technocracy.

The vision held that humanity must accept the fact that on its shoulders—and on its brains—lay the responsibility for seeing that progress be continued into the future.⁸⁹ It was mankind’s “duty and our destiny to facilitate the process by leading it on to new levels.”⁹⁰ Humanity was not simply some high-ranking employee, but, with another metaphor, “the heir” of evolution.⁹¹ Indeed, humankind *was* future evolution.⁹²

Transhumanism was going to be a solution to a spiritual, even an existential crisis. Huxley’s idea of the human psychosocial phase of evolution meant that the human mind was playing an instrumental part in evolution. In other words, human will mattered. In Huxley’s transhumanism essay, he stated that mental and spiritual human powers had operative effect and could utilize its force to affect destiny (the future).⁹³ Huxley’s notion of

⁸⁶ Huxley 1942: *Evolution: The Modern Synthesis*, 571–72.

⁸⁷ Huxley 1953: *Evolution in Action*, 149; Huxley 1957: “Transhumanism,” *New Bottles for New Wine*, 13. Later, Huxley would refer to humanity as “the senior partner” in the evolutionary business, see Huxley 1971: “Science and Synthesis,” 35.

⁸⁸ Swetlitz (1995, 211).

⁸⁹ JSH Papers, RU, MS50, 99:3. “Scientific Humanism,” *The Literary Guide*, Jan. 1944.

⁹⁰ Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 259.

⁹¹ Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 12; Huxley & Huxley 1947: *Touchstone for Ethics 1893–1943*, 155.

⁹² Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 249.

⁹³ Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 250, 266.

evolutionary phases and his emphasis on human will enable a sort of combination of idealism and materialism.⁹⁴ This was a way of instilling hope.

It was clearly crucial to Huxley to emphasize that his vision showed that humankind “had not been created helpless or as a slave of some external authority.” Instead, humans were “the most creative part of the total creative process.”⁹⁵ The idea of transhumanism, Huxley claimed, would ensure that the individual need no longer feel insulted by the fact of death or by her own insignificance.⁹⁶ Humankind had purpose and was special, after all. In 1963, Huxley explicitly reinstated the human at the near top of the ladder of creation:

To me, it is an exciting fact that man, after he appeared to have been dethroned from his supremacy, demoted from his central position in the universe to the status of an insignificant inhabitant of a small outlying planet of one among millions of stars, has now become reinstated in a key position, one of the rare spearheads or torchbearers, or trustees—choose your metaphor according to taste!—of advance in the cosmic process of evolution.⁹⁷

6.2.3 *A Glorious Paradox*

Huxley at times had a confusingly vague teleological way of speaking and continually returned to a vitalistic language use. He could speak of evolution as “a trend towards the actualization of potentiality, the realization or fulfillment of inherent possibilities.”⁹⁸ What those inherent possibilities consisted of, more precisely, and where they originated from or who put them there, was never specified in those instances. On an arguably rather shaky foundation, he also spoke of “the morality of evolutionary direction,” and would claim that it was possible to derive general ethical standards from evolution, or from nature. He would also express a belief that it was possible to extrapolate from evolutionary biology what had intrinsic value.⁹⁹ Additionally, his definition of the human species was certainly

⁹⁴On a side note, some have argued that Nietzsche’s “will to power” bore idealistic traits. For a discussion of Nietzsche as an idealist, see Church (2016); Bailey (2021).

⁹⁵Huxley 1957: “Knowledge, Morality, and Destiny,” 276.

⁹⁶Huxley 1957: “Knowledge, Morality, and Destiny,” 260.

⁹⁷Huxley 1963: “The Future of Man: Evolutionary Aspects,” 21–22.

⁹⁸Huxley 1957: “Knowledge, Morality, and Destiny,” 250.

⁹⁹See for example Huxley 1923: “Progress, Biological and Other,” *Essays of a Biologist*, 40–41, 59; Huxley & Huxley 1947: *Evolution and Ethics, 1893–1943*, 124 ff.; JSH Papers, RU, MS50, 100:1. “Humanity’s Need Is a New Ideology,” *Illustrated*, 28 Jan. 1950; Huxley 1953: *Evolution in Action*, 166–67.

reminiscent of an interpretation of the old biblical myth of creation, where Adam is created by God to be made in charge of the rest of the natural kingdom.

In relation to this, it is necessary to say something about Huxley's evolutionary ethics. Grandfather T. H. Huxley originally gave "Evolution and Ethics" as a lecture at Oxford in 1893. In essence, he was attempting to answer the question: Shall we follow the lead of nature (from whence we came) or shall we struggle against it? Tracing the rise of moral thinking in different societies, T. H. Huxley saw a gradual strengthening of the social bond between human beings. This he referred to as the ethical process.¹⁰⁰

According to T. H. Huxley, the ethical process had little to do with evolutionary biology. In contrast, the golden rule of human ethics—to treat others, as you would like to be treated yourself—was in effect "the refusal to continue the struggle for existence."¹⁰¹ Notions of a struggle for existence or the survival of the fittest could not be morally supported in human societies, where an individual had sympathy for the feelings of his or her fellow beings. In "Evolution and Ethics" the state of nature was harsh and chaotic and stood in stark contrast to human civilization. T. H. Huxley described an antagonistic relationship between humankind and nature. To maintain civilization required a constant struggle against nature, without and within.¹⁰²

Several scholars and commenters have pointed out the fundamental differences between Julian and T. H. Huxley concerning ethics and evolution.¹⁰³ In short, the difference between grandfather and grandchild has been described as such: Whereas T. H. Huxley believed human ethics stood in opposition to nature, Julian believed that nature could tell us

¹⁰⁰Huxley, T. H. 1896b: *Evolution and Ethics and Other Essays*, 35.

¹⁰¹Huxley (1896b, 32).

¹⁰²Huxley (1896b, 9).

¹⁰³The differences were noted by Julian himself and presented in *Evolution and Ethics, 1893–1943*, 1947, published in the United States as *Touchstone for Ethics*, containing both T. H. Huxley's classic Romanes Lecture *Evolution and Ethics* from 1894 and Julian's own Romanes Lecture *Evolutionary Ethics*, delivered 50 years later. Julian claimed that the differences were due to the fact that science had progressed since the time his grandfather was active, with a better-gained knowledge of what morality and religion was, see Huxley & Huxley 1947: *Evolution and Ethics, 1893–1943*, 1 ff. Holloway (1943); Bowler (2001, 152); Ruse (2009, xxx); Ruse (1996, 338).

something about ethics. He called it evolutionary ethics (in contrast to his grandfather, who had made a sharp divide between evolution *and* ethics). T. H. Huxley claimed that human progress lay in combatting evolution. Julian claimed human progress lay in ensuring evolution.¹⁰⁴

The question of evolutionary ethics is important because it relates to the question of whether Julian saw nature as a generally benign progressive force or not.¹⁰⁵ This, in turn, relates to his transhumanism. Despite his teleological language, it is important to underline that Julian was not progressivist in the metaphysical sense that he believed in a purpose in natural evolution. On the opposite, he believed the idea that evolution manifested guidance on the part of some external power to be “wholly false.” The purpose manifest in evolution was only apparent purpose, in reality it worked through blind forces.¹⁰⁶ Evolution and adaptation was a “pseudo-teleology” with no need for the intervention of purpose.¹⁰⁷

Although he was not entirely consistent, Julian’s view can be summarized by stating that to him, evolution had a discernible direction (to progressively higher levels of organization and to an increase of control and independence) but it did not have a purpose or a predetermined goal. In other words, natural evolution did not have conscious aim.¹⁰⁸

If humans wished to work toward a purpose for the future, they needed to formulate that purpose themselves.¹⁰⁹ However, everything human beings did originated from and was part of nature. Evolution gave rise to everything, including human ethics and purposes. Julian had referred to it as a “glorious paradox,” the fact that the “purposeless mechanism, after a thousand million years of its blind and automatic operations, has finally generated purpose – as one of the attributes of our own species.”¹¹⁰

¹⁰⁴ Ruse (1996, 213). See also Sommer (2014, 567).

¹⁰⁵ That Huxley did view it as a generally benign progressive force has been claimed in histories of evolutionary biology, see Hale (2006).

¹⁰⁶ Huxley 1942: *Evolution: The Modern Synthesis*, 576.

¹⁰⁷ Huxley 1942: *Evolution: The Modern Synthesis*, 412.

¹⁰⁸ See, for example, Huxley 1942: *Evolution: The Modern Synthesis*, 576; Huxley & Huxley 1947b: *Touchstone for Ethics 1893–1943*, 136–37.

¹⁰⁹ Huxley 1942: *Evolution: The Modern Synthesis*, 576. Smocovitis pointed this out when discussing Huxley’s belief in progress in evolution, see Smocovitis (1996, 144–45).

¹¹⁰ Huxley 1945: “The Vindication of Darwinism,” *Touchstone for Ethics 1893–1943*, 192.

Therefore, human behavior could not truly “go against” nature, or rather, going “against nature” was “natural”—the human species already inhabited a world that was in a certain sense an artificial environment that it had made for itself. Nonetheless, even this must be regarded as a part of evolution, it was simply the newest evolutionary phase.¹¹¹

Perhaps Julian saw his own system of evolutionary ethics as a solution to T. H. Huxley’s “eternal problem” of Humankind vs. Nature. Julian attempted to promote a vision wherein the struggle ended, because it was transcended—moved to a higher order—where humankind controlled instead of having to choose between fighting against and working according to nature. The view is best understood by saying that Julian conceived of the universe as an evolutionary unity wherein humanity played a vital part.¹¹²

Despite their differences regarding this subject, perhaps a point of agreement can be found between T. H. Huxley and grandson Julian. T. H. Huxley believed human progress lay in combatting evolution, that true moral behavior entailed restraining the beast within us and that it was a human duty to revolt against natural selection. In a sense, Julian would have agreed with this, since he wanted to ensure evolution through artificial means. Although the difference between T. H. Huxley and Julian is fundamental—because T. H. Huxley believed human progress lay in combatting evolution while Julian believed human progress lay in ensuring evolution—the difference can be viewed in light of understanding that “ensuring evolution” did not mean ensuring evolution *by natural selection* to Julian.

6.2.4 *Pierre Teilhard de Chardin and Questions of Influence*

In the foreword to the essay “Knowledge, Morality, Destiny” (1951), where transhumanism is first publicly mentioned, Huxley referred to several contemporary books that had recently contributed to his own thinking. They were Raymond Aron’s *Introduction à la Philosophie de l’Histoire* (1938), Susanne Langer’s *Philosophy in a New Key* (1942), Bernhard Rensch’s *Neuere Probleme der Abstammungslehre* (1947), George Gaylord

¹¹¹ Huxley 1957: “Evolutionary Humanism,” *New Bottles for New Wine*, 294.

¹¹² Very similar beliefs were held by American religious humanists in the 1920s and 1930s, see Meyer (1982).

Simpson's *The Meaning of Evolution* (1949), Jacob Bronowski's *Common Sense of Science* (1951), and Lancelot Law Whyte's *The Next Development in Man* (1944).¹¹³

But neither Whyte nor any other of the scientists and philosophers on Huxley's reference list are ever mentioned when questions of influence are discussed. Indeed, there is really only one individual who is usually brought up as having had an influence on Huxley's transhumanism. This person, on the other hand, pops up relatively frequently in relation to transhumanism as a subject of scholarly inquiry.¹¹⁴

It was in the late 1940s that Huxley became fascinated with the teachings of the French Jesuit priest and paleontologist Pierre Teilhard de Chardin (1881–1955). Teilhard de Chardin presented a highly original spiritual message of modern mysticism that combined Darwinism with teleology and Christianity to form a holistic system of thought.

Teilhard's main belief was that the fundamental process in the universe is evolution. Evolution, however, and according to him, had deeply mystical, spiritual, and progressive properties. It had purpose and meaning, a discernible pattern and a directed movement. Teilhard spoke of a form of continual growth of "psychic energy," an ascent toward consciousness. With the emergence of humans, consciousness had come to form the *noösphere* (from the Greek *noos*, consciousness, mind). The noösphere was the next evolutionary level from the geosphere and the biosphere. According to Teilhard, evolution followed a pathway propelling humanity toward a transcendental future. He believed that humankind was approaching a critical time of a great spiritual revolution. Our present consciousness

¹¹³Huxley 1951: "Knowledge, Morality, Destiny," foreword by Huxley, 128. On a side-note, Huxley apparently also read David Hofman's *Renewal of Civilization* (1945), a text expounding the Bahá'í religion, encompassing a vision for a future society that could be termed utopian. Putting an emphasis on unity of all religions and unity of all people, Bahá'í rejects racism and nationalism, and has as its goal a unified world order, see JSH Papers, RU, MS50, 122:4. Huxley cited the religious Bahá'í religious leader Abdul Baha, see Huxley 1957: "Knowledge, Morality, and Destiny," 266–67.

¹¹⁴For an early discussion of the similarities between Teilhard and Huxley, see Gex (1957). Renee Haynes wrote a review of Huxley's *Memories II* in *The Month* of November 1973 and mentioned that Huxley's transhumanism appeared to lie in close proximity to Teilhard de Chardin's beliefs, see JSH Papers, RU, MS50, 138:7. More recently, David Grumett has commented on modern-day transhumanist's relationship (or lack thereof) with Teilhard de Chardin, see Grumett (2011, 37–38). See also Burdett (2011, 29 ff). For more on Teilhard and present-day transhumanism, see Steinhart (2008); Pilsch (2017).

must in a not-so-distant future culminate in the arrival of some sort of supreme consciousness, Omega. This would mark the end of evolution.

Teilhard's brand of religion was controversial, and the Catholic Church banned him from publishing his ideas, but his sermons and papers were circulated among friends and admirers. His texts are demanding. He wrote in an esoteric style and was fond of neologisms and allusive formulations. Nevertheless, Teilhard became popular and gained a large following, particularly posthumously.¹¹⁵ The majority of his ideas were presented in his most famous book *Le Phénomène humain* (1955).¹¹⁶ When Teilhard died in New York city in 1955, a committee—of which Huxley was a part—was set up to arrange publication of his writings.¹¹⁷ *Le Phénomène humain* was published in English as *The Phenomenon of Man* in 1959, with a foreword written by Huxley.

Huxley had formed a personal bond with Teilhard before his death. The two had first met in Paris in the winter of 1946, while Huxley was with UNESCO.¹¹⁸ They corresponded, attended conferences together, and shared loose plans to form some sort of work group to research humanity's future and human evolution.¹¹⁹ Like Huxley, Teilhard supported eugenics, believing humans had the right and power to influence the world, and also themselves.¹²⁰ The two of them delighted in having found someone who shared similar views on so many things, and this was an observation they exchanged in their correspondence.¹²¹ In Teilhard's own words, describing his and Huxley's relationship in the late 1940s: "I think we like each other very much."¹²²

The relationship of Teilhard and Huxley was controversial and inciting from the start. As mentioned, Teilhard posthumously gained a large

¹¹⁵ Teilhard's ideas had an influence on the New Age movement. Ferkiss even suggests that Teilhard became the "focus of an intellectual cult" in the 1950s and 1960s, see Ferkiss (1969, 88).

¹¹⁶ *Le Phénomène humain* had been written sometime between 1938 and 1940.

¹¹⁷ McCulloch (1979, 1–2).

¹¹⁸ Teilhard de Chardin 1959: *The Phenomenon of Man*, 11–12.

¹¹⁹ Leroy (1980, 88–89). They both participated in the conference "Unity of Knowledge," held to celebrate the bicentennial of Columbia University in October 1954. Participants included Teilhard de Chardin, Theodosius Dobzhansky, Julian Huxley, B. F. Skinner, Niels Bohr, and many others.

¹²⁰ Speaight (1967, 233).

¹²¹ JSH Papers, RU, MS50, 18:4. Letter from Huxley to Teilhard, 16 Nov. 1949.

¹²² Leroy (1980, 146).

following, soon becoming the center of what has been referred to as “an intellectual cult.”¹²³ Cult or no, there was already a robust body of literature on Teilhard in the 1960s and *The Phenomenon of Man* was widely distributed, along with Huxley’s foreword to it.

That Huxley was among those early admirers who took Teilhard seriously dismayed several of his colleagues and critics. Indeed, Huxley would remember having been “bitterly attacked” by some of his friends for supporting the work of Teilhard.¹²⁴ A number of scientists did hold *The Phenomenon of Man*—and Huxley’s endorsement of it—in contempt.¹²⁵ For his “Teilhardophilia,” Huxley was accused of having veered down the path of mystical obscurantism: “Sir Julian has swallowed whole the extraordinary, pretentious, anti-scientific mumbo-jumbo of a French priest, the late Fr. Teilhard de Chardin.”¹²⁶

An especially outspoken critic of Teilhard was zoologist Peter B. Medawar (1915–1987). In a 1961 article, Medawar ridiculed Teilhard’s ideas, calling most of the content in the *Phenomenon of Man* “nonsense, tricked out with a variety of metaphysical conceits.”¹²⁷ The idea that evolution progressed toward the creation of humankind was obviously wholly unsupported by scientific evidence. Medawar then went on to harshly criticize Huxley as partly responsible for the book’s regretful success. Huxley’s endorsement of such ideas, he wrote, could only be explained by a confusion of thought, and his uncritical praise of Teilhard had helped promote a book so filled with scientific errors it could be labeled anti-scientific.¹²⁸ The secular humanist journal *The Freethinker* expressed similar disappointment over the fact that Huxley, who had previously been a champion of free scientific thought, had now embraced Teilhard and “given a religious book his scientific blessing.” The review agreed with Medawar’s verdict: Huxley had, in attempting the impossible task of reconciling religion and science, lost his standing as a serious scientist.¹²⁹

¹²³ Ferkiss (1969, 88).

¹²⁴ Huxley 1973: *Memories II*, 28.

¹²⁵ Provine (1988, 63–64).

¹²⁶ JSH Papers, RU, MS50, 138:2. Trevor-Roper 1961: “The Tertiary Humanists,” *The Sunday Times*, review of *The Humanist Frame*, 17 Sept.

¹²⁷ Medawar (1961, 99).

¹²⁸ Medawar (1961, 103, 105).

¹²⁹ JSH Papers, RU, MS50, 138:2. McCall 1961: “Views and Opinions. Sir Julian Huxley and Religion,” *The Freethinker*, 22 Sept. vol. 81, no. 38.

If Huxley in the 1920s and 1930s had been occasionally critiqued for his dismissal of God and his materialistic rationalism, the 1950s saw him mocked for what was increasingly being seen as his naive and pseudo-scientific fervor in promoting his vision. Indeed, the critique of Huxley now was that he was too religious-minded.¹³⁰ “There is no God and Sir Julian Huxley is His prophet,” joked one commentator after having read Huxley’s *New Bottles for New Wine*.¹³¹ Another commentator accused Huxley of promoting his own brand of messianic millenarism.¹³²

Huxley’s public endorsement of Teilhard was clearly out of step with modern evolutionary biology. The field Huxley had started out in had become, in Ruse’s words, “the science of professionalized evolution.”¹³³ Huxley had been suggesting ideas of progressive evolution over the entirety of his career, particularly in connection to his vision. But his characteristic inability or unwillingness to make clear distinctions between facts and values, as well as between professional science and popular science or philosophy, was increasingly becoming a problem within a scientific community. Bowler has explained that Huxley’s endorsement of Teilhard raised anger because most scientific evolutionists saw this as “exactly the kind of vague teleology they wanted to escape.”¹³⁴

As stated earlier, Teilhard has been connected to transhumanism. It has even been suggested that Teilhard is the progenitor of transhumanism and that Huxley coined the word and his vision only after and as a direct consequence of having met the priest.¹³⁵ Teilhard himself claimed that Huxley

¹³⁰ See, for example, Walsh (1958).

¹³¹ JSH Papers, RU, MS50, 137:4. McLaughlin 1958: “Evolutionism as Religion,” 56.

¹³² JSH Papers, RU, MS50, 138:2. “The Tertiary Humanists,” *The Sunday Times*, 17 Sept. 1961.

¹³³ Ruse (1996, 352–54).

¹³⁴ Bowler (2003, 343–44); see also Provine (1988, 64).

¹³⁵ An example of this can be found in Pilsch, who has argued that Teilhard first coined the modern usage of “transhuman” and “laid much of the philosophical groundwork for evolutionary futurism,” Pilsch (2017, 105). Pilsch holds that Huxley’s transhumanism is “Teilhardian”: “It was Teilhard’s collaboration with Huxley that directly led to Huxley’s early essay on the topic,” Pilsch (2017, 119, 128–30). Pilsch’s interpretation relies on a close-reading of Huxley’s foreword to *The Phenomenon of Man* from 1959 and his “Transhumanism” essay of 1957. This might give the impression that Huxley had not thought of the themes and issues presented therein before meeting Teilhard. This also leads Pilsch to focus on what he sees as Huxley’s “misreading” or “misinterpretation” of Teilhard’s ideas in Huxley’s foreword to *Phenomenon of Man* and in his “very Teilhardian, essay ‘Transhumanism,’” Pilsch (2017, 130).

had been “strongly influenced” by his teachings.¹³⁶ It is here argued, however, that he had less of a philosophical (or theological) impact on Huxley than Teilhard himself as well as some contemporary scholars have alleged. The link between Teilhard, Huxley, and transhumanism is interesting, but it is not straightforward.

It might first be of interest to mention that Teilhard had read many of Huxley’s books before ever meeting Huxley, and that this had contributed to the development of Teilhard’s thought, not in the least his understanding of evolution.¹³⁷ It has also been suggested that Huxley introduced an otherwise inexperienced Teilhard to “the British point of view” and this had influenced Teilhard’s vocabulary and method of presenting his philosophy.¹³⁸ In a letter to his friend Abbé Henri Breuil from July 12, 1941, Teilhard wrote of having found in Huxley’s collection of essays *The Uniqueness of Man* lines of thought very close to what he was trying to formulate, although with God missing.¹³⁹ It was Teilhard who first contacted Huxley in 1944, after having read Huxley’s *What Dare I Think?*¹⁴⁰ He explicitly borrowed ideas of progress in evolution from Huxley, and in particular the idea that humans were “evolution conscious of itself,” a formulation he used often in his writings and always credited Huxley for.¹⁴¹ Huxley had been speaking of humankind as the conscious part of evolution since the 1920s.

What is clear is that Teilhard had a definite influence on Huxley’s terminology. It was after having met and formed a relationship with him that Huxley started using Teilhardian phrases such as “noosphere,” stating he found them useful.¹⁴² Huxley’s own human-specific phase of evolution, previously the “psychozoic,” now became the “psychosocial” phase of

¹³⁶ Leroy (1980, 83). Teilhard in a letter to Pierre Leroy, 1 Jan. 1951.

¹³⁷ Ferkiss (1969, 97); Rideau (1967, 26–27); Delfgaauw (1969, 39–40); Leroy et al. (1993, 46).

¹³⁸ Raven (1962, 151–52). Like Huxley, Teilhard was invigorated by their meeting. He even authored a text specifically for Huxley, completed in Feb. 1952: “The Transformation and Prolongation in Man of the Process of Evolution,” showcasing their evidently similar ideas of progress and stages in evolution, see Cuénot (1965, 327).

¹³⁹ Teilhard de Chardin (1962a, 284). See also Speaight (1967, 297); Cuénot (1965, 302 note).

¹⁴⁰ Cuénot (1965, 302).

¹⁴¹ As an example, see Teilhard de Chardin (1959, 221).

¹⁴² It should be noted, however, that they were never used consistently by Huxley, with the exception perhaps of the “psychosocial.” JSH Papers, RU, MS50, 138:2. Huxley 1961: “The Humanist Frame,” *The Sunday Times*, a response to Hugh Trevor-Roper, 29 Oct. See also Grumett (2011, 38). For more on the concept of the noosphere, see Bischof (2007).

evolution with another term borrowed from Teilhard. He did not, however, mention the priest as a source of inspiration for either the term or the philosophy of transhumanism. Nonetheless, it is possible that Huxley may also have borrowed the term “transhuman” from Teilhard and turned it into an *-ism*. Teilhard did, after all, use the word “trans-human” right around the time he stood in contact with Huxley, although with a different meaning.¹⁴³

The question of the word “transhumanism” is one thing. The bigger question regards inspiration for the contents of and ideas included within Huxley’s transhumanism. There were obvious similarities between the two thinkers. In the first, they were both pro-science and pro-eugenics, and could unite in their quest for global unity and idea that humanity was in urgent need of a comprehensive system of beliefs. The similarities did not end there. They both shared the belief that the fundamental process of the universe was evolution, and that evolution was progressive. They held forth ideas of evolutionary phases or stages (for Huxley it was the inorganic, the organic, and the-human specific/psychozoic/psychosocial; for Teilhard “pre-life,” “life,” and “thought,” or the geosphere, biosphere, and noö-sphere). Additionally, they both spoke of human beings as a unique part of the evolutionary process and of a next step in humankind’s evolution.

It is important to remember, however, that all these similarities regard ideas that Huxley had considered and explored, privately and publicly, long before writing his “Transhumanism” essays, and decades before meeting Teilhard. It is true that Huxley started using the word “transhumanism” only after having met Teilhard, and it is obvious he admired the priest. There can be no doubt that Teilhard energized Huxley in his continued efforts to promote his vision. However, comparing the thought of Huxley before and after meeting Teilhard, one arguably does not find any radical changes, apart from the adoption of Teilhardian neologisms.

It is possible to claim that Huxley, in the 1940s and 1950s, would return to a kind of teleological language that perhaps a more professionally minded Huxley of the 1920s and 1930s had sought to avoid or reformulate, and that was reactivated by Teilhard. Nonetheless, Huxley had spoken thusly before meeting the priest, and so even regarding these more mystical, spiritual, and/or teleological formulations present in some of Huxley’s texts after meeting Teilhard, the immediate influence is not clear.

¹⁴³Teilhard used the term inconsistently. He did not use it in his most famous and circulated book *Le Phénomène humain* (1955).

As seen, Huxley already exhibited a form of life-mysticism in the 1910s and 1920s, with his spiritual biology. For example, he had claimed that mind in universe was part of a continuity; that mind in some sense was “universally present in all phenomena” as “potential”—a statement that sounds very Teilhardian but was made in the 1920s.¹⁴⁴

American paleontologist George Gaylord Simpson (1902–1984) was, like Medawar, perplexed by Huxley’s endorsement of Teilhard, whose views ignored objective evidence and scientific observation of evolution. If Teilhard was right, wrote Simpson, the life work of Huxley and other evolutionists would not only be wrong but meaningless.¹⁴⁵ So why did Huxley endorse Teilhard?

In the first, it is in all probability a question of age and position. By the 1940s, Huxley was well-established as a renowned popular scientist and statesman of science. He had already been elected a fellow of the Royal Society and was likely somewhat less anxious about the marginalization within the scientific community that he had been experiencing since the 1920s. The post-Second World War period saw Huxley becoming increasingly intent on promoting his vision, even at the expense of being viewed as a “serious scientist.”

Huxley obviously believed Teilhard’s overall message to be reminiscent of his own.¹⁴⁶ He had, he believed, found in Teilhard another scientist who agreed with him. His optimism for the Jesuit priest can be explained by the fact that he saw an advocate of his own ideas in the figure of Teilhard, as is apparent when Huxley writes of Teilhard. Indeed, his foreword to *The Phenomenon of Man* was used to showcase Huxley’s own vision and ideas about progressive evolution.¹⁴⁷ Fuller and Lipinska suggested that Huxley’s endorsement of Teilhard can be clarified by the fact that Huxley already viewed *Homo sapiens* as a “miraculous mutation” of near metaphysical import.¹⁴⁸ There is truth to that explanation. Huxley believed Teilhard to be an important thinker because he had reached similar conclusions as Huxley himself.¹⁴⁹

¹⁴⁴ Huxley 1923: “Biology and Sociology,” 71.

¹⁴⁵ Simpson (1971, 97).

¹⁴⁶ JSH Papers, RU, MS50, 100:1. Huxley 1950: “The Human Phenomenon,” *Encounter*, Apr.: 84–86.

¹⁴⁷ Teilhard de Chardin (1959), introduction by Huxley, 11–28.

¹⁴⁸ Fuller & Lipinska (2014, 87–88).

¹⁴⁹ Huxley 1973: *Memories II*, 27–28. See also Swetlitz (1995, 210).

However, the two also had their disagreements, some of them fundamental. Despite the insinuations of some of his critics, Huxley was not somehow taken up with faith after having met Teilhard. The main point to make here is that Teilhard's philosophy was Christian in a way that Huxley's "religion" never was or would be.

As Teilhard's noosphere became, in his words, increasingly more centered, it would lead to the creation or arrival of a person whom Teilhard referred to as the Ultra-Human or, a few times, the Trans-Human. It seems this was also the Omega Point. When he spoke of a "Trans-human" or a transhumanity and the Omega, it was connected to a supernatural Christ-figure and, in particular, divine creation brought to fruition. There was a clear eschatology in his idea of an anticipated irreversible ascendance toward the Omega, which would also mean the end of all life on our globe.¹⁵⁰ Teilhard's belief in progress in evolution was a logical consequence of his Christian faith. For Teilhard, *Homo sapiens* was the leading edge of what was in essence divine creativity. Humanity's future was ultimately the work of God.¹⁵¹

Huxley, in his first transhumanist essay of 1951, referred to God as an "erroneous hypothesis in all aspects of reality, including man's spiritual life."¹⁵² In the spring of 1952, Huxley refused an article Teilhard had submitted to an anthology Huxley was the editor of for the reason it was not sufficiently scientific.¹⁵³ On his part, Teilhard was continually disappointed with Huxley and other biologists' failure to "rise from their initial plane"—meaning he thought they lacked the metaphysical talent and understanding of faith needed to be a real predictor of the future.¹⁵⁴ In fact, Teilhard was a critic of various forms of "neo-humanisms."¹⁵⁵ In letters to others, Teilhard described Huxley as harboring a "rather boyish human faith."¹⁵⁶

¹⁵⁰ Teilhard de Chardin (1950, 311); Teilhard de Chardin (1959, 257–74); Rideau (1967, 23); Burdett (2015, 113); Grumett (2011).

¹⁵¹ This is also crucial to remember when doing comparisons between Teilhard and modern versions of transhumanism, for example, between Teilhard's noosphere (the collective mind of humanity) and his final "Omega point," and the contemporary transhumanist idea of the Singularity. For a discussion of Teilhard and the future, see Lubac (1967, 216). For more on Teilhard and Christ, see Bravo (1967, 35 ff).

¹⁵² Huxley 1957: "Knowledge, Morality, and Destiny," *New Bottles for New Wine*, 272.

¹⁵³ Leroy (1980, 126).

¹⁵⁴ See, for example, letter of January 26, 1953, in Leroy (1980, 161).

¹⁵⁵ Lubac (1967, 41).

¹⁵⁶ Leroy (1980, 88–89, 151).

Not being based in Christian theology, Teilhard found Huxley's ideas to diffuse and imprecise. The Christian faith was the crux of the matter.

In his foreword to *The Phenomenon of Man*, Huxley lauded Teilhard's ideas as visionary and extraordinary, but was clearly unsure what to make of the more obvious Christian themes. He was perplexed, for example, by Teilhard calling the future human evolutionary trend a "Christogenesis" ("here, his thought is not fully clear to me") and wrote that Teilhard appeared not to be guarding himself sufficiently against the dangers of personifying the non-personal elements of reality. Since Huxley found it "impossible to follow [Teilhard] in his gallant attempt to reconcile the supernatural elements in Christianity with the facts and implications of evolution," he instead chose to view Teilhard's faith as a thing apart from the rest of his ideas, not wanting, perhaps, to realize that Christianity was the core of Teilhard's philosophy.¹⁵⁷

It is true that there had always been a "streak of the missionary" in Huxley's character makeup.¹⁵⁸ This trait had been present long before Teilhard. As seen in the previous chapters, Huxley had long been interested in religious modes of thinking and in the more mystical aspects of existence. He had also consistently throughout his life been inclined toward a decidedly spiritual language use. But just as he was absolutely convinced of humanity's need for a "religion of the future," he was equally convinced that this religion could not be one of the older world religions, such as Christianity. Instead, and as shown, he hoped that his own vision could fill the position. It is also important to remember Huxley's functional view of religion. Evolutionary humanism, or transhumanism, was something "in the nature of a religion," if religion was used to denote the relation between humans and their destiny instead of a belief in gods.¹⁵⁹ Although Teilhard spoke of a transhuman, to him it was never transhumanism but Christianity that was the religion of progress and of evolution.

The question of from where Huxley drew inspiration for his transhumanism is complex and must, as these chapters have shown, be understood within the framework of his historical context. Putting his scientific context as well as the obvious early philosophical influence of Bergson (or of Nietzsche, or of Wells, for that matter) to the side, holistic systems based on biology and evolution, many with spiritual undertones, abounded during Huxley's lifetime.

¹⁵⁷ Teilhard de Chardin (1959, 19).

¹⁵⁸ In the words of his wife, see Huxley (1986, 128).

¹⁵⁹ Huxley 1953: *Evolution in Action*, 171–72.

Huxley was not the only evolutionist to still uphold a belief in evolutionary progress in the 1940s and 1950s. The constriction of the discipline through the evolutionary synthesis did not lead to a complete abandonment of progressive ideas. According to Smocovitis, the unpredictability of a system affected by, among other things, random genetic drift was not favored in a post-war frame of mind seeking to improve the world.¹⁶⁰ Prominent evolutionists such as Dobzhansky, Simpson, Ernst Mayr (1904–2005), and George Ledyard Stebbins (1906–2000) all had versions of evolutionary progress.¹⁶¹

Huxley was certainly in a frame of mind seeking to improve the world and continued to be drawn to ideas that promoted progressive evolution and change. This explains not only his fascination with Teilhard, but also with the Scottish physicist, philosopher, and historian of science Lancelot Law Whyte (1896–1972), whom Huxley referenced as a source of inspiration in 1951 and whose ideas he found to be of such interest that he would involve Whyte in his “Idea-systems group” active in the 1950s.¹⁶² Whyte was, among other things, known for his somewhat controversial ideas about Darwinian evolution.¹⁶³ *The Next Development in Man* announced that the human community (on a global scale) was undergoing a “far-reaching transformation” and that there was a universal need for a new form of thought. Whyte understood the transformation of humanity as a biological process (not a sociological or philosophical one) and his new “unitary” thought-system taught that change is universal and that permanence has no lasting substance.¹⁶⁴ Huxley, who had long been drawn to a non-static conception of nature, would increasingly insist that nature was a process.¹⁶⁵

Additionally, as already mentioned, several scientists active during the same time as Huxley held forth their own versions of some kind of

¹⁶⁰ Smocovitis (1996, 131).

¹⁶¹ Smocovitis (1996, 147). Dobzhansky would also become impressed by Teilhard de Chardin’s ideas, devoting a chapter in his *The Biology of Ultimate Concern* to “The Teilhardian Synthesis,” see Dobzhansky (1967, 108 ff.); see also Dobzhansky (1975). For a newer attempt at progressive (cultural) evolution, see Dick & Lupisella (2009).

¹⁶² JSH Papers, RU, MS50, 113:2. Notes of the ninth meeting of the Idea-systems Group, 14 Mar. 1951.

¹⁶³ Whyte believed that natural selection was limited to external factors only, and that there was a second directive agency in evolution affecting internal factors (*Internal Factors in Evolution*, 1968). For an example of Huxley referring to Whyte, see Huxley 1957: “Knowledge, Morality, and Destiny,” 250.

¹⁶⁴ Whyte (1944, 10, 31, 49).

¹⁶⁵ Huxley 1955: “Man’s Place and Role in Nature,” 79.

humanist persuasion. Some of these scientific humanisms acquired increasingly more radical and mystical dimensions over the course of the decades leading up to the 1960s, speaking of reaching new stages in humankind's spiritual evolution.¹⁶⁶ Julian's brother Aldous had also tried his hand on discussing and promoting a transcendental philosophy, in his *The Perennial Philosophy*, first published in 1946.¹⁶⁷ The brothers discussed religions and ideologies for the future in their letters in the 1940s.

The point is that there are simply so many examples of instances of thinkers and scientists exploring various versions of progressive cosmic evolution and holistic transcendental philosophies during Huxley's lifetime—he was positively surrounded by it—that it would be an oversimplification to say that Teilhard was the only or even main influence on Huxley's transhumanism. He was inspired to speak of evolutionary transformation and transcendence from a variety of sources.

¹⁶⁶ Mayer (2005, 347). In relation to ideas of humankind's spiritual progression or evolution it is interesting to compare the English historian Arnold Toynbee's (1889–1975) concept of "etherealization" to Teilhard de Chardin's "hominization." Both seem to be speaking of a process in and progress of civilization, whereby humankind is moving gradually away from an absorption with aggressive power, command over physical environment and the material, toward instead a spiritualization, a development of relationships. Toynbee, widely read and discussed during the 1940s and 1950s, described a movement from material things to a higher (spiritual) sphere, a process of overcoming of material obstacles that releases energies for humans to focus instead on the internal.

¹⁶⁷ Huxley (1947, 1). See also Huxley (1957, 1961).

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Transhuman End-Goals

Huxley had added *trans-* to his humanism and, when formulating transhumanism, had written that the transcendence of humanity was what was aimed at. He would often speak around this theme in somewhat ambiguous terms, promising “limitless possibilities of improvement.”¹

This vagueness in expression has led to various interpretations of what exactly Huxley’s transhumanism entailed. Although previous chapters have already gone some way in clarifying that Huxley’s vision promoted conscious human evolution through the use of science and technology, the following chapter will explore what it was, exactly, that Huxley meant by saying that humankind must “transcend itself.” The chapter will determine what the end-goal was for Huxley’s transhumanism and argue that it opened for the possibility of imagining the posthuman.

Deese has interpreted Huxley’s transhumanism as connected to an ecological philosophy, emphasizing that Huxley intended a spiritual oneness with the universe and a promotion of the idea that humans must care for our ecosystem.² The ecological interpretation of Huxley’s transhumanism

¹Huxley 1971: “The Crisis in Man’s Destiny,” 411.

²Deese (2015). See also Doyle (2011).

is important. Huxley's view of humankind's role in evolution, the "unity of all nature" and the fact that humankind would control the whole process, certainly veered toward imagining the Anthropocene.

This was partly what Huxley wanted to invoke with his use of *trans-*. Transcendence can refer to a form of understanding, for example, the holistic perceiving of the cosmos as a unity. Huxley already used the word transcendence in this sense early on, as seen in the first analytical chapter. At times, Huxley also talked of transcendence to refer to an inner, spiritual change. Evolution, he said in those instances, had shifted from the domain of matter to that of thought.³

In another interpretation of what Huxley meant with transhumanism, Zakariya has argued that the trans- "tended to signal transcendence of national, cultural, and ethical boundaries of disciplines of knowledge and specialization, [...] unnecessary limits to what Huxley often presented as a fixed store of human potential."⁴

It is true that Huxley hoped that transhumanism could unite humanity and help humans transcend their differences (in the sense of transcending national borders, cultural conflicts, etc.). He spoke of transcending from a plane of disharmony to one of harmony.⁵ He believed that continued development and density of human communications throughout the world would help develop a more collective, peaceful universal mind, and sometimes used transcendence to mean humankind transcending its present condition of political strife and conflict.⁶

This was Huxley the planner, the statesman, the general director of UNESCO speaking: social organization should be planned, not to prevent change, nor merely to permit it, but to encourage it.⁷ A short-term goal of transhumanism regarded social reorganization and economic redistribution. Huxley firmly believed that humans could progress in their cultural evolution, that the world could become unified, and that science could already provide adequate food, health, and material well-being to everyone, to liberate Earth's inhabitants from the compulsions of ill-health, material misery, and ignorance.⁸

³ Huxley 1957: "Knowledge, Morality, and Destiny," 253.

⁴ Zakariya (2016, 277).

⁵ Huxley 1923: "Science and Religion," *Science and Civilization*, 322.

⁶ See, for example, Huxley 1957: "Transhumanism," 16.

⁷ Huxley & Huxley 1947b: *Touchstone for Ethics 1893–1943*, 138.

⁸ Huxley 1957: "Knowledge, Morality, and Destiny," 262; Huxley 1957: "Transhumanism," 15; and Huxley & Huxley 1947b: *Touchstone for Ethics 1893–1943*, 149–50.

Alongside such interpretations of Huxley's transhumanism, it is, however, important to consider that it had other ambitions as well. It was the ideas of "participation in the enterprise of human evolution" and the "creative self-transformation of man."⁹ *Trans-* denotes crossing over. Transcendence can mean many things but is often thought of as a mystical experience, classically described by religious mystics. To transcend is to go beyond the limits of the ordinary and accustomed, whether spiritually or physically. Many times, it relates to the transcending of the self in the sense of transcending pain, sickness, and even death. In the histories of transcendence, we find human beings transcending all kinds of bondage. To transcend a thing means to be untouched and unaffected by it, but can also mean to transform, to become divine or godlike, to go beyond the merely human.

Ideas of transcendence and self-transcendence point to humankind possessing a deep longing to overcome organic (corporeal) limitations. In his evolutionary way of looking at it—a sort of "Darwinian" transcendentalism—transcendence and transformation became part of the same meaning to Huxley. Evolution is arguably always transformation, a new combination of things already present, of the elements of which organisms are composed. Perhaps real progress in evolution demanded that an organism "transcend" its past and present state and break through to a new adaptive plateau? Adding to this evolutionary approach to the issue, Huxley's transhumanism also claimed that humanity was in charge of its own transcendence.

7.1 RELATIVE OPTIMISM

Swetlitz has described Huxley as remaining "relatively optimistic" about human beings being on top of evolution even in light of the Second World War and the Hiroshima-Nagasaki bombings.¹⁰ As discussed, Huxley ascribed the human species a singularly unique and important role, as the highest product, the boss, the manager of evolution, with a future of seemingly endless possibilities before it. However, to Huxley, human progress was not a given. There was no guarantee that it would happen.¹¹ If humans did not stand up to the task of directing evolution, wrote

⁹Huxley 1957: "Knowledge, Morality, and Destiny," 261–62.

¹⁰Swetlitz (1995, 199).

¹¹Comment by Huxley in Waddington (1944, 35–36).

Huxley, we could not hope that we were any more special than a sea-urchin or a tapeworm.¹²

Despite Huxley's relative optimism, this study has pointed to a running theme of disillusionment throughout much of Huxley's life. This intensified during and especially after the Second World War. In 1940, the Huxley brothers had discussed the modern and highly complex society. Aldous agreed with Julian that such societies could not work without plans. However, human planners were not up for the task: They were not intelligent enough to make such complex plans as would be needed.¹³

Here again was the idea of the evolutionary stand-still that seemed to haunt Julian. A progressive organism, he explained in *Evolution: The Modern Synthesis*, could find itself "handicapped by characteristics developed in earlier phases." So it was with humankind, whose "inherited impulses" and "simpler irrational satisfactions" had become "a handicap" to its new modes of control over the environment and stood in the way of further progress.¹⁴ The human mind could not have changed appreciably since the time of the Aurignacian cave-dwellers.¹⁵ This cave-dweller mind had then suddenly found itself thrown in the midst of a highly complex and modern society. In his Galton Lecture of 1962, Huxley would speak of a "shortage of brains" capable of dealing with the complexities of the modern world. Modern administration, technology, and planning required formidable brainpower. As of now, humankind attempted in vain to find political, economic, and social solutions, managing only "ad hoc patching up" of problems.¹⁶

Cultural evolution was working so fast that the human species could not keep up; its biological heritage did not fit into the modern culture. The nuclear bomb was a new, clear expression of the inadequacy of the human brain: "Our brains were evolved to react to and cope with relatively small-scale and immediate problems: they are simply unable to react meaningfully to problems of a much higher order of magnitude."¹⁷ In

¹²Huxley 1942: *Evolution: The Modern Synthesis*, 576–77.

¹³Huxley, Aldous (1969, 454–55).

¹⁴Huxley 1942: *Evolution: The Modern Synthesis*, 574–75.

¹⁵Huxley 1957: "A Re-Definition of Progress," *New Bottles for New Wine*, 23.

¹⁶JSH Papers, RU, MS50, 101:4. Huxley 1962: "Eugenics in Evolutionary Perspective," paper delivered as The Galton Lecture in London, 6 Jun. 1962, and published in *The Eugenics Review*, 1962, vol 54, no. 123, as well as in *Perspectives in Biology and Medicine*, 1963, vol. 6, no. 2: 155–85.

¹⁷Huxley 1971: "Science and Synthesis," 34.

1969, Huxley and Nicholson described what they saw as the human “Frankenstein tendency” to lose control over inventions; the inventions outran human powers of forethought and carried us toward disaster.¹⁸ Huxley spoke of humans being imprisoned in a mental cage, whose bars were the constrictions of our own primitive thinking.¹⁹

In another letter during the war, Aldous had confided to his brother concern about the human individuals who were “constitutionally aggressive.” How could these power-grabbing, risk-taking, and dominant humans be prevented from wrecking the world? Economic or political rearrangement would not change the nature of these “constitutional barbarians.”²⁰

Humankind’s biological heritage made itself known again as a real risk, but the horror of animality, the *bête humaine*, could not be dispelled by focusing instead on humankind’s unique characteristics. During the Second World War, Huxley entertained the frightening idea that perhaps the human beast was worse than the other animals *because* of its unique abilities. The very fact that humans were more intelligent than any other animal also gave us the opportunity of being more nonsensical and perverse. And because other animals were less advanced, they could not, Huxley wrote, experience psychological conflict. In this, too, humans were unique.²¹ Huxley explained his belief that the biological advantages conferred to humans had inevitably brought with them “certain counterbalancing defects.”²²

After the war and continually troubled by the gnawing reality of aggression, insensitivity, jealousy, and hatred Huxley asked if we must “face the question whether human nature is not fundamentally wicked. [...] Even if we are not so pessimistic as that, must we believe that, in present conditions, the evil in us is bound to gain the upper hand over the good?”²³

Huxley could not allow himself, or anyone else, to believe such a thing of human nature, and fear that it might be true drove him onward to seek

¹⁸ JSH Papers, RU, MS50, 101:10. Huxley & Nicholson 1969: “Life in 1980. Man’s Deteriorating Environment,” *The Times*, 7 Oct. 1969.

¹⁹ Huxley 1971: “The Crisis in Man’s Destiny,” 419.

²⁰ Huxley, Aldous (1969, 486–87). Aldous to Julian 4 Mar. 1943. Aldous was at this time reading William Sheldon’s book *The Varieties of Temperament* (1942).

²¹ Huxley 1941: “The Uniqueness of Man,” *The Uniqueness of Man*, 21–22.

²² Huxley 1941: “The Uniqueness of Man,” 26.

²³ Huxley & Huxley, 1947b: *Touchstone for Ethics 1893–1943*, 151.

transhuman solutions. For even if it was true that there was a natural evil embedded in human nature, there was also, as previously discussed, another truth to be derived from evolution: The human species was an unfinished product, evolutionary-wise. Huxley emphasized evolutionary movement and process. Indeed, in one of his transhumanist essays Huxley wrote that the question of “man’s place in nature” should not even be posed thusly: It presupposed a static view of humankind that was outdated. The human species was instead to view itself as a process in time.²⁴

Humankind was still young and imperfect but nonetheless equipped with unique characteristics that set humans apart from other animals. In his private notes from the 1950s, he described the human being as a “multiple animal.”²⁵ This gave Huxley’s transhuman view of humanity certain plasticity, biologically and by extension philosophically. Human nature did not have to remain locked in place between the beasts and angels; it did not have to remain unchanged.²⁶ Perhaps the one redeeming quality of human being was that they were infinitely malleable. Such an evolutionary promise of future possibilities instilled hope into the otherwise quite bleak picture of the human condition, especially during times of crisis. With the Second World War raging, Huxley had written that although it was true that war and warring behavior seemed to be an extension of human behavioral nature, that did not mean that the human species was doomed to forever keep on throwing itself into destructive wars. The basic quality of human nature was, according to Huxley, its plasticity. Indeed, human nature was marked by an “absence of unalterable instincts.”²⁷

Animals below humans were more instinctive and less plastic. Behavior in all living creatures besides humans was essentially irrational.²⁸ What made humans unique were their abandonment of rigidity of instinct and their conceptual thought and language use.²⁹ And yet, the great majority of human beings were “sub-standard.”³⁰ Even the most fortunate people

²⁴ Huxley 1957: “Knowledge, Morality, and Destiny,” 246.

²⁵ JSH Papers, RU, MS50, 71:6. Notes, 1950s.

²⁶ Huxley 1943: “Human Nature IS Changing,” *Daily Herald*, 28 Sept.

²⁷ Huxley 1940: “Science, War and Reconstruction,” *Science*, 151–58.

²⁸ Huxley 1941: “The Uniqueness of Man,” *The Uniqueness of Man*, 7, 20.

²⁹ Huxley 1941: “The Uniqueness of Man,” 6–7.

³⁰ Huxley 1953: *Evolution in Action*, 171.

were living far below capacity.³¹ The primary problem seemed to be that of “the massive imperfection of man as a species.”³²

According to Huxley, humankind was now forced with the task to use its unique abilities to modify or abandon characteristics developed in earlier phases to realize a new phase of evolution: “The evolutionary biologist is tempted to ask whether the aim should not be to let the mammal die within us, so as the more effectually to permit the man to live.”³³ Human improvement was necessary if the human species wished to avoid disaster.³⁴ And the matter was urgent. It was necessary to realize “the maximum progress in the minimum time.”³⁵

7.2 THE FIX

The post-World Wars Huxley managed at times to sound almost as revolutionary as Trotsky had done in the 1920s. In his transhumanism essay, Huxley expressed a belief in a coming uprising. The revolt would begin “by destroying the ideas and the institutions that stand in the way of our realizing our possibilities.”³⁶ In 1951, Huxley suggested that the general crisis of thought and lack of unity in modernity be solved by formulating a new common enemy for humanity. The common enemy would be “the baser nature of man, and also the things that frustrate his development.”³⁷

Of course, the idea of humanity transcending its baser nature can be used to mean many things. It can be utilized in an older humanist or Enlightenment tradition of a spiritual or rational ascension. It is important, however, to emphasize the fact that Huxley’s transhumanism cannot fully be understood to revolve around transcendence as a metaphysical concept, either in those traditions or in the tradition of, for example, the German romantic idea of a leap into a higher state of consciousness.

Transcendence in Huxley’s sense of the word involved biology. When he wrote that transhumanism was the idea of humanity transcending,

³¹ Huxley 1957: “Transhumanism,” 15.

³² Huxley 1964: “Eugenics in Evolutionary Perspective,” *Essays of a Humanist*, 254.

³³ Huxley 1942: *Evolution: The Modern Synthesis*, 575.

³⁴ Huxley 1971: “Science and Synthesis,” 33.

³⁵ Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 12.

³⁶ Huxley 1957: “Transhumanism,” 15.

³⁷ Wilson (1951, 172). Interview with Huxley.

attempting to overcome its limitations to arrive at fuller fruition through processes of self-transformation, he was also speaking of humans physically transforming and transcending.³⁸

The idea of enhancing and fitting humankind into a modern or future society did not leave Huxley after the Second World War. Rather, it intensified. He continued to be involved in the eugenics movement after the war and serving as President of the British Eugenics Society from 1959 to 1962.³⁹ He still believed that eugenics might “eventually provide an overriding, long-term human motive.”⁴⁰

Further advance in the world (national or international) relied on raising the genetic level of human’s intellectual and practical abilities. The goal was still to take control of human nature.⁴¹ The revolt was perhaps not so much political as it was existential. As historian Roger Griffin has suggested, eugenics could not only be seen as a tool for (short-term) technocratic social engineering, but also as a solution to a spiritual crisis of civilization.⁴²

The “non-natural selection” had to be planned to be effective, and since cultural evolution happened in such a fast tempo (“many thousands of times faster than biological transformation”), the planned artificial selection had to operate at a very high speed in order to prevent disaster and produce improvement.⁴³ Because of the urgency, Huxley would recommend that large amounts of scientific resources, money, manpower, and prestige be reallocated to the study of the technics of human improvement.⁴⁴ There was need for a “science of human possibilities” and “professorships in the exploration of the future.”⁴⁵

In the 1960s and 1970s, Huxley would also point to the fact that biological and medical research had now definitely provided the tools necessary for human improvement. He imagined that the then brand-new oral contraceptive pill would be used to effectively hinder natural reproduction. He advised separating the functions of sex–love and reproduction,

³⁸ Huxley 1951: “Knowledge, Morality, Destiny,” *Psychiatry*, 139.

³⁹ Renwick (2016).

⁴⁰ Huxley 1951: “Knowledge, Morality, Destiny,” *Psychiatry*, 149.

⁴¹ Huxley 1963: “The Future of Man: Evolutionary Aspects,” 5–6.

⁴² Griffin (2013, 80–81).

⁴³ Huxley 1964: “Eugenics in Evolutionary Perspective,” 263.

⁴⁴ Huxley 1971: “Science and Synthesis,” 33.

⁴⁵ Huxley 1971: “The Crisis in Man’s Destiny,” 415.

and, at a time when the first IVF-birth was still years in the future, advocated artificial insemination by selected donors, choosing deep-frozen sperm of “outstanding male donors” or the grafting of ova from “admired female donors.”⁴⁶

Meanwhile, consensus around eugenics had collapsed, beginning in the mid-1940s.⁴⁷ The possibility of a eugenic program was criticized on scientific as well as on political grounds. Due in no small part to the events of the Second World War, several commentators had begun to see a real problem with Huxley’s eugenic quest. Additionally, the scientific realization of a much larger proportion of genetic variability in natural populations than had been suspected complicated matters. Since diversity must be advantageous, it became increasingly difficult to imagine any form of “breeding program” for humans.⁴⁸

Huxley was criticized from within the scientific community. In 1958, experimental zoologist Lancelot Hogben stated that the claims of the eugenic viewpoint were inadequate and overrated the possibilities of genetics in policies of preventive medicine.⁴⁹ Medawar made a similar point in his Reith Lecture *The Future of Man* (1959), wherein he warned against any sweeping conclusions made from genetics and evolution. If anything, genetic research had led to the realization of just how complex the human genetic makeup really was. He urged fellow scientists who were eugenicists to update and rethink their positions: “Twenty years ago it all seemed easy.”⁵⁰ In a critique that almost seemed aimed directly at Huxley, Medawar said that it was unscientific to make predictions about the destiny of humankind: “It is not true that we now know how to control our own evolution—if by ‘control’ is meant directing it towards a predetermined goal.”⁵¹

⁴⁶ Huxley had been, in part, inspired by Herman Muller’s *Out of the Night* (1935), that had advocated artificial selection by selected donors, see Huxley 1962: “Eugenics in Evolutionary Perspective”; Huxley 1971: “The Crisis in Man’s Destiny,” 414; Huxley 1942: *Evolution: The Modern Synthesis*, 573; Huxley 1963: “The Future of Man: Evolutionary Aspects,” 17–21.

⁴⁷ Paul (1984, 574–75).

⁴⁸ Paul (1984, 587).

⁴⁹ Essay from 1958, published in Hogben (1963, 68 ff).

⁵⁰ Medawar (1959, 61).

⁵¹ Medawar (1959, 64–65). Huxley had saved a copy of a review from *Heredity* of Medawar’s *The Future of Man*, and had underlined incessantly in it, see JSH Papers, RU, MS50, 139:4. *Heredity*, Dec. 1960, vol. 15: 441–46.

The critique continued. In 1965, Dobzhansky accused his colleague Huxley of being unscientific, stating that no serious scientist would advocate a program of genetic improvement of humanity before there was more detailed knowledge of human genetics.⁵² Biologist Alfred E. Mirsky (1900–1974) reviewed Huxley’s *Essays of a Humanist* in the *Scientific American* in 1964.⁵³ In the review, Mirsky accused Huxley of lacking in humane feeling and for being uncritical in his thinking about eugenics. Mirsky felt Huxley did not consider the great risks of irreversibly changing the biological character of the human species. In addition, Galton’s old philosophy could not be sanitized from racism and class prejudice. Mirsky ended his retort by suggesting that Huxley should be considered a pseudo-scientific political actor rather than a scientist.⁵⁴

Huxley was aware of the critique of eugenics. He had personally criticized it of constantly being in danger of becoming a pseudoscience based on preconceived political ideas or on assumptions of racial or class superiority and inferiority.⁵⁵ Nonetheless, he continued to defend his position. He went so far as to compare the plight of a eugenic program to other reform and social justice movements. Just as eugenicists now faced opposition, there had been opposition to birth control and to legal reforms concerning homosexuality as well. This opposition, Huxley claimed, sprung from tradition and prejudice. However, such prejudices could be dispersed and people’s attitudes toward new technologies and their applications be changed.⁵⁶

Following the unflattering characterizations of him, Huxley wanted to emphasize that he was and had for a long time been highly critical of all racist theories as well as of failures to recognize that genetic and social improvement were inextricably linked.⁵⁷ Indeed, he now stated that any thinking of humans in groups was potentially problematic, whether done through the lens of class theory, racialism, nations, or ethnic groups.⁵⁸

⁵²Dobzhansky 1965: “Letters,” *Scientific American*, vol. 212, no. 3: 8.

⁵³Mirsky (1964).

⁵⁴JSH Papers, RU, MS50, 101:6. Mirsky responds to Huxley in *Scientific American*, “Letters,” Jan. 1965.

⁵⁵Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 37–38.

⁵⁶JSH Papers, RU, MS50, 138:1. “How Can Man Improve Man?” *New Scientist*, 14 Jun. 1962.

⁵⁷JSH Papers, RU, MS50, 101:6. Huxley responds to criticism. “Letters,” *The Scientific American*, Jan. 1965, 6–9.

⁵⁸Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 7.

Huxley wanted his transhumanism to concern and be concerned with all of humankind. Such an evolutionary religion, he believed, could help condemn systems that repudiated universalism and reverted to group ethics (like Nazism).⁵⁹ This also went into his eugenic plans. All humans shared the same “genetic potentialities.”⁶⁰ Eugenics had to work toward an all-round general genetical improvement of the species in its entirety.⁶¹

The period after the Second World War saw Huxley clearly veering toward a focus on the individual, universally, speaking of the need for “a fundamental respect for the human individual” and encouraging “in every possible way the fullest development of the individual.”⁶² He simultaneously toned down some of his more pronounced technocratic sentiments, as grand dreams of societal transformation gave way to self-transformation. In relation to this development, it is interesting to note Fuller’s suggestion that the Fabian-related technocratic thinking of the first half of the twentieth century, that regarded the human being as investable capital in an economic approach to welfare policy—with its focus on sex education, family planning and healthcare provision, educational testing, etc.—was a seed that eventually evolved into the idea of “human capital” associated with neo-liberalism.⁶³

In his UNESCO pamphlet, Huxley wrote that a future world philosophy needed to stress the principles of human dignity, equality, and mutual respect, and so could not view the State as a higher or more important end than the individual.⁶⁴ The “new philosophy” should focus on human individuals and treating all individuals as equals.⁶⁵ In private notes, Huxley wrote that he hoped transhumanism would convey the notion that not

⁵⁹ Huxley & Huxley 1947a: *Evolution and Ethics, 1893–1943*, 134.

⁶⁰ Huxley 1964: “Eugenics in Evolutionary Perspective,” 258–59.

⁶¹ See, for example, Huxley 1941: *The Uniqueness of Man*, 38.

⁶² FR PUNES AG 06-DG, subseries Speeches by the Director-General, 6 Dec. 1946–9 Dec. 1948, Sir J. Huxley. 10 Dec. 1948–15 Dec. 1948. Dr. Torres Bodet, BBC broadcast about Unesco, Nov. 1946.

⁶³ Fuller (2018, 199, 202); see also Mills (2016, 90–1). Smocovitis, discussing the *Modern Synthesis*, stated that Huxley’s evolutionary framework sustained and justified a moderate liberal ideology, see Smocovitis (1996, 145).

⁶⁴ Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 7; see also Huxley & Huxley 1947b: *Touchstone for Ethics 1893–1943*, 138; and Huxley 1953: *Evolution in Action*, 164–66.

⁶⁵ Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 7. See also FR PUNES AG 06-DG, subseries Speeches of the Director General, 6 Dec. 1946–9 Dec. 1948. Sir J. Huxley, 10 Dec. 1948–15 Dec. 1948. BBC broadcast about UNESCO, Nov. 1946.

only humankind collectively, but also the individual needed to be constantly transcending himself and his past achievements.⁶⁶

Huxley the biologist had always believed in the primacy of the (human) individual. In his political thinking, however, he had not been much inclined to emphasize individualism up until after the Second World War. He now believed that the development of human personalities was “one of the most important ways in which the cosmic process fulfills itself” and that any individual who engaged in self-enhancement should therefore not feel that it was a selfish act but rather one of virtue.⁶⁷

With the newfound focus on the primacy of the human individual Huxley started discussing a future society and a eugenics program directed toward the enrichment of the human individual and that helped aiding the individual in his or hers self-development.⁶⁸ Humankind could not be improved by methods of “stock breeding,” but eugenic improvement could occur by consent through a combination of persuasion, education, and good leadership.⁶⁹ Muller, who came to Huxley’s defense regarding this topic, spoke of a modern eugenics accommodating free choice and voluntary action.⁷⁰

In the attempt to improve the human species, fruitful diversity had to be retained. The idea was to raise the “level of excellence” in a variation of different traits.⁷¹ Huxley suggested the mottos of *Free but Unequal* and *Varied Excellence*.⁷² The more individuals there existed with fully developed desirable traits, the more health, vigor, knowledge, wisdom, happiness, and beauty, the better the “common pool” of hereditary traits would work.⁷³

⁶⁶ JSH Papers, RU, MS50, 68:1–3. Notes 1950, undated scrap of paper.

⁶⁷ Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 266.

⁶⁸ See, for example, Huxley 1936: “Eugenics and Society,” 18–19; Huxley 1941: *Democracy Marches*, 116; Huxley 1941: *Reconstruction and Peace: Needs and Opportunities*, 22; Huxley 1953: *Evolution in Action*, 165; and Huxley 1959: *Religion Without Revelation*, 219.

⁶⁹ JSH Papers, RU, MS50, 138:1. “How Can Man Improve Man?” *New Scientist*, 14 Jun. 1962.

⁷⁰ Muller (1965).

⁷¹ JSH Papers, RU, MS50, 101:4. Huxley 1962: “Eugenics in Evolutionary Perspective,” paper delivered as The Galton Lecture in London, Jun. 6, and published in *The Eugenics Review*, 1962, vol 54, no. 123, as well as in *Perspectives in Biology and Medicine*, 1963, vol. 6, no. 2: 155–85.

⁷² Huxley 1963: “The Future of Man: Evolutionary Aspects,” 19.

⁷³ Huxley & Huxley 1947b: *Touchstone for Ethics 1893–1943*, 139.

Huxley prophesized that the central overriding aim in the future would be that of fulfillment and that the struggle for existence should be replaced by the striving for fulfillment.⁷⁴ In the 1960s, he demanded that we “replace the idea of the Welfare State by the Fulfillment Society.”⁷⁵ This Fulfillment Society should work toward fulfilling the human individuals’ need for actualization, satisfaction, progress, and transcendence.

7.3 *HOMO HUMANUS* AND POSTHUMANS

Back at the International Eugenics Congress of 1921, the American biologist Raymond Pearl (with whom Huxley corresponded) had initiated the conference by posing the question to his fellow eugenicists: “What kind of people are they to be who will then inherit the earth?”⁷⁶ In 1969, Huxley and Nicholson promised that when humankind had learned to master their animal past they would “emerge into enlightened freedom.”⁷⁷

The question is what they ultimately meant by that. Did Huxley believe his vision—and the enhancements he proposed in practice—to be compatible with our humanity, that is, would our humanity withstand this modification? Put in another way, would we remain human, or become something else—something posthuman?

Huxley had stated, apropos the need for a new religion, that the moral of evolution was that thought evolved equally with life. The existing religious systems of the world were products of “humanity’s childhood or of his adolescent thinking,” and necessary as they may have been, they were not for that reason final.⁷⁸ Perhaps transhumanism, then, was to be the religion for the grownup?

In a form of updated version of Immanuel Kant’s *What Is Enlightenment?* (1784) Huxley, as a recurring figure of speech, presented the image of humankind growing up. Kant had intended for humans to trust their capacity to reason on their own, learning to think for themselves without looking to others for authority and guidance. To this, Huxley added

⁷⁴Huxley 1955: “Man’s Place and Role in Nature,” 96; Huxley 1963: “The Future of Man: Evolutionary Aspects,” 3.

⁷⁵Huxley 1971: “Science and Synthesis,” 36.

⁷⁶Connelly (2008, 59).

⁷⁷Huxley & Nicholson 1969: “Life in 1980. Man’s deteriorating environment,” *The Times*, 7 Oct.

⁷⁸Huxley 1927: *Religion Without Revelation*, 349.

looking at the issue from an evolutionary standpoint that saw an immaturity of the species. As already discussed, he believed that humankind was in its evolutionary infancy.⁷⁹ He developed this idea into a poetic evolutionary parable:

I would compare the present stage of evolving man to the geological moment, some three hundred million years ago, when our amphibian ancestors were just establishing themselves out of the world of water. [...] No longer buoyed up by water, they had to learn how to support their own weight; [...] they had to learn to crawl with clumsy limbs. [...] On the other hand, they had emerged into completely new freedom. [...] Could the early Stegocephalians have been gifted with imagination, they might have seen before them the possibility of walking, running, perhaps even flying over the earth. [...] They could have seen the promised land afar off, though but dimly through their bleary newish eyes. But they would also have seen that, to reach it, they would have to achieve many difficult and arduous transformations of their being and way of life.⁸⁰

Undesirable traits in the mental makeup of humans constituted “drags on our passage towards true maturity.”⁸¹ Apart from the evolutionary viewpoint, this was also an expression of the previously mentioned “Victorian mindset” of responsibility and control. In *If I Were Dictator*, Huxley had pictured humankind as being in its late adolescence. To emerge into fully maturity, humankind had to “assume the full responsibility of an adult.”⁸² In the early 1950s, Huxley promoted human enhancement by reminding that the grown individual had duties, to society and to him- or herself.⁸³

Up until now human life had generally been nasty, brutish, and short. The majority of human beings had died young or been afflicted by misery in one form or another: poverty, disease, ill-health, over-work, cruelty, oppression. Humans had attempted to lighten their misery by means of their hopes and ideals, but these had generally been unjustified and had

⁷⁹ See as an example, JSH Papers, RU, MS50, 100:1. “The Human Phenomenon,” *Encounter*, Apr. 1950, 85; Rioch (1951, 128).

⁸⁰ Huxley 1964: “The Humanist Frame,” *Essays of a Humanist*, 80.

⁸¹ Huxley & Huxley 1947b: *Touchstone for Ethics 1893–1943*, 153–54.

⁸² Huxley 1934: *If I Were Dictator*, 10; Crowther (ed.) 1934, 381–82; see also Huxley 1927: *Religion Without Revelation*, 322.

⁸³ Huxley 1953: *Evolution in Action*, 166.

failed to correspond with reality. Now instead, through science, our hopes could become rational, promised Huxley.⁸⁴

Sociologist and philosopher Erich Fromm (1900–1980) wrote in 1959 that humans are driven by the urge to transcend the role of the creature.⁸⁵ Huxley believed controlling human evolution would lead to the “full ‘humanizing’ of our evolution.”⁸⁶ And perhaps this was also what was intended when Teilhard de Chardin called for a “nobly human form of eugenics.”⁸⁷ It is clear that Huxley had a different kind of evolutionary change in mind than mere survival and adaptation to immediate circumstances. The new standards should be set higher.⁸⁸

Ethicist and political philosopher Jean Bethke Elshtain saw in modern projects of human enhancement a fundamental rejection of the sphere of the “unchosen” and an enlargement of the sphere of “control-over.” She suggested that biotechnology is the latest manifestation of a project to perfect the human body and overcome human finitude. The body has been turned into a commodity malleable in the hands of modern technique. The goal is the elimination of imperfection, inconvenience, and risk.⁸⁹

Huxley sought to remove inherited deficiencies of mind and body and to eliminate, through policies of negative eugenics, those who fell below the perceived standard. He continued to openly propagate for discouraging “genetically defective” or “inferior” “types” from having children.⁹⁰ Huxley viewed this as a way of ameliorating suffering, but his eugenics and his transhumanism was also clearly an expression of what Sagoff has described as “an enlargement of the sphere of control-over,” related to the very human unwillingness to accept the fact that things cannot always be only what we have chosen and/or created.⁹¹

⁸⁴ Huxley 1957: “Transhumanism,” 16.

⁸⁵ Fromm (1959, 153).

⁸⁶ Huxley 1973: *Memories II*, 244.

⁸⁷ Teilhard de Chardin (1959, 282–83).

⁸⁸ Huxley 1941: “The Uniqueness of Man,” 32.

⁸⁹ Bethke Elshtain (2005).

⁹⁰ See, for example, Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 17–19; and JSH Papers, RU, MS50, 101:4. Huxley 1962: “Eugenics in Evolutionary Perspective,” The Galton Lecture, published in *The Eugenics Review* (54:123, 1962) and in *Perspectives in Biology and Medicine* (6:2, 1963), 155–85.

⁹¹ An unwillingness discussed by Sagoff, although not in relation to Huxley, see Sagoff (2005, 82–84).

Control was a goal in and of itself, because it would lead to greater freedom, and, by extension, greater happiness or at least less suffering. “Most of us,” Huxley had claimed, “would like to live longer; to have healthier and happier lives; to be able to control the sex of our children when they are conceived, and afterwards to mould their bodies, intellects and temperaments [...]”⁹² Transhumanism promised that these wants, these dreams of control, could be realized.

If modernity’s dream was a human mastery over the natural world, was the transhumanist dream, then, of a human mastery over human nature? Humankind had discovered that control of its own evolution was possible. Realizing this, wrote Huxley, it would be “aiming at the control of control itself.”⁹³ Perhaps controlling evolution could lead humankind to that completely autonomous state of which Zarathustra had spoken when he exclaimed, “Accidents cannot happen to me.” That would then mean not being subjects to chance and chaos any longer.

“The world in which we live is hatefully imperfect,” wrote Huxley.⁹⁴ Congenital disorders, physical disaster, unmerited suffering, and the early death of loved ones were “cosmic injustices” that represented the persistence of chance and its amorality into human life. Although we would never be able to abolish all suffering, Huxley firmly believed we could gradually remove these injustices: “Man is the heir of evolution: but he is also its martyr. All living species provide their evolutionary sacrifice: only Man knows that he is a victim.”⁹⁵ But the present limitations and miserable frustrations of our existence could be in large measure surmounted.⁹⁶

At one point, Huxley outright rejected the notion that good could not exist without evil any more than light could exist without shadow. Light, he wrote, *could* exist without shadow: “In the natural conditions of this planet light does involve shadow; but in [...] artificial situations which we could readily create, a shadowless illumination would be possible.”⁹⁷ Huxley’s shadowless illumination is reminiscent of something he had said years earlier; that transcendence could be understood by science, be “democratized,” and made available to all who wished for it.⁹⁸

⁹² Huxley 1932: *What Dare I Think?*, 5.

⁹³ JSH Papers, RU, MS50, 67:3. “Evolution Lecture no. 2,” 1949.

⁹⁴ Huxley & Huxley 1947: *Touchstone for Ethics 1893–1943*, 148.

⁹⁵ Huxley & Huxley 1947: *Touchstone for Ethics 1893–1943*, 155.

⁹⁶ Huxley 1957: “Transhumanism,” 16.

⁹⁷ Huxley & Huxley 1947: *Touchstone for Ethics 1893–1943*, 152.

⁹⁸ Huxley 1923: “Science and Religion,” 322–24.

Huxley imagined enhancement of human capacities. In relation to such a goal, he was attempting to define a human essence to be molded by science. In his private notes from this time, he listed as uniquely human satisfactions artistic creation, religious ecstasy, athletic achievement, enjoyment of natural beauty, intellectual understanding, participation in ennobling rituals, the satisfactions derived from pictures and fine buildings, or architecture, or music, or the ecstasy of love.⁹⁹

All these capabilities, and any other distinctly human activities, were, Huxley believed, based on “conscious processes, knowledge, purpose and conscious choice.”¹⁰⁰ Following that belief, Huxley focused on the improvement of the feeling, thinking brain. In *Evolution: The Modern Synthesis*, he had claimed that the most important aspect to enhance was the brain’s level of performance. Although a main goal appears to have been increased intelligence, it was not the only thing that needed to be enhanced. The “brain’s level of performance could be genetically raised—in acuteness of perception, memory, synthetic grasp and intuition, analytic capacity, mental energy, creative power, balance, and judgment.”¹⁰¹

Huxley continued to be certain that the human brain could, and should, be enhanced through deliberate measures.¹⁰² An increase in intelligence would, to Huxley’s mind, mean “greater disinterestedness and fuller control of emotional impulse.”¹⁰³ As previously discussed, the idea of learning to control human emotional impulse was seen as a possible solution to the problem of human aggression and egotism, traits that stood in the way for the cooperation needed in a modern and future society.

In 1940, Aldous and Julian had discussed what constituted the “Ideal Man.” Was it the Renaissance man, the seventeenth-century *honnête homme*, the eighteenth-century *philosophe*, or perhaps the very respectable man of Victorian England? For the twentieth century, Julian had proposed the “Social Man” as a new ideal.¹⁰⁴ A few years later, he used this concept in *On Living in a Revolution* (1944): The new phase of human history

⁹⁹ JSH Papers, RU, MS50, 68:5–6, folder 5. Notes from 1950, “Population and Human Destiny.”

¹⁰⁰ Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 9.

¹⁰¹ Huxley 1942: *Evolution: The Modern Synthesis*, 574.

¹⁰² See, for example, Huxley 1946: *UNESCO: Its Purpose and Philosophy*, 10; and Huxley 1957: “A Re-Definition of Progress,” 23.

¹⁰³ Huxley 1942: *Evolution: The Modern Synthesis*, 573.

¹⁰⁴ Huxley, Aldous ((1969, 463–64).

should be styled “the Age of Social Man.”¹⁰⁵ On a similar note, L. L. Whyte had foreseen the coming of a new “Unitary Man” and Teilhard saw a trend toward unification, toward a more “social mankind,” spreading out on the globe and becoming more social, and to a greater extent organized.¹⁰⁶

As previously explored, the idea of a more social human being went into Huxley’s eugenics as well. Notwithstanding his new focus on the individual, and completely disregarding the message of his brother’s *Brave New World*, he brazenly suggested that future eugenic measures may develop “true castes,” and that those castes might be endowed with altruistic and communal impulses.¹⁰⁷ In his Galton Lecture of 1962, Huxley spoke of improving (among other things) human cooperative effort.¹⁰⁸ “Psychotechnology” would correct the “unfortunate tendencies” of the human mind, such as aggression, thoughtlessness, and hatefulness.¹⁰⁹

Driving onward with the “human essence,” Huxley also considered genetically improving musical or mathematical gifts and suggested a eugenic raising of the genetic level of exploratory curiosity, of disciplined creative imagination, of the capacity to see social and political situations as wholes, to take long-term instead of short-term views.¹¹⁰

At certain times, it did sound as if Huxley imagined that there was a fixed store of human innate potential that could be developed through eugenics and through other imagined scientific methods: He spoke of a wish to master biology in order to raise “the entire level of innate human possibilities and capacities.”¹¹¹ In one of his transhumanism essays, he called for a new Columbus to explore the vast New World of uncharted human possibilities.¹¹² In other words, the possibilities already existed but needed to be discovered and brought out into the light.

¹⁰⁵ Huxley 1944: *On Living in a Revolution*, 5.

¹⁰⁶ Burdett (2011, 29).

¹⁰⁷ Huxley 1942: *Evolution: The Modern Synthesis*, 573.

¹⁰⁸ JSH Archive, Series XI, 138:1. “How Can Man Improve Man?” *New Scientist*, 14 Jun. 1962.

¹⁰⁹ Huxley 1963: “The Future of Man: Evolutionary Aspects,” 10.

¹¹⁰ Huxley 1942: *Evolution: The Modern Synthesis*, 574; JSH Papers, RU, MS50, 68:5–6, folder 6. Notes from 1950; Huxley (1964, 255–56).

¹¹¹ Huxley 1957: “Evolutionary Humanism,” 306.

¹¹² Huxley 1957: “Transhumanism,” 14–15. Here, Huxley was speaking of his belief that Great Men of the past had shown what the human mind was capable of in way of intellect, spirit, and artistic creation, and seemed to ask the reader to imagine a world where every man and woman was such a genius.

Despite Huxley's best transhumanist effort to envision a future truly humane human being, he received critique on the very ground that his vision ran serious risk of becoming a denial of human nature. Anglican bishop and academic Ian T. Ramsey (1915–1972) charged Huxley with having a disastrous and tyrannical concept of humankind.¹¹³ Following Huxley's Galton Lecture, several critics accused Huxley of being cold-blooded in his denial of human nature.¹¹⁴

Theologian E. L. Mascall (1905–1993) granted that Christian theology endorsed the uniqueness Huxley attributed to humans. However, when Huxley suggested using the power humankind had attained through science to control its own future, Mascall had to strongly object:

What secularised man may do with himself, what monstrous organisms he may produce from human genetic material, and what may be his chances of survival we can only guess [...]. But, although science can raise the question 'What should man try to become?' [...] it clearly cannot give an answer.¹¹⁵

So, what *should* humans try to become? In his autobiography, Huxley referred to ethologist Konrad Lorenz's (1903–1989) book *On Aggression* (1966). The passage he quoted was one where Lorenz found solace in the fact that humanity would evolve: "When I consider that our ancestors, at a time fairly recent in relation to the earth's history, were perfectly ordinary apes [...] I see a glimmer of hope. It does not require considerable optimism to assume that from us human beings something better and higher may evolve. [...] I assert [...] that the long-sought missing link between animals and the really humane being is ourselves!"¹¹⁶

Lorenz's idea of humans being the missing link between animals and the really humane being resonated with Huxley, because it went in line with what he had believed since the interwar period. Boastfully calling ourselves *Homo sapiens*—the Wise one—we yet did not know what to do with the knowledge.

¹¹³JSH Papers, RU, MS50, 138:1. "Letters: Readers Reply to Last Week's Article by Sir Julian Huxley," *The Observer*, 10 Sept. 1961.

¹¹⁴JSH Papers, RU, MS50, 138:1. "Breeding for Brains," *The Observer*, 7 Jun. 1962. Several comments on Huxley's eugenic proposition; JSH Papers, RU, MS50, 138:1. "Huxley's Recipe for Supermen," *The Christian*, 15 Jun. 1962.

¹¹⁵JSH Papers, RU, MS50, 138:1. "Science and God," *The Observer*, 17 Jul. 1960, Mascall on Huxley's ideas.

¹¹⁶Lorenz (1966, 229).

What Huxley did not pick up from Lorenz, however, was modesty in suggested solutions. Lorenz did speak in his book of the “need to control” human instincts, as well as human emotional allegiances to cultural values. The best option, Lorenz had suggested, was to do so by giving aggression substitute outlets, redirecting it through sports and art. Lorenz himself did not see eugenics as a good option, because he believed aggression to be an important motivating impetus in a great many human behaviors and that it would therefore be inadvisable to attempt to breed the aggression out of people.¹¹⁷

As discussed here, Huxley believed otherwise. Humankind needed to decide which of our natural propensities we should fight and which we should accept and then start changing human nature. Time to, Huxley declared, “graduate from *Homo sapiens* to *Homo humanus*.”¹¹⁸ In a similar manner, in his transhumanism essay he had spoken of a future existence “as different from ours as our is from that of Peking Man.”¹¹⁹ The Peking Man is a subspecies of *Homo erectus*, a now extinct species of archaic human. Although Huxley certainly expressed himself thusly because it was an effective figure of speech, the phrasing in combination with the fact that he really was entertaining possibilities of changes in the genetic constitution of the species points to the prospect of imagining the posthuman.

Posthumanism today and as a larger field of philosophical enquiry relates more generally to a (critical) re-conceiving of the human.¹²⁰ Within this study’s context, the posthuman relates to the imagining of a state beyond what is currently defined as human. Additionally, this posthuman state is attained, or imagined to be brought about, through biological, technological, or other scientific methods, often in combination with an evolutionary idea. There are countless suggestions for what such a posthuman would be and how far the imagined enhancements would take us. In its more extreme interpretation, the posthuman is a being that no longer belongs to the species *Homo sapiens*. In such scenarios, humanity would either go extinct and be replaced, or would go on to coexist alongside this new imagined posthumanity.

¹¹⁷ Lorenz (1966, 274, 277–81).

¹¹⁸ Huxley 1973: *Memories II*, 259.

¹¹⁹ Huxley 1957: “Transhumanism,” 17.

¹²⁰ Posthumanism and transhumanism are also discussed in Sect. 9.4.

It was these kinds of ideas the writer and literary scholar C. S. Lewis (1898–1963) had in mind when he warned of a coming state of “Post-humanity.”¹²¹ If “Man” through eugenics, pre-natal conditioning, and applied psychology learned finally to “obtain full control over himself,” it would mean the abolition of what was human: “*Human* nature will be the last part of Nature to surrender to Man. [...] The battle will indeed be won. But who, precisely, will have won it?”¹²²

Zakariya has claimed that the “trans-” Huxley had in mind in relation to his transhumanism did not refer to a desire to reach a posthuman stage. As mentioned previously, Zakariya saw in Huxley’s transhumanism the idea of a fixed store of human potential to be developed through transcendence of national, cultural, and ethical boundaries, but concluded that it did not celebrate “endless human plasticity.”¹²³

Considering what has been discussed throughout these chapters, Zakariya’s point can be revised. Huxley clearly believed in human plasticity and as stated above, his transhumanism at least pointed toward the post-human. Something certainly was to be surpassed to attain something else. If humans were not static, as Huxley was wont to say, but instead a process in time—what then was human nature and was it even possible to define an essence? In somehow becoming that future humane and totally conscious being, humankind would transcend nature, but also transcend itself.

Huxley painted a striking picture wherein humanity waged war with itself. Humankind, he said, was the only agent for realizing progress by controlling evolution. But humankind was also the main obstacle in the path of its realization: “The hostile outer world was his first obvious adversary; but the only opponent ultimately worthy of his steel is himself.”¹²⁴

Others around Huxley had certainly entertained the posthuman idea. In *The World the Flesh and the Devil*, Bernal had imagined “the splitting of the human race”: “one section developing a fully-balanced humanity, the other groping unsteadily beyond it.”¹²⁵ Near the end of his own life, Wells wrote that *Homo sapiens* in its present form was played out; the human

¹²¹ Lewis (1947, 47).

¹²² Lewis (1947, 37).

¹²³ Zakariya (2016, 277).

¹²⁴ Huxley 1957: “Knowledge, Morality, and Destiny,” 268; Huxley 1953: *Evolution in Action*, 163.

¹²⁵ Bernal (1929, 72).

story had come to an end. He instead imagined humankind giving place to some other animal better adapted.¹²⁶ If, wrote Wells in the final pages, the human species was to survive, it would demand an adaptation so great “that he must cease to be a man. Ordinary man is at the end of his tether. Only a small, highly adaptable minority of the species can possibly survive.”¹²⁷

Huxley never used the word “posthuman,” but he too could imagine a species transformation and a future stage of the process in which *Homo sapiens* had so far transcended itself that it would demand a new appellation. There was no reason to suppose, he wrote, that any particular stage in life was the last word in evolution: “[Man’s] very nature may as well be changed as that of the reptile which was transformed to mammal or the monkey-being who grew through ape to man.”¹²⁸ Not only could the average of the population be raised to the level attained by the now “best endowed,” but there was no reason “to suppose that such quantitative increase could not be pushed beyond its present upper limits.”¹²⁹ The final aim, wrote Huxley, would be the “the eugenic transformation of man’s genetic nature.”¹³⁰

7.4 CONCLUDING DISCUSSION AND REMARKS

In 1951, Huxley’s vision solidified under the name transhumanism. Solidified also was Huxley’s narrative about evolution and humankind’s role in it—the backbone of his vision. This narrative, Huxleyan or transhumanist rather than Darwinian, would, as will be shown in the next two chapters, become influential.

While consensus around eugenics had collapsed, beginning in the mid-1940s, this period also saw Huxley veering toward a focus on the individual, universally, while simultaneously toning down some of his more pronounced technocratic sentiments, replacing the Welfare State with the Fulfillment Society. This shift was to become instrumental to the survival of his vision.

¹²⁶ Wells (1945, 18–19).

¹²⁷ Wells (1945, 30).

¹²⁸ Huxley 1927: *Religion Without Revelation*, 349.

¹²⁹ Huxley 1942/1942: *Evolution: The Modern Synthesis*, 574.

¹³⁰ Huxley 1971: “The Crisis in Man’s Destiny,” 420.

The “trans-” in Huxley’s transhumanism denoted both transcendence and transformation. By the time the vision solidified, it is clear that it was—in Huxley’s mind—going to be a solution to an existential crisis. The problem of progress and the idea of the evolutionary stand-still of *Homo sapiens* put in relation to modernity motivated Huxley to promote his vision with ever-increasing fervor.

Two fundamental aspects of Huxley’s transhumanism were the ideas of conscious evolution and of accelerating evolution. It was a vision of humankind controlling evolution to transcend itself, not just spiritually but culturally, technologically, and biologically. Huxley imagined evolution as a process of transformation by which products or a product of evolution could transcend to a new evolutionary plateau. Huxley’s phases of evolution were a series of evolutionary transcendences. The appearance of the human species was a radically new phase: The human mind was now playing an instrumental part in evolution. Indeed, mankind was future evolution.

Huxley was attempting to discern a new phase in the story of life. His transhumanism wanted to re-conceive what the human species could become. Rather than wanting something other-than-human, it is perhaps more fitting to say that Huxley wanted something more human and humane, and sometimes more-than-human. This chapter argued that Huxley’s transhumanism opened for the possibility of imagining the post-human. Yet, Huxley never quite did leave humanity behind. Therefore, his vision would always contain a transhuman paradox that entailed emphasizing process and progress, encouraging evolutionary change in what was thought to be an unsatisfactory and unfinished species, while also placing great value in an understanding of the human in a humanist sense.

In 1961, one contemporary commentator likened Huxley’s vision over the years to Ovid’s *Metamorphoses*: When a man or a woman was not able to meet a challenge laid down by destiny, there was a transformation.¹³¹ There was no ultimate goal to Huxley’s transhumanism. He never visualized a journey’s end. Much like the utopias of a post-Darwinian age mentioned in Part II, Huxley instead envisioned an open-ended process going into the future. There was to be progress, toward higher levels of being, but no clear final end.

¹³¹JSH Papers, RU, MS50, 138:2. West, Rebecca 1961: “Only Human,” *Sunday Telegraph*, Sept.

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PART IV

Meeting of Transhumanisms: Huxley
and Transhumanism 2.0



CHAPTER 8

Huxley's Latest Word

Like all other new religions, and indeed all other new movements of ideas, [the religion of the future] will at the outset be expressed and spread by a small minority: but it will in due time tend to become universal, not only potentially and in theory, but actually and in practice.

Huxley 1957: "Evolutionary Humanism," 309.

In 1966, Huxley experienced his last nervous breakdown. He would take long to recover and, having just finished his autobiography in 1973, suffered a stroke. He died on February 14, 1975.¹

The Post-War period and the 1960s and early 1970s showed that time would not always be kind or forgiving to the Huxley who had proclaimed himself an imaginary dictator in the 1930s. *The Economist* reviewed Huxley's autobiography *Memories II* under the title "Don Quixote has the latest word."² Novelist and chemist C. P. Snow reviewed Huxley's first *Memories* and wrote of his "unusual independence," but also recklessness. Snow recounted the doubts within the scientific community about the

¹ Huxley, Juliette (1986, 239).

² JSH Papers, RU, MS50, 138:7. 21 Jul. 1973.

wisdom of electing Huxley into the Royal Society.³ On the 21 of June 1973, a journalist interviewed an aged Huxley and described a man still preoccupied with eugenics and genetic quality of humans. The journalist indicated the antiquated nature of Huxley's attitude: "It would be hard to imagine a doctrine more jarring to the egalitarian sensibilities of the 1970s."⁴

Considering such rather harsh sentences, one might ask what success Huxley had for his efforts. The question is whether human self-directed evolution is not more plausible today than ever before? One reviewer of Huxley's autobiography did proclaim that Huxley had been "ahead of his time."⁵ Although Huxley certainly cannot be credited for single-handedly driving the change, at least one thing is clear: Several of Huxley's dreams of a future where human propagation and norms regarding sex and reproduction would radically change did come true—and quicker perhaps than he could have anticipated.

In 1930, the mere mention by Huxley of birth control on the BBC had caused a scandal. At that time, Huxley had been rebuked by the BBC manager John Reith for profaning the ether with disgusting ideas. Then, the 1950s saw the development of the contraceptive pill. Before Huxley died, the use of birth control pills had been widely accepted and made publicly available. Huxley, who had been a Vice-President for the Abortion Law Reform Association, saw the beginnings of medical abortion becoming an alternative to surgical abortion in the 1970s. He had also been a signatory to a *Times* letter of March 5, 1958, calling for the decriminalization of homosexuality, and lived to experience the declassification of homosexuality as a mental illness in the United Kingdom in 1973.⁶ Assisted reproductive technologies such as IVF, that had only been a fantasy and a very early science in the 1920s and 1930s, became increasingly more feasible and is today commonly practiced and highly commercialized.

³JSH Papers, RU, MS50, 138:5. Snow, C. P. 1970: "Huxley Heritage," *Financial Times*, 28 May.

⁴JSH Papers, RU, MS50, 138:4. Tinker 1973: "Huxley: A Question of Genes," *New Scientist*, 21 Jun.

⁵JSH Papers, RU, MS50, 138:7. *Express & News*, 24 Aug. 1973.

⁶Dyson, A. E. 1958: "Homosexual Acts: Call to Reform Law," *The Times*, 7 Mar. 1958, 11.

Apart from scientific, technological, and normative changes there is also the fact that transhumanism did become an intellectual movement.⁷ This, however, happened unbeknownst to Huxley. In the 1970s and 1980s, the power to imagine moved from the single “inspired” individual to a larger community and their leaders.

Transhumanism today appears in various forms.⁸ As stated in the introduction, contemporary transhumanists typically do not refer at length to Huxley when speaking of their history. Instead, they stress the perennial human dream of perfectibility and enhancement. Going all out, they give recognition to such diverse figures as Prometheus, Gilgamesh, Isaac Newton, and Isaac Asimov. The various versions of the Transhumanist FAQ—explaining contemporary transhumanism as a philosophy and a movement—mentions that Huxley coined the word transhumanism, but states that he did not use it in the contemporary sense of the term.⁹

Meanwhile, academics like Bashford, Tirosh-Samuels, and Fuller have suggested connections between Huxley and contemporary transhumanist endeavors. For historians of ideas and science, the focus has been on the possible or stated continuity of eugenics. Bashford, for example, has suggested that Huxley is “the direct link between eugenics and contemporary transhumanism, in ways far more complex and interesting than simply his coining the term.”¹⁰

The following two chapters will provide a sketch of how a transhumanist intellectual movement developed in the period of approximately 1960–1990 and examine its connections to an earlier historical context, by analyzing the ideas promoted by the new futurists and transhumanists and by focusing on their references and sources. The chapters will discern some of the intellectual roots or origins of the new transhumanism and learn more specifically about what the new futurists and transhumanists had in common with Huxley. The argument is that this can be seen as a time during which Huxley’s vision became more communally adopted and rose to the status of a sociotechnical imaginary. During this process, it adjusted and changed through an ongoing process involving many actors and a changing political climate.

⁷For a study of contemporary transhumanism as a new social movement, see MacFarlane (2020).

⁸Jongsma and Sand (2016, 292).

⁹Humanity+, “Transhumanist FAQ.”

¹⁰Bashford (2013, 167).

To a younger generation, Huxley's ideas seemed outdated. Not only his eugenic stance but also his strong association with what was thought to be an antiquated belief in universalism and progress made many feel that Huxley was passé.¹¹ The horrors of the Holocaust, the Cold War, and the nuclear nightmare contributed to an increasing skepticism about the quality of the future, and to a critique of the idea of automatic progress, of anthropocentrism and of totalizing projects in general. But, as scholar of British literature and culture Benjamin Kohlmann put it, while there may at this time have been a widespread rejection of utopia as a blueprint, it was preserved as a dream.¹²

Huxley believed transhumanism to be of enough importance to be incorporated in his autobiography of 1973, where he again wrote of it and claimed that “something is in the air which fosters [...] transhumanist beliefs—and actions.”¹³ There truly was something in the air. Amid the critique of “grand narratives” imposed on individuals from above or without, a transhumanist movement arose. Huxley had suggested, in one of his transhumanist essays, that the United States assume a decisive leadership in the joint human enterprise of the future.¹⁴ Coincidentally, it was mainly in the United States that transhumanism 2.0 would develop; in a Post-war American culture characterized by a sense of progress and optimism not necessarily found in the war-torn Europe.

8.1 THE FUTURISTS, FUTURE SHOCK, AND HUXLEY

The 1950s and 1960s popular culture had seen a tremendous increase in science fiction and dreams of technological progress. The cult magazine *Amazing Stories* had inspired youth since its founding in 1926, and in the interwar period the amount of “pulp” magazines and books of science fiction had only increased.¹⁵ The American author Robert A. Heinlein's

¹¹ Sommer supports the notion that Huxley experienced resistance to his ideas toward the end of his career, see Sommer (2016, 14, 230–31); see also Lustig (2004, 11–12); and Fuller (2006).

¹² Kohlmann (2012, 3).

¹³ Huxley 1973: *Memories II*, 243.

¹⁴ Huxley 1957: “Knowledge, Morality, and Destiny,” 277.

¹⁵ Regarding science fiction during the interwar period and after the Second World War, see Roberts (2016, 287–373), Aldiss (1973), Bowler (2017, 27). For an exposition on science fiction in the twentieth century and its influence on contemporary transhumanism, see Pilsch (2017, 63–102); see also Clarke (1967).

(1907–1988) science fiction books about longevity and germinal choice through the 1940s to the 1970s, the Canadian author A. E. Vogt's (1912–2000) novel *Slan* (1946) about a future where humans suppress posthuman mutants, and the British author Arthur C. Clarke's (1917–2008) *Childhood's End* (1953), about posthuman evolution, are only a few examples of influential accounts. Themes of evolutionary and technological progress leading to new forms of life were common in popular culture.

Science fiction stories provoked attention. Utopian (and, to an extent, dystopian) speculations exemplified possibilities. As the 1950s and 1960s progressed, these possibilities seemed somehow increasingly more feasible. The discovery of the structure of DNA by James Watson and Francis Crick in 1953 advanced promises and fears about germline and genetic engineering. The space race and the ensuing moon landing in 1969 made an entire world feel like they might be living within a science fiction story. The advent of computers added to the sensation, and the steady development of transistors, integrated circuits, and microprocessors would lead to an explosive computer science boom in the 1970s.

A next generation wave of futurologically minded individuals followed, nurtured by amazing science fiction and fantastic scientific facts.¹⁶ Not everyone, of course, were starry-eyed optimists. A new and more critical attitude toward the applications of science emerged in the period after the Second World War.¹⁷ An increasing number of voices were raised in critique of big corporations, industrial expansion, concrete cities, environmental concerns, and nuclear threat.

Whether one chose a cautionary or optimistic approach, the 1960s and 1970s marked a time during which it was “in” to think about the future. The term “futurist” describing someone interested in what may happen in the years ahead and attempting to study the future—as opposed to an earlier use to describe a person belonging to the futurism art movement—was increasingly being used in the 1960s.¹⁸

The World Future Society began publishing its *Futurist* magazine in 1967. American academic and author Victor C. Ferkiss noted that human

¹⁶For more on the development of engineering, physics, and the space race, as well as its connection to the development of futuristic thought throughout the twentieth century, see McCray (2013).

¹⁷Bowler (2017, 38).

¹⁸Coates and Jarratt (1989, v).

civilization was presently “intoxicated with change.”¹⁹ Sociologist John McHale (1922–1978, author of *The Future of the Future*, 1969), remarked in 1970 that the future had become an important research field that needed much more attention.²⁰ A year later, during a conference held in New York in 1971—“Hope and the Future of Man”—the theologian Ewert H. Cousins (1927–2009) observed a new general awareness of the future. The field of futurology, he claimed, had been born.²¹

Cousins was not wrong: Futurology as a field of study had become increasingly more organized in the late 1960s.²² The developments were propelled by the aftermath of Second World War and by the Cold War. Attempts to foresee and predict new scientific and technological breakthroughs were, at least in part, driven by the desire to know the nature of the next war and plan for it in advance. Some early prototypes to future-oriented “think tanks” were connected to the US military.²³ Soon, however, futurology spread, and futurists gained influence in government and business, as politicians and business leaders started hiring futurists as advisors. University courses circling around futurology, or the study of the future also became increasingly common.²⁴ Indeed, and as intellectual historian Jenny Andersson has pointed out, future research around this time should be seen as an intervention into the present, an attempt to shape coming times.²⁵

The rising preoccupation with the future famously inspired futurist and author Alvin Toffler (1928–2016) to coin the term “future shock” in 1965, to illustrate the present concern with the accelerating pace of modern life and anxiety about the future. Toffler’s consequent *Future Shock* (1970) became a worldwide best seller, selling millions of copies.²⁶

By the time *Future Shock* hit the shelves, Huxley was 82 years old and infrequently partook in public debates. Yet Toffler drove home the message that change was accelerating by quoting and using Huxley’s theory of the

¹⁹Ferkiss (1969, 10).

²⁰“A Survey of Futures Research in the United States.” 1970. *The Futurist*, 200–4.

²¹Cousins (ed.) (1972, vii).

²²For an excellent study of the rise of futurology, see Andersson (2018). See also Bowler (2017, 204).

²³Ferkiss (1977, 10).

²⁴Coates and Jarratt (1989, vi).

²⁵Andersson (2018, 4).

²⁶The term “future shock” was first coined by Toffler in an article in *Horizon*, see Toffler (1971, 2). Andersson notes that Toffler’s own contributions to future research were unoriginal, but that he was successful in popularizing future research, see Andersson (2018, 7).

accelerating tempo of human evolution.²⁷ Indeed, several of Toffler's ideas about human evolution seemed to have been picked up from Huxley's popular writings, as is apparent by Toffler referencing Huxley's *On Living in a Revolution* (1942), *New Bottles for New Wine* (1957), *Man in the Modern World* (1959), and *Essays of a Humanist* (1964).²⁸

Toffler was not the only one in who had been influenced by Huxley. Despite critique, Huxley's vision won a significant amount of public acceptance. In this setting, he cannot be said to have been marginalized. He was knighted in 1958 and elected "Humanist of the Year" by the American Humanist Association in 1962. He always enjoyed a vast reading audience. Even the articles critiquing Huxley pointed out his standing and the great influence he had had on young minds regarding scientific, philosophical, and religious matters.²⁹

Huxley had spent his life popularizing science and speaking of humanity's future. His writings had been sufficiently prolific and influential to catch the attention of the general public, spanning over generations. The following will give a few examples, to demonstrate the extent of and way in which Huxley's ideas were picked up within the field of futurology to feed the sociotechnical imaginary of transhumanism.

Two renowned examples reached a viewing audience rather than a reading one. The mathematician and philosopher Jacob Bronowski's (1908–1974) massively popular BBC television series "Ascent of Man" (1973) was influenced by Huxley's view of evolution.³⁰ Likewise, and as

²⁷ Toffler (1971, 22).

²⁸ The Huxley & Nicholson 1969 article in *The Times*, "Man's Deteriorating Environment," had also inspired Toffler, see Toffler (1971, 518). For references to Huxley's books, see 535.

²⁹ JSH Papers, RU, MS50, 137:4. Stepney 1957: "His Grandfather's Battles," *Truth*, 12 Apr.; Batson 1958: "New Bottles for New Wine," *The Shavian*, Sept.: 26–29.

³⁰ Huxley and Bronowski had collaborated, Bronowski joined Huxley's "Idea-Systems Group" in the 1950s, see JSH Papers, RU, MS50, 113:2. Idea-Systems Group, Notes. Huxley's influence on Bronowski is confirmed by Smocovitis, who also noted his influence on the astronomer and science fiction author Fred Hoyle (1915–2001) and anthropologist and educator Loren Eiseley (1907–1977), see Smocovitis (1996, 164). Huxley's views of humankind and evolution also impacted Dobzhansky, science writer Gerald Heard (1889–1971), and Gaylord Simpson. See as example Dobzhansky (1956, 88); an essay by Heard, reprinted in Allen (ed.) (1971, 304), Simpson (1949, 245, 348). On the influence of Huxley on Simpson, see also Sommer (2020, 216). Notwithstanding their differences, the evolutionary biologist Richard Dawkins has also written that Huxley's essays influenced him and that he, as an undergraduate, "identified with the young Julian Huxley," see Dawkins (2008, 234).

Smocovitis has shown, astronomer Carl Sagan (1934–1996) later adopted Huxley’s evolutionary humanism for his legendary “Cosmos” (1980), and with that, parts of Huxley’s vision were transmitted to one of the largest popular science audiences of all time: 16 million viewers.³¹

Huxley’s name also began to figure in a specific genre of books that were popping up. They were books with titles such as *The Anatomy of the Future* (1961), *The Year 2000: A Framework for Speculation on the Next Thirty-Three Years* (1967), *Technological Man* (1969), *The Prometheus Project* (1969), *Utopian Motherhood* (1970), *Futures Conditional* (1972), *The Post-Industrial Prophets* (1973), and *Prolongevity II* (1985).³²

In these books, Huxley’s ideas about the human species’ role in the evolutionary process and humankind’s evolutionary future were noted.³³ Huxley’s transhuman narrative about evolution was perpetuated. For example, in 1967 the American sociologist and philosopher of technology Lewis Mumford (1895–1990) discussed Huxley’s ideas of human evolution and explained that Huxley had given evidence for the uniqueness of humans in nature and had closed the gap between biological and cultural evolution.³⁴

Many of the futurology books in which Huxley figured tended to choose a visionary and frequently optimistic outlook on the future. As early as the 1950s, the scientific journalist Victor Cohn had been hopeful about a wonderful scientific future and leaned on Huxley among others, to say that human knowledge and intellectual power had not yet come close to reaching its limits.³⁵ In 1968, author Richard Kostelanetz foresaw a coming economy of abundance, wherein machinery and computers would replace laborers and humans would live in material excess. In this “post-Darwinian” society, humans would have no need for a mentality

³¹ Smocovitis (1996, 164–65, 202 note); for an example of Huxley still being relevant with regard to evolutionary studies, see Young (1970).

³² Seidenberg (1961, 19, 117–18, 149), Kahn and Wiener (1967, 48), Ferkiss (1969, 20), Francoeur (1970, 35, 113), Theobald (ed.) (1972, 186), Kuhns (1973, 233), Rosenfeld (1985, 280). Huxley was also discussed during the conference “Hope and the Future of Man” in 1971, see Moltmann (1972).

³³ As, for example, the idea that humans could consciously control their own evolution, evolve and become a new kind of creature, his concept of “social evolution,” and ideas of “pre-adoption” (choosing donor fathers).

³⁴ Mumford referred to Huxley’s *Man Stands Alone* (1927), *The Uniqueness of Man* (1941), and *Evolution, Cultural and Biological* (1955), see Mumford (1967, 46, 308).

³⁵ Cohn (1956, 203).

shaped by the scarcity of ages past. Kostelanetz then referred to Huxley, saying that the evolution of the brain was an inexhaustible source of human progress.³⁶

The futurist and professor of physics at Columbia University Gerald Feinberg (1933–1992) developed a plan for a cooperative effort by humanity to choose its long-term goals that asserted that humanity could provide a rational and effective direction for the development of all natural phenomena.³⁷ Feinberg's future vision was presented in *The Prometheus Project* (1969), a best seller (along with Toffler's *Future Shock*) at the World Future Society's First General Assembly in 1971.³⁸ In *The Prometheus Project*, Feinberg showed an interest in Huxley's notion of progress in evolution and its possible continuation in the cultural development of humanity. Feinberg referenced Huxley's *New Bottles for New Wine* and suggested developing the notion of progress by considering human potentialities.³⁹

Another futurist, the founder of the Society for Evolutionary Ethics John David Garcia (1935–2001), also set out to outline a coming future world in *The Moral Society* (1971). It entailed moving toward a transcended humanity. Garcia cited Huxley saying humankind was "evolution conscious of itself." He also made use of Huxley to claim that humans were now evolving "psychosocially" by taking evolution into their own hands.⁴⁰ Moving ahead, Garcia claimed that the rise of technology such as computers were a sign of the accelerating rate of evolutionary change. The boundaries between humans and machines would gradually blur, until cyborgs were a reality. In this future, humans would enhance their bodies and use technology as a means of prolonging their individual lives and amplifying their individual powers. Eventually, humankind would leave earth and live "beyond the stars."⁴¹

It is interesting to note that several authors, like Garcia, would adapt Huxley's narrative of evolution to incorporate a form of cyborg, or human-machine evolution. In another example, computer scientist John Kemeny

³⁶ Kostelanetz (ed.) (1968, xxviii–xxix).

³⁷ Feinberg (1969, 28, 222).

³⁸ The book was a result of Feinberg having gathered a group in New York in the fall of 1962, discussing long-range goals for mankind and future developments in technology. See *The Futurist*, 1971, vol. 5, no. 3: 128.

³⁹ Feinberg (1969, 159–61, 260).

⁴⁰ Garcia (1971, xiii, 16, 18).

⁴¹ Garcia (1971, 77–79, 83–84).

(1926–1992) hinged on what Huxley and Wells had said about symbiosis in *The Science of Life*, to then claim that humans and computers had presently formed such a symbiotic relationship. This symbiosis, Kemeny stated, would affect the evolution of both species.⁴²

This is somewhat surprising, seeing as Huxley himself had never directly spoken of anything like human-machine entities and had been but dimly aware of the future promises of computer technology.⁴³ Computers were mostly not anticipated by visionaries of the future in the pre-Second World War years.⁴⁴ The idea of human-machine cyborgs that incorporated computers and technology in biological bodies only started to really gain ground after the Second World War.

Nevertheless, Huxley had discussed humankind’s continuing of evolution by their own means, controlling its further progress. He had always put a big emphasis on the products of the human mind as part of and the future driving force of evolution. He had also believed that human evolution was and would be affected by technology. With the continuing development of technology, new futurists incorporated new technology into the greater framework of a sociotechnical imaginary.

8.2 THE NEW TRANSHUMANISTS: NEW BOTTLES FOR OLD WINE?

The point after which Huxley coined and then began publicly speaking of transhumanism, the word and the vision also started to figure in various—but almost always future-oriented—settings. Huxley’s books were widely reviewed and despite the critique, many wrote with interest of his by now well-known vision. Media outlets such as *The Times Literary Supplement*, *The Observer*, *The Humanist*, *Truth*, *The Guardian*, *Time & Tide* all wrote of Huxley’s transhumanism.⁴⁵

⁴² Kemeny (1972, 3).

⁴³ To be noted that Huxley had at one point been enormously impressed by the early computer he witnessed in 1933, on his tour of the Massachusetts Institute of Technology (MIT). This “Differential Analyzer” was a machine built by Vannevar Bush in 1928–31 in the Department of Electrical Engineering and was capable of dealing with higher mathematics. Huxley saw in this machine a labor-saving, power-multiplying machine for brains: “And when brains have their power multiplied, all sorts of consequences are destined due to follow.” JSH Papers, RU, MS50, 64:1. “Science in the Making.” Huxley’s own strikethrough.

⁴⁴ Bowler (2017, 82–84).

⁴⁵ See JSH Papers, RU, MS50, 137:4.

One reviewer believed that transhumanism could help dispose of the idea that humanism was mainly negative (and conservative) in its approach.⁴⁶ Another commentator called Huxley's vision a "revitalized humanism."⁴⁷ The idea that humans had it in their power to "direct and control" their own evolution appeared, in spite of it all, to be attractive.⁴⁸ To some, the message Huxley was conveying was empowering: "We are no longer the blind sport of natural forces."⁴⁹ One commentator interpreted Huxley's evolutionary humanism as being an ideology that granted humankind "total power in determining its destiny."⁵⁰

In 1967, Huxley critiqued what attempts he saw to ameliorate the world's problems for mostly being negative; they were actions against something, instead of positive efforts for something. New visions needed, he exclaimed, to have a constructive purpose.⁵¹ Some new futurists set out to meet the challenges posed by, for example, conservationist Rachel Carson's *Silent Spring* (1962) and the Club of Rome's *Limits to Growth* (1972). They wanted to espouse, in American futurist Victor Ferkiss' words, the knowledge of the scientist, the will of the utopian, and the imagination of the science fiction writer.⁵²

The as of yet disorganized movement of futurists, technologists, philosophers, writers, and scientists, most of whom still did not refer to themselves as "transhumanists," showcased a futurology of a specific kind. It was evolutionary, techno-enthusiastic, progressive, and anthropocentric. Many deliberately chose an anti-pessimistic approach, as the critique of the wider implications of technological and industrial expansion grew louder. Throughout the 1970s and continuing, the intellectual movement turned

⁴⁶ JSH Papers, RU, MS50, 137:4. Skelton 1958: "Man Without God," *The Humanist*, Feb.: 14–15.

⁴⁷ JSH Papers, RU, MS50, 138:1. "Mankind Controls Own Destiny, Evolutionary Humanism Holds," *Vancouver Sun*, 15 Mar. 1961.

⁴⁸ Related to this, Smocovitis has concluded that Huxley's presenting of evolution in *Modern Synthesis* was attractive because it offered a perfect combination of materialistic science and purposiveness, see Smocovitis (1996, 146).

⁴⁹ JSH Papers, RU, MS50, 138:1. Greer 1964: "The Religion of Julian Huxley," *The Humanist*: 134–36. For other positive comments on Huxley's vision, see JSH Papers, RU, MS50, 138:2. Nott 1961: "Mankind and Man Alone," *Observer*, 15 Oct.; "Humanism Hailed as New Religion," *The New York Times*, 22 Aug. 1962.

⁵⁰ JSH Papers, RU, MS50, 138:1. "Mankind Controls Own Destiny, Evolutionary Humanism Holds," *Vancouver Sun*, 15 Mar. 1961.

⁵¹ Huxley 1971: "The Crisis in Man's Destiny," 410.

⁵² Ferkiss (1977, 6).

into an at times curious mixture of evolutionary biology, technology, politics, and mysticism. Scientists, philosophers, and authors of diverse backgrounds, and with different orientations and outlooks, nevertheless seemed to share a core message: the future was bright, if only we transcended biology.

8.2.1 *The Psychedelic Mystics Explore Human Potential*

In his book about contemporary transhumanism, Pilsch has stated that a transhumanist movement arose in the United States “as the revolutionary energy flickered out at the end of the psychedelic sixties.”⁵³ In connection to this, it is important to note that aspects of Huxley’s transhumanism aligned surprisingly well with the rapidly growing New Age- and self-actualization movements of the 1970s.

Certainly, of the two Huxley brothers it was Aldous who had the most direct influence by far. Since emigrating to the United States, Aldous Huxley had, with his cynical science fiction and mystical esotericism, become a “godfather of the hippies.”⁵⁴ Alongside his brother, however, Julian also made his voice heard. In the 1940s and 1950s, and inspired by Aldous, Julian would speak of seeking a holistic “oneness” and unity of thought, was open to exploring different types of mystical experiences and had advocated meditation as a substitute for prayer in relation to a future religion.⁵⁵ In 1950, Aldous wrote in a letter that he and his brother Julian were interested in studying transcendental experiences (and perhaps establishing an organization to do so).⁵⁶ In the 1960s, Julian suggested coordinated research on all methods of attaining states of self-transcendent experience; on yoga, hypnotism, and on dreams and their possible control.⁵⁷

At the same time, Teilhard de Chardin had begun to have a great influence on the New Age movements, with his spiritualization of evolution. There was already a robust body of literature on Teilhard in the 1960s. In the early 1970s, it was noted that Teilhard was “emerging as the central

⁵³ Pilsch (2017, 1).

⁵⁴ Aldiss (1973, 194).

⁵⁵ Huxley 1955: “Man’s Place and Role in Nature,” 96; Huxley 1957: “Knowledge, Morality, and Destiny,” *New Bottles for New Wine*, 264–65, 266–67.

⁵⁶ Letter in French to Jean Bruno from 1950, see Bass (1981, 61).

⁵⁷ Huxley 1963: “The Future of Man: Evolutionary Aspects,” 12.

prophetic figure of this twentieth-century cosmic historical utopia.”⁵⁸ The fact that Huxley wrote the foreword to *The Phenomenon of Man* was therefore of significance, since that text contained many of his own ideas.

Things were now becoming West Coast-oriented very fast. Ideas of manifestation, of personal development and of radical, evolutionary transformations of the self quickly became tied to business. Movements emerged, such as the Higher Consciousness movement and the Human Potential movement. In a certain sense, Huxley’s generation had been forerunners to this new crusade for self-actualization.⁵⁹ As show in previous chapters, Huxley had started emphasizing the high value of the developed human individual and the importance of freedom.⁶⁰ Something about his way of speaking of humans “participating in the creative process whereby the universe realized more of its potentialities in richer fulfillments” seemed to strike a chord.⁶¹

In 1968, Huxley’s “Transhumanism” essay was reprinted in the *Journal of Humanistic Psychology*.⁶² This journal had been founded by the American psychologists Abraham Maslow and Anthony Sutich in 1958 and first published in 1961.⁶³ Abraham Maslow (1908–1970) is best remembered for his hierarchy of needs, a pyramid which listed the most basic needs of survival, food, and clothing at the base and placed self-actualization as the highest at the top.

In the 1960s, Maslow had become highly interested in the potentials of mysticism and eastern philosophies and developed a so-called transpersonal psychology in attempts to develop human potential. Maslow was a friend of Aldous Huxley, and Aldous gave lectures on “Human Potential” at the University of California, San Francisco, and at the Esalen Institute, Big Sur, California, in the early 1960s. Aldous’s *The Perennial Philosophy* (1945) was important for the Human Potential movement.⁶⁴

⁵⁸ Manuel (1971a, 88).

⁵⁹ Annan (1969, 252).

⁶⁰ JSH Papers, RU, MS50, 100:1. “Humanity’s Need is a New Ideology,” *Illustrated*, 28 Jan. 1950; for close-lying ideas, compare Meyer (1982, 531).

⁶¹ Huxley 1957: “Knowledge, Morality, and Destiny,” 278.

⁶² *Journal of Humanistic Psychology*, 1968, vol. 8 no. 19: 73–76.

⁶³ Vich (1976).

⁶⁴ Esalen is a holistic retreat center in Big Sur, California, that has been of historical significance for the 1960s counterculture and Human Potential movement in the United States, see Kripal (2007, 85 ff).

The Human Potential movement at times cultivated the “10 % of the brain” myth, the idea that human beings are only utilizing 10% of their brains’ capacity at any point, and that even the most brilliant individuals in history have done so, meaning that human potential is, in fact, infinitely more impressive than present-day humans are or believe.⁶⁵ The myth—and the Human Potential movement—implied that individuals can “unlock” their inner potential and gain immensely higher intelligence or insight.

In the preface to the 1968 edition of his *Toward a Psychology of Being*, Maslow spoke of his own work as a new philosophy of life and a new conception of humans. Maslow claimed that his psychology offered a naturalistic, empirical, non-churchly belief that would work as a transitional preparation for a higher psychology: “*transhuman*, centered in the cosmos rather than in human needs and interests, going beyond humanness [...]”⁶⁶ He employed the term transhuman to describe exemplary forms of “self-realization.”⁶⁷

Maslow’s psychology often made the fulfillment of potential synonymous with happiness. Reminiscent of Huxley’s fulfillment society, Maslow appeared to picture a future in which the individual was free to seek fulfillment of potentials and expression of the self.⁶⁸

Maslow believed humanity needed the transcendent and the transpersonal to combat nihilism and apathy.⁶⁹ He also discussed transcendence in relation to humans going beyond the merely human to become “godlike,” not in a supernatural sense.⁷⁰ In his preface to the first edition of *Toward a Psychology of Being*, Maslow stressed the need for a focus on the biologically based nature of humans. A new way of thinking should conform “to biological destiny, rather than to historically-arbitrary, culturally-local value-models [...]”⁷¹

⁶⁵ Brain mapping suggests instead that all areas of the brain are used and active nearly all the time. Interestingly, Julian Huxley was quoted as having said that the normal human brain is almost never used at capacity, see, for example, Chase (1968, 206).

⁶⁶ Maslow (1968, iii–iv).

⁶⁷ Kripal (2007, 151).

⁶⁸ Manuel (1971a, 94).

⁶⁹ This may be explained by the fact that Maslow was influenced by Aldous Huxley. In the foreword, Maslow acknowledged Aldous Huxley as “the first to convince me that I had better be serious about the psychology of religion and mysticism,” Maslow (1968, xi).

⁷⁰ Maslow (1971, 274).

⁷¹ Maslow (1968, vi).

Maslow had been directly influenced by Huxley. In a letter from 1967 to Anthony Sutich, discussing the expansion of the humanistic orientation, Maslow wrote: "There already is a word such as you are looking for suggested by Julian Huxley. It is 'trans-humanistic.' I have found it useful already."⁷²

Closely connected to the Higher Consciousness and Human Potential movements was the writer and educator Gerald Heard (1889–1971). In 1963, he had published *The Five Ages of Man*. Modern humans in industrialized countries, Heard proposed, were in the fourth age, the "humanic stage" of the "total individual." Heard believed a fifth age was emerging and that humankind was in a transitional phase between the fourth and the fifth. The new "man" would be the "Leptoid Man" (from Greek *lepsis*, "to leap"), and would reach a higher, expanded consciousness. Heard had associated with Huxley in the 1920s, being the editor of *The Realist*, of which Wells and Huxley were sponsors, and, as a science writer, he had been influenced by Huxley.⁷³ Heard would later emigrate to the United States and settle in California, where he became involved with the psychedelics movement, along with Aldous Huxley.

Also associated with the Human Potential movement was the American engineer and futurist Willis Harman (1918–1997). Like many of the movement, Harman advocated the idea that the potentialities of the individual human being were far greater than we ordinarily imagine them to be.⁷⁴ Nonetheless, Harman was also of the conviction that a profound transformation of human consciousness was needed and believed that humans stood before a historical "saltation" that would propel humankind forward into the future. He relied on Huxley in stating that humans were "trustees of evolution on this earth" and that evolution could make leaps.⁷⁵

Another figure that exemplifies this early "transhumanist" flurry of psychedelics, technology, enhancements, self-actualization, and consciousness is psychologist and cult-figure Timothy Leary (1920–1996). Leary is often associated with the Leftist counterculture of the 1960s. In the late 1950s and early 1960s, Leary studied interpersonal psychology and

⁷² Koltko-Rivera (1998, 73–74).

⁷³ See as an example an essay by Gerald Heard, in Allen (ed.) (1971, 304).

⁷⁴ Harman (1972, 183).

⁷⁵ Harman (1972, 186), Harman and Campbell (1982, v, 81).

“dynamic behaviorism,” but soon became a controversial exponent of psychedelic drug use and LSD-induced mind-exploration.⁷⁶

It is important to note that Leary attempted to couple his promotion of psychedelic experiences with a scientific materialism. Alongside advocating drug-induced spiritual journeys he also generally hailed Darwin and DNA and described humans as “robots” that could be (re)programmed.⁷⁷ This approach helped Leary to take a leap into the future, as, in Pilsch’s words, the revolutionary energy flickered out at the end of the psychedelic sixties.

During the 1970s and 1980s, Leary became increasingly interested in the phenomena of modern culture, television, cybernetics, computers, and a burgeoning cyber-culture, and became involved in the so-called L5 group. Formed in Arizona in 1975, the group became a locus of activity for futurists around the country. Other frequenters included science fiction author Isaac Asimov (1920–1992), AI computer scientist Marvin Minsky (1927–2016), theoretical physicist Freeman Dyson (1923–2020), and futurist Hans Moravec (b. 1948).⁷⁸ Leary soon came to influence a new generation of individualistic so-called cyber-punks, open to transhumanist ideas.⁷⁹

The distinct mix of psychedelic spiritualism and optimistic scientific materialism—which at times made Leary sound as a combination of the two Huxley brothers—culminated in Leary’s *Info-psychology*, published in 1987. In it, Leary presented an evolutionary philosophy whose message was that human beings could “transcend biology.”⁸⁰ With slogans such as “Think for yourself. Escape the gene pools” and “Evolution Requires that Some of Us Become Conscious Agents of the Future,” Leary hailed each new decade of the twentieth century as having given humans increased access to and control of information. To Leary’s mind, this had presently culminated in the possibility for humanity to achieve a “mutational

⁷⁶ See Leary (1957, 1982, 39, 46, 1996, 1998).

⁷⁷ See Leary (1979).

⁷⁸ Farman (2012, 1072); see also Regis (1990).

⁷⁹ Leary’s book *Info-Psychology* would be included on the list of books Max More claimed embodied extropian transhumanist ideas, see further below and also More (1990). Cyber culture celebrity R. U. Sirius (born Ken Goffman, 1952), who in the 1980s and 1990s contributed to transhumanist philosophy and ideology, was inspired by and worked with Leary, and wrote the foreword to a republished issue of Leary’s *The Politics of Ecstasy* in 1998. See Leary (1998, 3–4).

⁸⁰ The book was a follow up to the earlier *Exo-Psychology*, 1977. See Leary (1987, v, 11).

quantum leap” in evolution. Individuals, he claimed, could “re-imprint” or “reprogram” their brains. Humankind could achieve higher intelligence and a “wider spectrum of signals of greater intensity, complexity and speed.”⁸¹

To a younger generation, Leary appeared as a compelling trailblazer. It is no secret, however, that Leary was inspired by and befriended Aldous, whose books *Doors of Perception* (1954), *Heaven and Hell* (1956), and *Island* (1962) had all dealt with self-transcendent experiences achieved through psychoactive drug use. To Leary’s mind, Aldous was the “high priest” of drug-induced spiritual discovery. Apart from experimenting with substances together, Leary and an aged Aldous discussed subjects ranging from Eastern religion to over-population. Leary clearly admired Aldous’s learning and grasp of many subjects “ranging from the esoteric past, back to the biochemical present.”⁸²

As previously seen, the idea of “democratizing” positive emotional states and mystical experiences, including transcendence, through technological means was also present with Julian. In the 1940s he would suggest “Psychotechnics,” as the study of attaining control of human nature, including techniques of attaining a “transcendent contemplation.”⁸³ In the 1960s, he still guessed that “psychotechnology” would enable individual humans to “transcend conflicting drives and impulses.”⁸⁴

Julian was sympathetic to the idea of using new pharmacology to enhance human experience. Drugs such as mescaline, lysergic acid, and psilocybin opened up “exciting possibilities.”⁸⁵ He always showed an interest in his brother’s drug-experiments but turned down any offers to try it for himself because he was afraid that his history of mental illness would end up mixing badly with drugs. Julian had published the essay “Psychometabolism” in *Journal of Neuropsychiatry* in 1962.⁸⁶ In it, he

⁸¹ Leary (1987, vi, 1, 10, 13).

⁸² Leary (1995, 65–66). Aldous Huxley also continued to be topical due to his *Brave New World*, see as an example Rostand (1959, 21, 34, 82–83).

⁸³ Huxley & Huxley 1947a: *Evolution and Ethics, 1893–1943*, 193.

⁸⁴ Huxley 1963: “The Future of Man: Evolutionary Aspects,” 10.

⁸⁵ In addition, he entertained the idea that electric stimulation in certain areas of the brain could produce happiness and feelings of well-being: “To some people this seems somehow too materialistic; but after all, electric happiness is still happiness, and happiness is very much more important than the physical happenings with which it is correlated,” Huxley 1963: “The Future of Man: Evolutionary Aspects,” 12.

⁸⁶ Huxley 1962: “Psychometabolism.”

recommended following science for “the future evolution of man” and research into psychedelic drugs as a potential means for human enhancement. The essay was reprinted in *The Psychedelic Reader* (1965), of which Leary was an editor.⁸⁷

To Julian and Aldous Huxley, and later to Timothy Leary, the drug use was a means to an end. Just as other technologies may help humanity to enhance and transcend its present state, so might the physico-chemical control of the mind. What was enticing was the technology of psychedelic drugs. In the 1970s and 1980s, and in the futurological genre here considered, it was not uncommon to consider psychoactive drugs along with genetic engineering, hormone treatments, cyborgs, and computers, as possible tools on the road toward a future humankind. The futurist Gerald Feinberg, for example, had also discussed LSD’s possibilities of producing new patterns of mental activity in the human brain in *The Prometheus Project*, and had mentioned Leary’s LSD experiences.⁸⁸

8.2.2 *Cyberpunks and Extropians*

For those who were not entirely convinced that it was possible to unlock your inner potential solely through LSD-ceremonies and yoga seminars, there was another path to take. One that put less emphasis on immanent spiritual evolution to instead focus on scientific optimism and technological physical transcendence. Many transhumanists today strongly dissociate themselves with any “anti-technological, anti-intellectual” sentiments found, for example, and according to them, in some postmodernist writers and in the New Age movement.⁸⁹

The new transhumanists of the 1980s would react against parts of the New Age and hippie Higher Consciousness and Human Potential movements, wanting to re-instate technology, biology, the human body, and science as objects of interest. Yet, transhumanism 2.0 arguably grew out of parts of the self-actualization movements, and the distinctions are not always clear-cut. Timothy Leary is a good case in point: In the 1990s, the leading transhumanist philosopher Natasha Vita-More referred to Leary as a transhumanist.⁹⁰

⁸⁷ Huxley’s “Psychometabolism” in Weil, Metzner and Leary (1993, 127–48, 143, 147).

⁸⁸ Feinberg (1969, 146).

⁸⁹ The Transhumanist FAQ Live.

⁹⁰ See *Extropy* (1996, no. 17, 38).

Although, as previously mentioned, Huxley had never spoken directly of anything like human-machine entities, he had been interested in any means possible of enhancing humankind. At the Ciba Foundation for the Promotion of International Co-operation in Medical and Clinical Research symposium on the Future of Man in 1963, historian of science Derek de Solla Price (1922–1983) suggested the technological improvement of circumventing the human organs of speech and hearing through machines, so that humans could instead “plug in to each other intellectually.” This “multiple brain” would be free of “nature’s random distribution of geni,” and through its combined power would form a super-genius that could accelerate invention. Huxley, who attended the symposium, responded to Price that he was greatly interested in such concrete examples of what the future might bring.⁹¹

Then, in 1965, the American author D. S. Halacy, Jr. (1919–2002) wrote the influential *Cyborg: Evolution of the Superman* and suggested Huxley’s concept of the transhuman as an apt term for “a superior being aware of his potential and able to work toward it because of his knowledge.”⁹² Halacy was a prolific author of nonfiction studies in science and potential future developments. In *Cyborg: Evolution of the Superman*, Halacy heralded the coming of a new sort of human, the human-machine, that would be using implants, transplants, technology, and biomechanical engineering to upgrade the biological body. Adopting the concept cyborg, coined in 1960 by scientists Manfred Clynes and Nathan S. Kline, Halacy described a hybrid human that was supposedly the next evolutionary step in humankind.⁹³

Around the same time, the word transhuman also started figuring in the writings of Robert Ettinger (1918–2011). Ettinger was an American teacher of physics and mathematics but is today remembered as an important founding figure in contemporary transhumanism. He is the founder of the Immortalist Society and is frequently referred to as the Father of

⁹¹ Discussion in Wolstenholme (ed.) (1963, 171–73).

⁹² Halacy (1965, 10–11).

⁹³ To Halacy, Huxley was an authority on humankind’s role in evolution. Additionally, Halacy drew parallels between Huxley’s transhuman and Nietzsche’s “superman,” see Halacy (1965, 10–11). Halacy also referred to Huxley in his *Genetic Revolution: Shaping Life for Tomorrow*, 1974.

Cryonics.⁹⁴ Like many of his generation, Ettinger grew up reading Hugo Gernsback's *Amazing Stories*. From an early age, he was fascinated by the future, and, after having been wounded in the Second World War, became convinced that humankind should strive to overcome its limitations and become immortal.⁹⁵

In the book *Man into Superman* (1972), Ettinger asserted that human beings had already set out on the path toward superhumanity, due to their inventions (glasses, gold inlays, birth control pills, etc.). It was part of human nature, Ettinger claimed, to transcend the limitations of the human design. Therefore, we should continue and intensify the engineering of humanity.⁹⁶ Ettinger then used the word “transhumanity” for describing a next level for humanity. The transhuman condition entailed becoming more than human, the transition period between “man” and the first complete superman.⁹⁷ Ettinger did not, however, give a reference as to where he had picked up the term transhuman. He later claimed not to remember where he first encountered the word.⁹⁸

During the 1970s, Ettinger shared the spotlight with yet another new visionary futurist, who like him would play a big role in the establishment of transhumanism 2.0. In preparation for writing *Future Shock*, Toffler had interviewed Fereidoun M. Esfandiary (1930–2000).⁹⁹ Leary would also start referring to Esfandiary.¹⁰⁰ This Belgian-born Iranian American intellectual had begun to write and publish hyped-up manifestos that caught people's attention, such as *Optimism One* (1970) and *Up-Wingers: A Futurist Manifesto* (1973).

Back in 1944, Wells had referred to the likes of himself, Huxley, and Haldane as “extreme revolutionaries” who considered the doctrines of existing political parties to be “fifty years behind the times” in their inability to prepare for the future.¹⁰¹ Like these men before him, Fereidoun Esfandiary also wanted to establish a new direction, a new ideology for the

⁹⁴ Cryonics is the practice of freezing to preserve recently deceased human bodies and storing them in the hopes that future technology will be able to revive and restore them to good health and youth.

⁹⁵ See Ettinger 1964: *The Prospect of Immortality*; Farman (2023).

⁹⁶ Ettinger (1972, 3).

⁹⁷ Ettinger (1972, 1, 32, 39).

⁹⁸ Humanity+, “Transhumanist FAQ.”

⁹⁹ Toffler (1971, 492 note).

¹⁰⁰ Leary (1996, 6, 35, 59, 86).

¹⁰¹ Huxley et al. 1944: *Reshaping Man's Heritage*, 7.

future. In *Up-Wingers* (1973), Esfandiary dismissed as outdated the traditional political division of left-right and claimed to instead represent the new direction of “up.”¹⁰² Soon, Esfandiary would change his name to the more futuristically sounding “FM-2030,” to denote a posthuman view of individuality. With his provocative and yet optimistic futurism, FM-2030 quickly gained fame as a sort of transhumanist guru. He taught and held courses at the New School for Social Research in New York in 1965–1980.

FM-2030 started using the word “transhuman” in the late 1960s and would be among the ones who further popularized the term.¹⁰³ His place in modern transhumanist history was permanently secured through his 1989 manifesto in favor of human enhancement: *Are You a Transhuman?* FM-2030 identified transhumans as persons who behaved in a manner conducive to a posthuman future.¹⁰⁴

The advancement of transhumanism 2.0 sped up, with philosopher Natasha Vita-More (born Nancie Clark, 1950) authoring *The Transhumanist Manifesto* in 1983, and with philosopher Max More’s development of the “Principles of Extropy” in the late 1980s. Vita-More, a friend of Leary and FM-2030, suggestively declared: “I am transhuman [...] ever-changing—I become,” and in the *Transhumanist Manifesto* exclaimed: “We are active participants in our own evolution. We are shaping the image of whom we are becoming.”¹⁰⁵

Max More (born Max O’Connor, 1964) is one of modern transhumanism’s founding figures. He has a degree from Oxford and a doctoral dissertation from University of Southern California. Together with T. O. Morrow (born Tom Bell), More established the techno-utopian journal *Extropy: Vaccine for Future Shock* in 1988 (referring to Toffler’s by then well-known concept). He also formalized a transhumanist doctrine, which he called the principles of extropy, and founded the Extropy Institute—the first transhumanist non-profit organization—that would host a series of conferences throughout the 1990s and was joined by many who had earlier gathered around the L5 group.¹⁰⁶

In the canonical transhumanist essay “Transhumanism: Toward a Futurist Philosophy,” one of the articles generally hailed as the founding

¹⁰² Esfandiary (1973, 1981).

¹⁰³ The first text in which he used it was published in 1974.

¹⁰⁴ Tirosh-Samuelson (2011, 22).

¹⁰⁵ Vita-More 1983, “Transhumanist Manifesto.”

¹⁰⁶ Farman (2023), Tirosh-Samuelson (2011, 23–24).

of modern transhumanism, Max More encouraged efforts of continuously improving the human condition: “Life and intelligence must never stagnate; it must re-order, transform and transcend its limits in an unlimited progressive process. [...] We must progress on to transhumanity and beyond into a posthuman stage that we can barely glimpse.”¹⁰⁷

In 1996, More took note of the increase in cultural propagation of transhumanism.¹⁰⁸ He, along with his peers, had admittedly driven an impressive campaign to spread the extropian word. Transhumanism had gained speed and influence, particularly among people who worked with computers and information technology in the “Silicon Valleys” of California and New York.¹⁰⁹ In the 1990s, the Internet had made it possible for like-minded individuals to form communities across national boundaries, around such disparate thinkers as Max More, Vita-More, Eric Drexler (b. 1955), Nick Bostrom (b. 1973), James Hughes (b. 1961), to name a few. The development of transhumanist ideas migrated to the new and growing World Wide Web, to E-mail lists, websites, and forums.

The World Transhumanist Association (WTA, now known as Humanity+) was founded in 1998, by the Oxford philosophers Nick Bostrom and David Pearce.¹¹⁰ The goals of human enhancement through genetic engineering and other new technologies—as well as a plethora of other visionary futurological objectives—came to be advocated by, for example, Bostrom, Ray Kurzweil, and the Harvard biologist George Church.¹¹¹ Transhumanism grew increasingly more politically savvy and influential. In 2009, Nick Bostrom was listed as one of *Foreign Policy’s* Top 100 Global Thinkers.¹¹² Bostrom, director of the former Oxford Future of Humanity Institute, really did achieve the “professorship in the exploration of the future,” of which Huxley had dreamt in 1971.¹¹³

The growth of this “West Coast futurism” and then global transhumanism cannot, according to anthropologist Abou Farman, be explained without the tech and biotech booms of the 1980s and 1990s and the

¹⁰⁷ More 1990b: “Transhumanism: Toward a Futurist Philosophy,” 11.

¹⁰⁸ More 1996a: “Editorial. The Cultural Propagation of Transhumanism,” 5.

¹⁰⁹ Pilsch (2017, 1).

¹¹⁰ Tirosch-Samuels (2011, 24); Bostrom 2005c: “A History of Transhumanist Thought,” 15.

¹¹¹ For a more comprehensive study of transhumanism as a contemporary social movement, see MacFarlane (2020); see also Deese (2015, 180); Humanity+, “Transhumanist FAQ.”

¹¹² Bohan (2018, 209, 211).

¹¹³ Huxley 1971: “The Crisis in Man’s Destiny,” 415.

growth of Silicon Valley. Between 1995 and 2002, manufacturing jobs increased by 46,000 while computer-related jobs increased by 1.2 million. Biotechnology venture grew rapidly during the same period, a growth marked, notes Farman, by an ability to attract capital rather than create jobs. Transhumanism was also attracting the biosciences and genetics, with scientists attending the Extropian meetings.¹¹⁴

Transhumanism 2.0 promoted self-improvement, human enhancement, and optimized living all at once. It was a libertarian futurism that appeared perfectly suited for Silicon Valley. The leading transhumanist magazine of the 1990s, *Extropy*, promised a future with free market, nanotechnology, artificial intelligence and intelligent machines, material abundance, vastly expanded intelligences, and a pollution-free environment.¹¹⁵ It was also a lifestyle futurism. It advertised seminars such as: “Living to 120+: Biologically & Psychologically,” “Mastering Change in a Time of Acceleration,” “Creating a Personal Mission, Achieving Goals,” “Being Transhuman,” and “Sharpen Your Intelligence.”¹¹⁶

Examining the beliefs of 17 prominent futurists in the 1980s, futurists Jennifer Jarratt and Joseph Coates concluded that one of the most striking features of the group “is that they are all aging white males” and predominantly American.¹¹⁷ Similarly but more recently, anthropologist Jenny Huberman has noted that the most outspoken and influential figures of the transhumanist movement today are highly educated, predominantly white, male elites, who share libertarian outlooks. Many have earned their fame and fortunes in Silicon Valley, and Huberman has observed how a very powerful group of celebrity scientists, engineers, and entrepreneurs—for example, Peter Thiel, Elon Musk, Jeffrey Bezos, and Ray Kurzweil—were now promoting transhumanist visions and agendas through an array of corporate- and government-sponsored institutions.¹¹⁸ As Farman has noted, transhumanist ideas have directly influenced scientific research: “As transhumanists gained ground and moved into powerful positions, their propositions [...] have gained ground in the tech world.”¹¹⁹ In close proximity to transhumanist ideas are, besides the World Transhumanist Association Humanity+, the Extropy Institute, the former Future of Humanity

¹¹⁴ Farman (2012, 1073–75).

¹¹⁵ “Introduction,” 1988, *Extropy: Vaccine for Future Shock*, no. 1: 2.

¹¹⁶ See *Extropy*, 1996, no. 17, 27.

¹¹⁷ Coates and Jarratt (1989, 9).

¹¹⁸ Huberman (2021, 8–9). See also Cohen (2017).

¹¹⁹ Farman (2023).

Institute, Foresight Institute, Immortality Institute, the Institute for Ethics and Emerging Technologies, and the Machine Intelligence Research Institute (formerly the Singularity Institute for Artificial Intelligence).

Transhumanism today is not a uniform project. Plenty of variants exists, such as socially progressive transhumanism, transgender transhumanism, anarchist transhumanism, Ayn Randian transhumanism, Buddhist, as well as Christian transhumanism.¹²⁰ Although the different groups and organizations may disagree politically, they do, however, share a sociotechnical imaginary, distinguished by ideas of a next evolutionary step for mankind, a strong belief in science and technology, and of control of biology. Transhumanist questions revolve around human enhancement, artificial intelligence, space travel and colonization, elimination of old age and prevention of inherited diseases, cryonic suspension, biohacking, and sometimes simply just choosing a healthy lifestyle as an active step toward hopefully become posthuman.

8.3 DISMISS THE PAST, EMBRACE THE FUTURE

Huberman has noted that transhumanists brandish an “almost maniacal optimism.”¹²¹ While this is not necessarily true of all transhumanists today, it is certainly a fitting description of the transhumanist movement in the 1970s, 1980s, and 1990s. To the transhumanist futurists of that era, everything seemed to happen in a revolutionary now. They coupled an anti-pessimism with a sense of experiencing a visibly growing gap between the generations. These future-oriented intellectuals were convinced that they were living within a vortex of unprecedented historical change. The older generation was quickly getting completely out of touch with what was going on.

When transhumanism turned into a more collectively held sociotechnical imaginary, its new leaders themselves assumed a visionary role, performing the identity of one who possesses superior knowledge of emerging technologies and aspires to realize their desirable potential. In doing so, they used a narrative that appeared to dismiss the recent past.

In 1980, Timothy Leary claimed that the image of scientists was suddenly changing: “The image of the retiring, square, fuddy-duddy

¹²⁰Farman (2023).

¹²¹Huberman (2021, 29).

scientist that we grew up with is, happily, over.” That was because, said Leary, “science has become Americanized; i.e., optimistic, expansive, self-confident.”¹²² Throughout the 1980s, Leary continued to be critical of what he referred to as “pre-cyber” and “industrial” (i.e., old) psychologists and scientists. These earlier thinkers had not produced any methods for solving the problems of human society. He was also critical of “most evolutionists,” who relied on chance as the determining factor and denied the ascendancy of humanity. Leary claimed that very few before him had considered the possibility of continuing evolution. Indeed, Leary—at the time of writing in jail for the possession of marijuana—compared his own situation to that of Giordano Bruno’s.¹²³

Even before Leary, futurist Richard Kostelanetz (who, as mentioned, had made use of Huxley in his writings) was critical of “archaic hangovers from the past.”¹²⁴ Kostelanetz argued that the present moment knew no historical precedent and stood so far beyond even the recent past, that intellectuals no longer could rely on past knowledge.¹²⁵ In *Human Alternatives* (1971), an anthology of which Kostelanetz was an editor and to which Timothy Leary, among others, contributed, Kostelanetz defined “distant future” as being only 20–25 years from now, “because things happen so rapidly today that 25 years is like 2,000 years or 2,500 years in the past.”¹²⁶

Transhumanism 2.0 quickly formed a particular narrative about itself. Robert Ettinger is one of the first who expressed it, and it is perhaps with him that the telling of the history of transhumanism began. In *Man into Superman*, Ettinger recounted the epic of transhumanism now familiar: He started with Gilgamesh, passed over various oriental sages, cut across Nietzsche, and ended with himself.¹²⁷

One may ask why Ettinger chose to present such a narrative. An explanation given for transhumanists unwillingness to engage with earlier twentieth-century future-oriented thinkers is that previous thinkers, like Huxley, had advocated eugenics in a way that had become distasteful and

¹²² Leary 1980: “Scientist Superstars,” 72.

¹²³ Leary (1987, 7, 18–22).

¹²⁴ Kostelanetz 1971a: “Visions for Our Time,” *The Futurist*, 120.

¹²⁵ Kostelanetz 1971a: “Visions for Our Time,” 120.

¹²⁶ Kostelanetz (ed.) 1971b: *Human Alternatives: Visions for Us Now*, 80.

¹²⁷ Ettinger (1972, 23 ff).

highly problematic by the 1970s. This theme will be discussed further below. There is, however, another and perhaps as decisive reason. It is the simple fact, which has already been hinted at above, that someone wishing or imagining themselves to be very future-oriented might not be inclined to relate to the past or want to focus on it too much at all. Put in a different way, Ettinger and the other transhumanist-adjacent thinkers of the 1970s and 1980s truly regarded themselves as representing something unprecedented and new.

In his futurological analysis, Alvin Toffler had divided the inhabitants of Earth into three categories, sorted by their position in time (past, present, and future). “Most people,” about 70%, still lived in the past. They relied on ancient methods of hunting and agriculture. Around 25% were people of the present. They were living modern lives in industrialized cities. Only a mere 2% or 3%, Toffler concluded, were people of the future. These were the people living in the center of technological cultural change. They lived in Santa Monica, California, New York, London, and Tokyo, but constituted “an international nation of the future in our midst.” These “people of the future” were more mobile, lived longer, and lived faster than the people around them.¹²⁸

The new transhumanists certainly wanted to view themselves as belonging to the 2%—intellects who lived faster than the people around them. Ettinger, for example, cultivated a definite “us against them” attitude. His goal of superhumanity and immortality was not, he claimed, grasped by anyone outside of the small circles of which he was a part and a leader: “Not a single philosopher, scientist, or writer of acknowledge status and immediate influence” shared Ettinger’s goal, he alleged.¹²⁹

Nevertheless, Ettinger had clearly read much of the available literature on the future of human evolution. He made use of figures such as Teilhard de Chardin, surgeon, eugenicist, and biologist Alexis Carrel (1873–1944) and molecular biologist Joshua Lederberg (1925–2008) (all three of whom had corresponded with Huxley).¹³⁰ He was explicitly contentious toward G. B. Shaw and H. G. Wells, dismissing them as old-fashioned Fabians and as such desiring mainly to perfect social and political

¹²⁸ Cornish 1970: “Future Shock,” *The Futurist*, 179.

¹²⁹ Ettinger (1972, 6–7).

¹³⁰ Alexis Carrel was quoted as saying that mankind for the first time in history had become master of its destiny, taken by Ettinger from a book edited by Jean Rostand, *Can Man Be Modified?* (1959), Ettinger (1972, 4). Teilhard de Chardin is also quoted, 7, 12.

institutions. Wells was “serving up a very thin soup” with regard to superhuman potentials, and Olaf Stapledon was “old-fashioned” and did not “convey a modern flavor.”¹³¹ Even the contemporary Abraham Maslow’s theories were “crude and incomplete.”¹³²

Ettinger took issue with most of his predecessors, which he believed had failed to realize that change would be much quicker than the old believers in eugenics had presumed. Through genetic engineering, change would not be gradual but explosive, and improvements would occur within the current, existing generation.¹³³ Expressing a curious brand of aggressive optimism, Ettinger fashioned himself a paragon of the future: “Certainly I am not pessimistic about the success of the cryonics revolution. Human stupidity is formidable, but not invincible, and sooner or later most of us will set our sights on immortality and transhumanity.”¹³⁴

Like Ettinger, FM-2030 was never very forthcoming about his influences. In an interview, he said that it must have been during his teaching that he hit upon the word transhuman.¹³⁵ Also like Ettinger, FM-2030 brandished his optimism like a weapon, insisting that optimism was “the only relevant outlook.”¹³⁶ Whereas most intellectuals were and had been “hobbled by puritan guilt and self-doubt,” he viewed himself as promoting a truly new radical and transcendent message of cosmic upheaval.¹³⁷ Yet a quick examination of the literature that interested him during the time he started to promote the transhuman gives some clues as to his sources of inspiration. In the late 1960s and early 1970s, Esfandiary read and made use of such books as Feinberg’s *The Prometheus Project*, Toffler’s *Future Shock*, Maslow’s *Toward a Psychology of Being*, and Halacy’s *Cyborg: Evolution of the Superman*.¹³⁸

In the 1980s and 1990s, Max More continued to argue along similar lines, and generally chose to focus on promoting his philosophy as something new and entirely future-oriented. His *Extropy* magazine announced a turning point in history when new science and technology would

¹³¹ Ettinger (1972, 30–33).

¹³² Ettinger (1972, 135).

¹³³ Ettinger (1972, 41–42).

¹³⁴ Ettinger (1972, 226).

¹³⁵ Vita-More 1997: *Create*, 6.

¹³⁶ Esfandiary 1973: *Up-Wingers*, 14.

¹³⁷ Esfandiary 1973: *Up-Wingers*, introduction.

¹³⁸ F. M. Esfandiary/FM-2030 Papers, III. Teaching and seminar files, 1969–2000—New School, 1969–1983—Box 31, folder 1. Reading lists, 1967–1989.

radically transform every aspect of human existence.¹³⁹ More welcomed these changes. Humanity was in the early stages of an explosive expansion, and yet obstructed itself from positive change by clinging to old conceptual structures. Humanism, for example, contained “too many outdated values and ideas.” The alternative to these old, conceptual structures (the main one being religion) was not, More declared, despairing nihilism or sterile scientism, but transhumanism.¹⁴⁰ Whereas older beliefs and philosophies encouraged resignation, More wrote, “transhumanism embodies the extropic principle of *dynamic optimism*,” a motivation for progress.¹⁴¹ The optimism was based on “a rational expectation based on the evidence” and was a self-chosen attitude toward the future.¹⁴²

More wanted “to question old ways of doing things, and challenge traditional religious and philosophical ideas.”¹⁴³ Nevertheless, he too had certainly been inspired by earlier thinkers. Attached to his transhumanist declaration in the sixth issue of *Extropy*, More had listed various books he claimed “embodied extropian ideas.”¹⁴⁴ There was, of course, Ettinger’s *Man Into Superman* and Leary’s *Info-Psychology*. There was also the science journalist Albert Rosenfeld’s *Prolongevity II: An Updated Report on the Scientific Prospects for Adding Good Years to Life* (1985). In that book, Rosenfeld described the potential splendors of an upcoming human era, calling it “The Second Genesis” or a post-civilization, “to be inhabited, perhaps, by Sir Julian Huxley’s ‘trans-humans’.”¹⁴⁵ Rosenfeld’s

¹³⁹ “Introduction,” 1988, *Extropy*, no. 1: 1.

¹⁴⁰ More 1990b: “Transhumanism: Toward a Futurist Philosophy,” *Extropy*, 6.

¹⁴¹ More 1990b: “Transhumanism: Toward a Futurist Philosophy,” *Extropy*, 9.

¹⁴² “Introduction,” 1988, *Extropy*, no. 1: 1–2.

¹⁴³ Vita-More 1997: *Create*, 10.

¹⁴⁴ More 1990c: “The Extropian Principles,” *Extropy*, 18. Transhuman/transhumanism was not mentioned in the first three issues of *Extropy*. In the fourth issue, More reviewed favorably FM-2030’s *Are You a Transhuman?* In the sixth issue, More published his article “Transhumanism: Toward a Futurist Philosophy.” This was also when he announced his name change. According to the editorial of this issue, Max O’Connor changed his name to “remove the cultural links to Ireland (which connotes backwardness rather than future orientation) and to reflect the extropian desire for MORE LIFE, MORE INTELLIGENCE, MORE FREEDOM,” see More 1990: “Transhumanism: Toward a Futurist Philosophy,” *Extropy*, 6–12, and “Editorial,” 4; More 1989: “Review of *Are You a Transhuman?*” *Extropy*, 30–31.

¹⁴⁵ Rosenfeld (1985, 280). Rosenfeld also mentioned Ettinger and Esfandiary, 256. Additionally, Max More included on his list of recommended books the professor of business administration Julian Simon’s *The Ultimate Resource*, 1981. Simon had challenged the notion that humankind was running out of natural resources and instead argued that things

Prolongevity II had also been suggested as rewarding reading by FM-2030, in his book *Are You a Transhuman?*

Continuing the development and promotion of his philosophy, More compiled a list of neologisms in *Extropy* issue 7 that he viewed as appropriately futuristic. The list contained such enticing words as “immortalism,” “singularity,” “posthuman,” and “futant” (a mix of “future” and “mutant”). The list also included “ectogenesis,” the word denoting reproduction in artificial wombs that had been coined by Haldane, although he was not credited on the list.

The list did, however, credit Huxley for a familiar word. When the list of neologisms reached “Transhuman,” it was defined as “someone in the transition stage to posthumanity. One who orients his/her thinking towards the future to prepare for coming changes and who seeks out and takes advantage of opportunities for self-enhancement” and credited to Julian Huxley. No year was given for the reference. The next word on the list, “Transhumanism” specifically, was not credited to Huxley, but instead to More himself.¹⁴⁶

In a later issue, number 10 of *Extropy*, a list of definitions of important words was again included. This time, the word “Transhuman” was no longer credited to Huxley (it was credited to no one), and the definition of the word had undergone an adjustment: “Someone in the transition stage from human to biologically, neurologically, and genetically posthuman. One who orients his/her thinking towards the future to prepare for coming changes and who seeks out and takes advantage of opportunities for self-advancement.”¹⁴⁷

So, Huxley was apparently credited for a word—transhuman—that he had not coined but was not credited for the word he had coined,

were progressively getting better. One of Simon’s references was Huxley’s *Evolution in Action*, 1953. Further on the list was the English-born American theoretical physicist Freeman Dyson’s *Infinite in all directions*, 1988, which admitted debt to Olaf Stapledon, J. B. S. Haldane, D. H. Lawrence, J. D. Bernal, and H. G. Wells, as well as Alan Harrington’s *The Immortalist: An Approach to the Engineering of Man’s Divinity*, 1970, Robert Anton Wilson’s *Prometheus Rising*, 1983, and Jerome Clayton Glenn’s *Future Mind: Artificial Intelligence*, 1989, all three of which referred to Aldous Huxley. Max More has later said that he was inspired by *Future Life Magazine*. *Future Life* started in 1978 and published articles about space, Carl Sagan’s “Cosmos,” engineering, future cities, H. G. Wells, Timothy Leary, Cryonics, Alvin Toffler, human enhancement, Fereidoun Esfandiary, etc.

¹⁴⁶ More 1991: “Futique Neologisms,” *Extropy: The Journal of Transhumanist Thought*, 36.

¹⁴⁷ More 1993: “Technological Self-transformation: Expanding Personal Extropy,” *Extropy*, 17.

transhumanism. It is also noteworthy that Huxley's transhuman in this instance was related to a posthumanity, meaning his vision had been understood as in some way speaking of themes relevant to a new transhumanist philosophy. However, when the definition was then modified to speak of the transhuman as a transitional stage from human to "biologically, neurologically, and genetically" posthuman, Huxley was no longer credited. This implies either that such a definition of a transhuman, and credited to Huxley, would relate transhumanism to eugenics in an uncomfortable way, or that Huxley's transhumanism simply was not understood as having discussed human or transhuman enhancement on such a concrete, scientific level, even though it had.

The point here is not to call out the new transhumanists for being unoriginal. Nor is this an attempt at accusing them of being unforthcoming about their sources. It would be unreasonable to demand that every futurist or philosopher meticulously accounted for all of his or her intellectual predecessors, some of whom may not even be immediately apparent to the thinker.

In addition, it cannot be ruled out that the new transhumanists, Max More for example, "invented" a transhumanism anew. More himself has claimed that Huxley's usage of the term came to light "years after the term was independently coined as part of the contemporary transhumanist movement."¹⁴⁸ Notwithstanding Huxley's "transhuman" being present in the early issues of *Extropy magazine*, More has a point. Ideas are not only born but born again, sometimes without any obvious ties to the past other than the fact that they emanate from a human mind, affected by its surrounding context. Historians of ideas are, however, interested in the development and continuity of human thinking. Knowing how we got to here from there can be especially interesting when a philosophy or imaginary is very future-oriented. The intention here, then, has been to show the ways in which Huxley, both implicitly and explicitly, was still present among a new generation of futurists and transhumanists.

Transhumanism 2.0 often included a political dimension. It wanted to convey a progressive and optimistic message as a new alternative to the perceived critical and pessimistic *zeitgeist*. It was therefore perhaps less inclined to refer to what was perceived as old ideas and outdated thinkers. Even Toffler jumped onto the optimistic bandwagon. When he published

¹⁴⁸ More 2013: "The Philosophy of Transhumanism," 8.

yet another futuristic and best-selling prognosis, *The Third Wave* (1980), Huxley no longer figured in Toffler's account. In *Future Shock*, Toffler had adapted a humanistic outlook and a futurology influenced by sources such as Huxley, Haldane, and Wells, and had seemed mildly concerned about a future that was arriving very fast. In *The Third Wave*, by contrast, Toffler showcased a new spirit. He was now dismissive of earlier ideas, heralding instead the coming of a new "third wave" of civilization. Industrialized society—the "Second Wave civilization"—had been fueled by social Darwinism, imperialism, and a false progressive evolutionary way of thinking.¹⁴⁹ "Second Wave thinkers," Toffler claimed, had viewed the human species as the culmination of a long evolutionary process. The new Third Wave-thinkers instead realized that they were to become "designers of evolution."¹⁵⁰

Toffler of course cannot be said to have been—like Ettinger, FM-2030 or More—a transhumanist. He was, however, a futurist, and a best-selling one at that. Toffler's changing outlook on the future is a good example, because it shows how futurists and transhumanists in the late 1970s and 1980s both built on—and then dismissed, or simply moved past earlier thinkers.

¹⁴⁹Toffler (1980, 116–18).

¹⁵⁰Toffler (1980, 310).

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Huxley's Vanguard Vision and the Sociotechnical Imaginary of Transhumanism

In more recent years, and as was stated in the introduction, transhumanists have been made aware of Huxley. They have not, however, been particularly open to welcoming him into their ranks. Max More claims that he first coined transhumanism in the “modern sense of the term” in 1990.¹ Commenting on Huxley’s transhumanism, More asserted that Huxley “did not develop this evolutionary view into a philosophical position.”² Vita-More has called the suggested connection between Huxley and contemporary transhumanism a “misunderstanding” and a “misconception.”³ She has claimed that Huxley’s transhumanism was about humans needing to create a better environment for themselves.⁴ Within academia, MacFarlane has recently suggested that the new transhumanists were the first to use the term transhuman to signify the deliberate transition beyond the human.⁵

Examining the philosophy and movement of transhumanism 2.0, after having closely analyzed Huxley’s vision, this study must respectfully

¹ More 2011: “True Transhumanism,” 137.

² More 2013: “The Philosophy of Transhumanism,” 8.

³ Vita-More 2013: “Aesthetics,” 25 note; see also Bohan (2018).

⁴ Vita-More 2019: “History of Transhumanism,” *The Transhumanism Handbook*, 51.

⁵ MacFarlane (2020, 28).

disagree with such statements. There is continuity in transhumanism, going beyond simply the words transhuman and transhumanism. Regarding Max More and Huxley specifically, the similarities are at times uncanny.

In the 1960s, Huxley had used the laws of thermodynamics to speak of entropy—a term referring to the measure of disorder within a system—and had hailed the world of life as pursuing an “anti-entropic course.” The evolution of mind, he claimed, was anti-entropic.⁶ In the 1980s, More would develop his “extropian principles,” using extropy as an antonym to entropy. To More, extropy signified functional order, life, the extent of a living system’s intelligence, and capacity and drive for improvement and growth.

Huxley had wanted his transhumanism to promote humans striving to attain “more life,” and More would change his very name to “More” on the grounds that he wanted more of everything, life included.⁷

And just as a young Huxley of the 1910s had been energized by Nietzsche, More approvingly quoted Nietzsche’s *Zarathustra* in 1990. Although both were stimulated by Nietzschean philosophy, neither Huxley nor More took Nietzsche’s eternal return or cyclic theory of history to heart, however.⁸ Huxley coined the term transhumanism, in an attempt

⁶Huxley 1971: “Science and Synthesis,” 36.

⁷Huxley 1927: *Religion Without Revelation*, 340, 357; More 1990a: “Editorial,” *Extropy*, 4. Several leading figures in the transhumanist movement have adopted new names. As More explained: “If you don’t particularly like your given, unchosen name, why not think of a new one that better reflects your self-conception? As extropians pursuing self-transformation it is appropriate that we should choose new personal labels—one’s that reflect what we feel to be important to us.”

⁸More 1990b: “Transhumanism: Toward a Futurist Philosophy,” *Extropy*, 9. More has said that parts of his transhumanist ideas were directly influenced by Nietzsche but believes that Nietzsche’s idea of “eternal recurrence” is impossible to reconcile with transhumanism, which is invested in the idea of progress, see More (2010). There has been dispute over the influence of Nietzsche on modern-day ideas of enhancing humankind and on transhumanism. Bostrom believes that similarities lie only at a surface level and believes modern transhumanism has more in common with J. S. Mill’s liberalism and utilitarianism, see Bostrom 2005: “A History of Transhumanist Thought.” Hauskeller believes that Nietzsche never sought to improve the human condition by way of genetic engineering and enhancement, but instead wanted to re-evaluate all values. Nietzsche’s anti-Enlightenment sentiments, Hauskeller argues, are far-removed from transhumanist ideas, see Hauskeller (2010). Sorgner, on the other hand, has argued that Nietzsche’s vision of the overman has significant similarities to modern ideas of the transhuman, see Sorgner (2009). On a similar note, Bashford has claimed that the *Übermensch* for the twenty-first century has materialized in the transhumanist movement, see Bashford (2013, 154). See also Tuncel (2017), Babich (2017), Fuller (2020).

to create a religion for the future progress and enhancement of humankind. Is it perhaps an ironic case of “eternal recurrence” that, some 30 years later, More would do it all over again?

Similarities, of course, do not necessarily mean correlation. Although Huxley was indeed present in the backdrop of transhumanism 2.0, it is also necessary to analyze the elements that made up the imaginary of transhumanism. By pointing out the continuities and discontinuities, where Huxley’s vision carried over or did not carry over into a larger sociotechnical imaginary, it is also possible to realize any newness and development of the ideas of transhumanism.

9.1 A PARTICULAR STORY OF EVOLUTION

The new transhumanists clearly put emphasis on biology and evolution in their future visions. The transformative and transcendent element within their thinking—along with their techno-optimism—was coupled with an evolutionary point of view. The word transhuman and transhumanism was continually used in an evolutionary context.

The Transhumanist FAQ defines contemporary transhumanism as “a class of philosophies of life that seek the continuation and acceleration of the evolution of intelligent life beyond its currently human form and human limitations by means of science and technology, guided by life-promoting principles and values.”⁹ Ettinger claimed that his transhuman philosophy kept up the idea of progress but shifted away from social change, toward biological change.¹⁰ Transhumanism, More declared, moved “beyond humanism, focusing on our evolutionary future.”¹¹

This biological and evolutionary point of view is not, however, Darwinian in its strict scientific sense. Transhumanism nurtures instead a different, but familiar story of evolution. Theologian Michael S. Burdett, who has underlined evolution’s importance for modern transhumanism, noted that evolution in this case provides a trajectory pointing to the future.¹²

More argued that mere scientism could never succeed in replacing religion (which was one of his goals), but that the new transhumanist

⁹ More 1990; Transhumanism FAQ Live; see also Burdett (2014, 5).

¹⁰ Ettinger (1972, 243–44).

¹¹ More 1990b: “Transhumanism: Toward a Futurist Philosophy,” *Extrropy*, 6.

¹² Burdett (2015, 81).

thought-system, albeit fostering openness and critical thinking, needed to be “deeply value-laden” in order to “dislodge virulent religious memes.”¹³

Transhumanism was and is value-laden and concerned with deeply existential issues. A continuing theme within this kind of futurism is the human condition placed within an evolutionary context, giving rise to feelings of both triumph and despair. Futurist Gerald Feinberg’s Prometheus project seemed fueled by such feelings of despair. To Feinberg, humans were finite creatures with no higher purpose: “My own feeling is that the despair of the conscious mind at the recognition of its own finitude is such that man cannot achieve an abiding contentment in his present form or anything like it.”¹⁴ Feinberg stressed that the human mind had not changed since the development of writing and had not resulted in a qualitatively higher form of consciousness.¹⁵

Ettinger argued along very similar lines. He referred to “scholars” who said that our basic biological design had not yet been improved and that in biological terms, humans today were no different from their ancestors of 50,000 years ago.¹⁶ Ettinger’s conception of humankind was dismal, to say the least. “To be born human,” he wrote, “is an affliction; it shouldn’t happen to a hog.”¹⁷ FM-2030 would have agreed with Ettinger. In familiar terms, he described biological evolution as “slow and arbitrary.”¹⁸ The advances in human progress were historic, not evolutionary: “The human condition remains inherently tragic.”¹⁹

The human body and brain were frequently downgraded as primitive products of evolution.²⁰ Humans at present were seen as having dissatisfactory or defective natures, and as incapable of solving our own problems. Transhumanists sometimes argue that our technologies exceed our philosophies for understanding them.²¹ In close proximity to that idea is also a transcendental naturalism or an idea of cognitive closure that suggests that human minds at present are constitutionally incapable of solving

¹³More 1990b: “Transhumanism: Toward a Futurist Philosophy,” *Entropy*, 10.

¹⁴Feinberg (1969, 40–41, 50).

¹⁵Feinberg (1969, 168).

¹⁶Ettinger (1972, 3). Bostrom and Sandberg have presented a similar problem, see Bostrom and Sandberg (2009).

¹⁷Ettinger 1978: “The Transhuman Condition,” vii; see also Ettinger (1972, 8–9).

¹⁸Esfandiary 1973: *Up-Wingers*, 134.

¹⁹Esfandiary 1973: *Up-Wingers*, 104.

²⁰Farman (2012, 1080).

²¹Pilsch (2017, 19), Walker (2009, 28).

certain philosophical problems (e.g., the mind-body problem, the problem of free will, the problem of a limitless universe).²²

In Simon Young's transhumanist manifesto from 2006, the transhumanist view of the human condition was eloquently expressed. Young wrote of what he saw as a fundamental problem with life, namely that biological limitations ultimately made life a tragedy: "I find it impossible to blindly accept the suffering imposed upon us by our biological condition. Why must we age and die? Why must our brains and bodies be so fragile, subject to inevitable decay—programmed for self-destruction?"²³

Solace lay in putting trust in the fact that humankind, despite its flaws, had the ability to progress. The possibility of transcending conceived human limitations is widely accepted among the transhumanists. The despair caused by the present human condition is matched by a parallel feeling of optimism because of future possibilities.

Additionally, and continually, it is believed that these future possibilities are arriving fast and that evolution is accelerating. "The future is not going to go away—on the contrary change is going to *accelerate*," the first issue of *Extropy* magazine in 1988 exclaimed.²⁴ Anthropologist Abou Farman has described a sense of urgency in contemporary transhumanism and singularitarianism. The state of urgency is achieved through ideas of an intense temporal compression and visualized with exponential curves. The narrative is one of an unfolding of grand temporal scales, illustrating biological and technological paradigm shifts and canonical milestones.²⁵

Engineer and futurist Eric Drexler's influential *Engines of Creation* (1986) promised an incoming "last technological revolution" and extraordinary technological improvements on biological evolution: "With mind and technology, the rate of evolution has jumped a millionfold or more," he claimed.²⁶ FM-2030 was fond of speaking of the accelerated tempo of evolution and of how human progress would continue to speed up.²⁷ Natasha Vita-More, who put every transhuman development on a vast evolutionary timescale, also spoke of accelerated evolution.²⁸ The inventor,

²² Compare the "New Mysterianism," a theory in cognitive science that postulates that some problems cannot ever be resolved by humans.

²³ Young (2006, 15).

²⁴ "Introduction," 1988, *Extropy: Vaccine for Future Shock*, 1.

²⁵ Farman (2012, 1075–76).

²⁶ Drexler (1986, 16, 28).

²⁷ Esfandiary 1989: *Are You a Transhuman?*, 159, 176.

²⁸ Vita-More (1997).

futurist, and transhumanist Ray Kurzweil (b. 1948) has perpetuated the idea that man-made technology is in itself an evolutionary process, a continuation of the biological evolution that created humanity in the first place. He is convinced that the pace of cultural and evolutionary change is accelerating, and that the “rate of progress” is doubled every decade.

Like Huxley, Kurzweil imagines evolution in phases or epochs. Kurzweil’s phases move from the appearance of physics and chemistry on Earth, to the development of biology, to the rise of the brain, to the merger of technology and human intelligence, to the final epoch—sometimes referred to as “The Intelligent Destiny of the Cosmos”—when the universe’s matter is saturated with purpose-driven information. He anticipates the Singularity, when humans through their cultural and technological evolution will enhance themselves by technology and create intelligent machines, and a point where change will be happening so rapidly that we will get to a “rupture in the fabric of human history.”²⁹

Transhumanism 2.0 still adhered to the idea that the human species in its current form does not represent the end of human development. The species is still young or unfinished.³⁰ Their post-Darwinian evolutionism was often imagined not as a gradual slow process but as a series of leaps or evolutionary transcendences, like steps on a ladder where organisms, humans in particular, could ascend and drastically alter its species constitution and condition. Transcendence was not a metaphysical concept but a physical reality, and the transitional human or transhuman stood to mean a phase in human evolution from the ordinary human today to the post-human of the future.³¹

Leary claimed that humans were presently going through a period of accelerated evolution which he, in familiar terms, equaled to the moment in history when we first left the water and became terrestrial creatures.³² FM-2030 claimed that transhumans were emerging in a form of higher evolution.³³ He underlined that transhumans were manifestations of new evolutionary beings: “Trans[humans] are like those earliest hominids who many millions of years ago came down from the trees and began to

²⁹ Ray Kurzweil associates with the libertarian financial guru Peter Thiel and has also worked with NASA and Google. See Kurzweil 2003: “The Singularity,” 217–18, 222, 231–32. For further reading, see Kurzweil (1999, 2005). See also Farman (2012, 1077–78).

³⁰ More (1990) and Transhumanism FAQ Live; see also Burdett (2014, 5).

³¹ Tirosch-Samuels (2011, 26), Sorgner (2020, 5).

³² Snelson 1979: “Interview with Timothy Leary,” *Future Life Magazine*, 34.

³³ Esfandiary 1973: *Up-Wingers*, 10.

look around.”³⁴ When humans moved into the posthuman stage, our physical and intellectual capacities would exceed a human’s as human capacities exceed an ape’s, stated More in 1993.³⁵ Along the same lines, transhumanist philosopher Stefan Lorenz Sorgner has stated that the post-human will be a being that does not belong to the human species, but instead represents “a further evolutionary step” from humanity.³⁶

9.2 PERPETUATING THE IDEA OF CONTROL

The new transhumanists did not mean “evolution” as a synonym for development, but rather in the Darwinian sense. However, and as shown here, they adhered not to a strictly scientific Darwinism, but to a post-Darwinian narrative about evolution that can be said to have been, at least in part, constructed by Huxley. As Fuller and Lipinska have pointed out, it could be argued that Darwinism under its current official philosophical interpretation goes against the idea of transhumanism because the theory does not ascribe *Homo sapiens* with any uniqueness or species-transcendent capacity to control the process of natural selection.³⁷

Huxley had imagined a destiny for humankind both in terms of an arrival and as a product of our own making. Philosopher Michael Hauskeller, in his analysis of contemporary transhumanist thought, has claimed that the modern transhuman goal is presented as an inevitable outcome, “but at the same time as dependent on our willingness to help bring them about and not to throw any unnecessary obstacles in their way.”³⁸

Pilsch has noted “the internalization of control” as one of contemporary transhumanism’s most interesting features, and discovered a narrative about destiny in contemporary transhumanism, one where humankind would move from infancy to adulthood ready to make decisions about its own destiny.³⁹ On a similar note, Abou Farman found that the

³⁴ Esfandiary 1989: *Are You a Transhuman?*, 204–5.

³⁵ More 1993: “Technological Self-transformation: Expanding Personal Extropy,” *Extropy*, 18.

³⁶ Sorgner 2020: *On Transhumanism*, 5.

³⁷ Fuller and Lipinska (2014, 80).

³⁸ Hauskeller (2012, 44).

³⁹ Pilsch (2017, 10); see also Baumann et al. (2013, 647).

transhumanist movement of the 1990s was widely concerned with technologies that offered new promises of control over biology and over the brain.⁴⁰

Previous chapters have shown that Huxley had encouraged his fellow humans to “grow up” and assume the responsibility and control of a conscious adult. The same metaphor and instruction would be employed by a new generation of transhumanists.⁴¹ In “Letter to Mother Nature” (1999), More imagined humankind telling Mother Nature that we had presently reached our childhood’s end and were ready to take charge. Bostrom also made use of the metaphor of growing up, writing that present humans are like children who will evolve into posthuman adults.⁴² Having the opportunity to become posthuman would be good for us “in much the same way that it is good for an infant to have the opportunity to mature into an adult.”⁴³ Biophysicist and biotech-entrepreneur Gregory Stock claimed that humanity is moving out of its childhood “into a gawky, stumbling adolescence in which it must learn not only to acknowledge its immense new powers, but to figure out how to use them wisely.”⁴⁴

To More, and to the new transhumanists in general, humans were defined by a persistent desire to not only understand their environment and experience, but to control it.⁴⁵ Life’s purpose was not mere survival but a self-overcoming: “The essence of life is what Nietzsche called the will to power—life’s perpetual drive toward its own increase and excellence.”⁴⁶ Controlling the (up until now) uncontrollable continued to be a goal for transhumanism 2.0. In the *Prometheus Project*, the idea of attaining control and modifying humans worked almost like a spiritual consolation: “Those who accept the possibility of reconstructing man can avoid some of the despair that many have felt over man’s fate.”⁴⁷

⁴⁰ Farman (2012, 1074).

⁴¹ On contemporary transhumanism’s use of the metaphor of growing up, see Pilsch (2017, 10).

⁴² Bostrom 2009: “Why I Want to Be a Posthuman When I Grow Up,” 112.

⁴³ Bostrom et al. (2007, 4).

⁴⁴ Stock (2003, 17). Gregory Stock is the former director of the Program on Medicine, Technology and Society at UCLA’s School of Medicine.

⁴⁵ More 1990b: “Transhumanism: Toward a Futurist Philosophy,” *Extropy*, 7.

⁴⁶ More 1993: “Technological Self-transformation: Expanding Personal Extropy,” *Extropy*, 15.

⁴⁷ Feinberg (1969, 51).

Humankind was to take control of the future to achieve order from chaos.⁴⁸ More spoke of the need for humanity to consciously take charge of ourselves and accelerate our progress.⁴⁹ He also firmly believed in the possibility of doing so, since he believed that humans were “the leading wave of evolutionary progress.”⁵⁰ In 2003, Bostrom explained that transhumanists view human nature as a work-in-progress and as something that could be remolded in desirable ways. The vision, wrote Bostrom, was enhancement and “generally to achieve a greater degree of control over our own lives.”⁵¹ Kurzweil has similarly claimed that humans will continue to develop and control “until the entire universe is at our fingertips.”⁵² Kurzweil advocates the idea that evolution has changed from biological evolution into something carried out by *Homo sapiens*.

The new transhumanists still affirmed the role of scientific advance and technological innovation in building a future for humanity. Placing a high trust in science, they continued to propagate the idea that at no other time in history had humankind had such power over our own development.⁵³ Evolution up until now had worked through forces and determinants over which organisms had no choice. Humans could now, wrote FM-2030, go from being creatures of evolution to becoming creators of evolution.⁵⁴ Technology and medicine would help the individual human to better self-control their minds, emotions, bodies, so as not to be manipulated by them.⁵⁵ Leary believed he was living in a momentous moment in history, one which he referred to as the Season of Prometheus.⁵⁶ The genetic code and DNA was for Leary an instrumental message that humanity had evolved to the point where knowledge of how to control the body and the nervous system was available.⁵⁷

More would describe humans as being in a transitional stage between an animal heritage and a posthuman future. The posthuman future would

⁴⁸ Voss 1996: “Extropy Now!” *Extropy*, 27.

⁴⁹ More 1990: “Transhumanism: Toward a Futurist Philosophy,” *Extropy*, 11.

⁵⁰ More 1990c: “The Extropian Principles,” *Extropy*, 18.

⁵¹ Bostrom (2003, 493–94).

⁵² Kurzweil (2005, 487).

⁵³ Burdett (2014, 5).

⁵⁴ Esfandiary 1973: *Up-Wingers*, 133.

⁵⁵ Esfandiary 1973: *Up-Wingers*, 16, 136.

⁵⁶ Leary 1980: “Scientist Superstars,” 73.

⁵⁷ Leary (1987, 51).

be reached by genetic engineering, life-extending bioscience, virtual reality, artificial intelligence, and molecular nanotechnology.⁵⁸ Bostrom has stated that transhumanism has its roots in secular humanist thinking but is more radical in the sense that it promotes not only traditional means of improving human nature (such as education and cultural refinement), but also a direct application of medicine and technology to overcome some of our basic biological limits.⁵⁹

Huxley had defended his advocacy of science and technologies for human progress and improvement by accusing his critics of acting impulsively on instinct when faced with new revolutionary ideas and practices in biology and medicine. To damn a practice on the grounds that it was unnatural was to revert to a senseless Rousseauism.⁶⁰ Much in the same way, the new transhumanists often accused their critics of being “neo-Luddites” (a pejorative applied to people who are thought to express technophobia).

But the intense scientific optimism, often coupled with a highly individualistic libertarian stance, also made the new transhumanists of the 1980s and 1990s convey ideas that had been almost completely alien to Huxley. Whereas the uniqueness of humankind to Huxley had meant that humans were singularly responsible for the rest of the natural world and should carefully manage the environment and the populations within it, the new transhumanists displayed a denial of environmental issues or a promotion of contrarian environmental ideas.⁶¹

During his lifetime, Huxley was singled out as one of the persons responsible for the spreading of the idea that humankind was unique in nature, an idea that helped entitle humans to imprison other life and mismanage nature.⁶² However, he was simultaneously being commended as a forerunner in environmental thinking. In the *Times* of October 10, 1969, Nan Fairbrother, writing about ecology and the natural habitat, linked Huxley’s idea of a “man-made stage of evolution” to environmental awareness. Human future life on Earth depended on how consciously and

⁵⁸ More 1990: “Transhumanism: Toward a Futurist Philosophy,” *Extropy*, 11; Tirosh-Samuelson (2011, 23–24).

⁵⁹ Bostrom (2003, 494).

⁶⁰ Huxley 1925: “Birth Control: Individual and Social Ethics,” *Nature*, 26 Sept.

⁶¹ In recent years, the transhumanist movement has treated the environmental crisis as an existential risk.

⁶² Disch (ed.) (1970, 63).

how quickly we could achieve control of human and environmental development and planning.⁶³

Huxley's view of humanity's role in evolution made him acutely environmentally aware.⁶⁴ Since Huxley believed that human beings could control their surroundings and themselves, he also saw that we—as a human species—had a responsibility for the environment. He believed in the importance of conservation of natural habitats and by the 1960s started to often stress the importance of acknowledging the environmental threat. He clearly appreciated conservationist Rachel Carson's *Silent Spring*.⁶⁵ In 1965, he addressed the British Medical Association and stated that human-kind was doing something no other animal did; it was destroying its own environment: "We are in serious danger of becoming the cancer of our own planet."⁶⁶

In contrast, FM-2030 claimed that the environment had never been pure, and that Earth was no more polluted now than in the past. He also believed the attempt to save endangered species was a waste of time and resources, since the endangered species would die out anyway because they had lost viability in the "ever-changing ecological equation."⁶⁷ Leary boasted that over-population and pollution were signs of a successful species: "It doesn't mean stop and go back. It means it's time to go forward, get moving again."⁶⁸ He dismissed critics for their "Spenglerian doom."⁶⁹

Extropy magazine also hosted articles that denied over-population and environmental issues, calling them "scares" and implying or stating outright that the messages received through media and politicians about the environmental crisis and the plundering of natural resources were false and used to scare people into submission. Dismissive of such "Malthusian logic," these articles claimed that there was, in essence, no limit to

⁶³ JSH Papers, RU, MS50, 101:10. Fairbrother 1969: "Man's Use of His Natural Habitat," *Times*, 10 Oct.

⁶⁴ For an account of Huxley's environmental work, Deese's work is recommended, see Deese (2015, 146 ff).

⁶⁵ Huxley 1963: "The Future of Man: Evolutionary Aspects," 9.

⁶⁶ JSH Papers, RU, MS50, 138:1. "Birth Control Should be Ministry Responsibility: Sir J. Huxley," *The Times*, 14 Jul. 1965. *Medical News*, 23 Jul. 1965, reports the same story: "'Death Control is Not Enough: Act Now' Says Sir Julian." See also Huxley 1971: "The Crisis in Man's Destiny," 412.

⁶⁷ Esfandiary (1989, 120–21, 124).

⁶⁸ Snelson 1979: "Interview with Timothy Leary," 66.

⁶⁹ Leary (1987, 7, 18–22).

progress or to resources and accused the “environmentalists” of being elitist and of not believing in humankind.⁷⁰

Huxley believed transhumanism was necessary to avoid existential risks. An issue for him was the question of how humans—being what they are—could retain or regain control over the technology and the complex systems they had themselves created. He realized that humans needed to become better. In more recent years, transhumanists have to an increasing extent recognized that humanity faces serious risks from the misuse of new technologies. They have called for a need for understanding of these risks and careful deliberation on how to reduce them without losing beneficial applications.⁷¹

9.3 MORPHOLOGICAL FREEDOM

In transhumanism 2.0, the human biological body was pictured as source of anguish in a more pronounced way than before. Out of this anguish rose a radical liberalistic and individualistic campaign. With FM-2030, the message became one of absolute biopolitical and biological liberation for the individual. He longed for an upheaval to free us from our human tragedy and his transhuman philosophy veered toward fighting against what he referred to as the repressive manipulations of biology. Indeed, biology was the political enemy above all other enemies, the “primary perpetrator of inequality.”⁷² To FM-2030’s mind, an individual enjoyed no real rights before he or she could fully control their own bodies:

How free am I if I cannot choose my own body my own brain my own sex the color of my skin my biological life style? How free am I trapped in a predetermined biological straitjacket in whose selection I have had absolutely nothing to say?⁷³

Like FM-2030, Leary also started calling for the freedom to “control one’s own body function and sensory input” and to “accelerate, control one’s own nervous system.” Overall, he demanded the “genetic freedom

⁷⁰ See, for example, *Extropy* 11 (1993, 34–35).

⁷¹ Bostrom 2005c: “A History of Transhumanist Thought,” 26 (Appendix); Bostrom 2003: “Human Genetic Enhancements: A Transhumanist Perspective,” 494.

⁷² Esfandiary 1973: *Up-Wingers*, 111.

⁷³ Esfandiary 1973: *Up-Wingers*, 106–7.

of all life forms to live and evolve.”⁷⁴ These sentiments are still found in much more recent transhumanist manifestos. Young wrote of his belief in “seeking to overcome the mental and physical limitations that restrict our freedom.”⁷⁵

Max More repeated the by now well-known dictum that humanity at present could rebel against the tyranny of our genetic programming.⁷⁶ More’s Extropian principles advocated not only “boundless expansion,” “self-transformation,” and enhancements such as higher intelligence and an unlimited lifespan, but also called for a “removal of natural, social, biological, and psychological limits to self-actualization and self-realization.”⁷⁷

As an extension of such ideas, More developed the idea of morphological freedom—the freedom to the ability to alter bodily form at will through technologies such as surgery, genetic engineering, nanotechnology, uploading, etc.⁷⁸ The range of possible choices available for the individual should be expanded. No longer content with civil rights and human rights, the new transhumanists sought biological rights, wanting to design their own evolution.

Transhumanist Anders Sandberg advanced the ethical argument for morphological freedom, linking it to ideas of the right to one’s own body, self-ownership and self-direction: “If my pursuit of happiness requires a bodily change—be it dyeing my hair or changing my sex—then my right to freedom requires a right to morphological freedom.”⁷⁹ Perhaps Huxley’s mottos “Free but unequal” and “Varied excellence” are reflected in transhumanism 2.0’s “morphological freedom”?

Theologian Ronald Cole-Turner has at one point suggested that modern transhumanism focuses on our expanded freedom from biology, whereas Huxley focused on the evolutionary advancement of biology.⁸⁰ Cole-Turner’s point is noteworthy, and the interpretation is true insofar as Huxley oftentimes did—more so than contemporary transhumanists—appeal to a biological universal process. As has been shown here, however,

⁷⁴ Leary (1987, 23).

⁷⁵ Young (2006, 15).

⁷⁶ More 1993: “Technological Self-transformation: Expanding Personal Extropy,” *Extropy*, 17.

⁷⁷ More 1990c: “The Extropian Principles,” *Extropy*, 17.

⁷⁸ See More 1993: “Technological Self-transformation: Expanding Personal Extropy,” *Extropy*. For a discussion of morphological freedom, see also Fuller (2016).

⁷⁹ Sandberg (2013, 57).

⁸⁰ Cole-Turner (ed.) (2011, 12).

the advancement of biology was for Huxley dependent on humankind's ability to control the process. The idea that humankind needed to escape parts of its biological heritage was prevalent with Huxley's generation. The new transhumanists did, however, advance the argument of freedom from biology, even though the idea was arguably already present in Huxley's transhumanism.

There was also continuity in what enhancements were being discussed as desirable. Apart from the removal of disease and a strengthening of human physical health and vigor, many new transhumanists tended to focus on the mind and on intelligence. Viewing conscious reason and intellect as something apart from emotions, and very much holding on to the older notion that emotions were part of an older, more instinctual evolutionary heritage, FM-2030 claimed that the evolutionary trend pointed toward greater intelligence and wrote of emotions as something to outgrow: "The more backward we are the more emotions dominate our lives. The more we advance the more intelligence dominates."⁸¹ He also dreamt of perhaps editing out "all violence—violence among people and violence among animals."⁸²

More imagined such enhancements that would grant more intelligence and wisdom, more creativity, productivity, and a greater effectiveness in gathering and filtering information.⁸³ Transhuman-adjacent philosophers have called for the urgent need to explore the possibility of enhancing genetic virtue or moral dispositions.⁸⁴ The argument—virtually identical to Huxley's and other likeminded eugenicists'—is that human beings are biologically not fit for modern society, but only for close-knit small societies, with a restricted psychology. Although science and technology have radically changed human living conditions, human moral psychology has remained the same. Therefore, we cannot overcome threats of, for example, environmental or nuclear disaster. Biomedical enhancements of the moral dispositions of citizens are needed.⁸⁵

Bioethicists Holger Baumann, Jan-Christoph Heilinger, and Johann Roduit have noted that transhumanists today hold a specific idea of human

⁸¹ Esfandiary (1989, 100).

⁸² Esfandiary (1989, 151).

⁸³ More 1993: "Technological Self-transformation: Expanding Personal Extropy," *Extropy*, 15.

⁸⁴ Persson and Savulescu (2012a, 399), Walker (2009, 28).

⁸⁵ Persson and Savulescu (2012a, 400); see also Persson and Savulescu 2012: *Unfit for the future*.

perfection based on the idea of autonomy.⁸⁶ The new transhumanists tended to focus mainly on the idea of perfectibility of the individual, and of maximizing personal autonomy. “Do you want to be an Übermensch?” asked the first issue of *Extropy*, very much seeking to speak and give promises directly to the individual reader. This question points to a main point of discontinuity between Huxley’s transhumanism and transhumanism 2.0: despite having read Nietzsche, Huxley would arguably never have posed that question. He simply was not thinking in such individualistic, personal terms, did not consider morphological freedom, and was always more interested in the human on a species level.

9.4 IMMORTALITY AND POSTHUMANS IN THE IMAGINARY

MacFarlane has suggested that modern transhumanism represents an “attempt to tactically resolve deep-seeded cultural ambivalences towards death in the post-secular era.”⁸⁷ The new transhumanists are markedly more preoccupied with death than Huxley ever was. Life extension and immortality has become one of modern transhumanism’s main concerns. A plethora of techniques and methods for greatly extending life, or living forever, have been and are being explored.

Timothy Leary greatly disappointed his transhumanist admirers when he, for reasons unknown, finally chose not to be cryonically preserved at the end of his life, even though he had previously arranged for cryonic suspension. Leary “gave up on Life Extension” for reasons that Max More and the Extropians had a hard time grasping. More called it a “disappointing death” and could only explain it by the “sheer foolishness” of Leary believing in reincarnation.⁸⁸ Bostrom has referred to those who are not willing to fight ageing and death as “Deathists,” arguing that their passive acceptance is a dangerous barrier to urgently needed action.⁸⁹

The reality of death is perhaps the clearest example of something over which we do not have control. Simultaneously, it is something we can be sure will happen to every one of us. Although Huxley, too, had entertained the possibility of immortality, in the end it was not—as stated above—the individual that was the object of his interests. The intense

⁸⁶ Baumann et al. (2013, 647).

⁸⁷ MacFarlane (2020, 12).

⁸⁸ More 1996b: “The Heat Death of Timothy Leary,” *Extropy*, 37–39.

⁸⁹ Bostrom 2005b: “The Fable of the Dragon Tyrant,” *Journal of Medical Ethics*, 277.

individualism of transhumanism 2.0 explains why the new transhumanists have directed a lot of energy and attention toward the goal of immortality. More has made it clear that individual death is the greatest evil: “Death does not stop the progress of intelligent beings considered collectively, but it obliterates the individual. No philosophy of life can be truly satisfying which glorifies the advance of intelligent beings and yet which condemns each and every individual to rot into nothingness.”⁹⁰ On that point, Huxley—who was inclined to think in terms of populations and species—would have disagreed.

With a new focus on the own personal body, for the new transhumanists it was, in these instances, not “humankind needs to survive” but rather “I want to live longer.”⁹¹ Such a crusade arguably went and goes well with lucrative biotech- and biopharmaceutical venture. As existential as the quest for immortality may be, one wonders whether it does not at times run the risk of becoming a mere anti-aging vanity project.⁹²

At the same time, critical examination done by academics in the field of religious studies have scrutinized contemporary transhumanism as a new form of religion, adhering to it Christian theories of eschatology.⁹³ There is compatibility between transhumanism and spiritual aspirations to transcend animal nature for immortality, superhuman abilities, and superior insight. There was not usually, however, in transhumanism 2.0, an idea of a transcendental metaphysical God, and transhumanists pursued their goals through science and technology rather than through spiritual exercises.⁹⁴

Notwithstanding the hopes of preserving the individual body and self into eternity, some transhumanists today argue that intelligence does not require biology at all. The human mind is only the most recent and complex instance, biology merely the current platform.⁹⁵

⁹⁰ More 1990b: “Transhumanism: Toward a Futurist Philosophy,” *Extropy*, 10.

⁹¹ The focus on the body for the new transhumanists has been noted by Pilsch, see Pilsch (2017, 26).

⁹² As an example, see the entrepreneur, venture capitalist, and biohacker Bryan Johnson, who has received media attention for his personal anti-aging attempt called “Project Blueprint,” in pursuit of life extension.

⁹³ Burdett (2014, 20 ff.), Pilsch (2017, 6), Tirosh-Samuelson (2012b), Evans (2018, 73).

⁹⁴ It should be noted, however, that there are, at present, Christian and Buddhist transhumanists. See Bostrom, Hughes & Moreno 2007: “Human vs. Posthuman,” 4; Peed (2016, 502), Redding (2019).

⁹⁵ Farman (2012, 1078).

Science fiction author Arthur C. Clarke has been highly influential regarding such ideas. In 1962, he wrote of the “obsolescence of man” and explained that just as the “apemen” who invented tools caused them to evolve into their successor, *Homo sapiens*, so now would we evolve. The difference was that “the tool we have invented *is* our successor. Biological evolution has given way to a far more rapid process—technological evolution.”⁹⁶ Clarke believed computers was one of the greatest and, more importantly, would be one of the last breakthroughs in the history of human thought.⁹⁷ The human species would then cease to be, in favor of computers or robots or AI.

In this, too, it is possible to identify a discontinuity in the sociotechnical imaginary as compared against Huxley’s vision. Transhumanism 2.0 began to express an anti-exceptionalist view of intelligence, meaning it shifted away from the idea of intelligence as an exclusively human attribute, to instead include robots, AI, and extraterrestrial lifeforms.⁹⁸ Not distinguishing between the organic and the non-organic, and inspired by theories of cybernetics, they could imagine a posthuman future that was not organic at all, in a way Huxley never did.

Generally, the human is viewed as a bridge between the animal and the posthuman.⁹⁹ The transhuman in that equation would then be a more evolved being than an ordinary human due to use of genetic engineering, psychopharmacology, anti-aging therapies, etc., but not yet posthuman.¹⁰⁰ A posthuman state will be reached through the ideals and practices of transhumanism.

Although visions of the posthuman condition vary greatly, the underlying assumption is based on the idea that humans are in process, a phase of the evolution that will continue onward to new phases or stages. More has suggested both enhancements that “will leave us still human, merely giving us a choice of the peaks of humanity,” and genetic changes radical enough to create a new distinct species.¹⁰¹ Kurzweil has expressed that he thinks we will remain in our essence human (keep our “humanity”) even if we upload our minds to computers. In contrast, Bostrom, among

⁹⁶ Clarke (1962, 202–3).

⁹⁷ Clarke (1962, 203).

⁹⁸ Farman (2023).

⁹⁹ Sorgner (2020, 75), see also Agar (2007b), Cordeiro (2019).

¹⁰⁰ Tirosh-Samuelson (2011, 26).

¹⁰¹ More 1993: “Technological self-transformation. Expanding personal extropy,” *Extropy*, 18.

others, has emphasized how different from us the new enhanced beings will be: The posthuman will be something completely other, probably impossible for us to even imagine.¹⁰²

When contemporary transhumanists speak of a future posthuman state, it is important to remember that transhumanism can be seen as something other than posthumanism. Transhumanist ideas of the posthuman are generally focused on the definition discussed in Sect. 7.3.

From a philosophical and theoretical standpoint, posthumanist thinkers have broadly been described as criticizing an older Western humanist anthropocentrism and aspects of the Enlightenment tradition and have—in different ways—sought to examine and deconstruct the hierarchies these traditions are thought to have established. Professor of feminist studies Donna Haraway’s “Cyborg Manifesto” (1985) welcomed the hybridization of machine and organism. Although her manifesto has sometimes come to be read in literal terms, Haraway’s point was far removed from promoting human enhancement or transhuman notions of the posthuman. She would not support Huxley, nor Max More. Haraway’s posthumanism is interested in how new technologies are changing what it means to be human and has rejected the divisions between humans, animals, and sometimes machines, but has also delivered a critique of reason and of transhumanism as a “techno-masculinism.”¹⁰³

Because of this, transhumanism is sometimes defined as the opposite of the philosophical tradition of posthumanism.¹⁰⁴ Transhumanists are then seen—and sometimes view themselves—as united by their concerns of overcoming human limits through reason and technology. Transhumanism, with its commitment to reason, science, and human progress, has been described as an extension of the Enlightenment project.¹⁰⁵ Indeed, sociologist Stephen Lilley has called transhumanism the “high-tech heir to Enlightenment humanism.”¹⁰⁶

Although there is certainly something to be said for the idea of transhumanism as “Ultra-Enlightenment,” and notwithstanding the posthumanist critique of transhumanism, the values and ideals of the Enlightenment tradition become relevant only in a very broad sense of

¹⁰² Agar (2010, 18).

¹⁰³ Haraway (2004), Haraway and Gane (2006, 146), Smart and Smart (2017, 2). For a discourse on Haraway, gender, and transhumanism, see Fuller (2020, 112–124).

¹⁰⁴ Smart (2011, 333).

¹⁰⁵ Tirosh-Samuelson (2011, 33).

¹⁰⁶ Lilley (2013, 46).

intellectual history and cannot be the final cause of transhumanism. The Enlightenment project arguably sought to create a better world through a rational rearrangement of society. Transhumanism went further. Pilsch has asked: “What is new with transhumanism?” Why was it not simply Enlightenment philosophy or perhaps a Christian-inspired religion of technology? Pilsch’s answer was that transhumanism was new because it speaks of the internalization of technology into the body and explores radical human enhancement.¹⁰⁷ Similarly, MacFarlane has emphasized its “Techno-Centered Imagination.”¹⁰⁸

This study argues that transhumanism cannot be understood without taking post-Darwinian evolutionism into consideration, and more specifically, the context that surrounded the individual who first advanced transhumanism. Post-Darwin, the idea of human beings as privileged in creation, with their power of reason—even in secularized versions of *imago Dei*—needed to be reformulated with ideas of a species-distinct power of the mind, and combined with a concern for materialism and evolution.¹⁰⁹ Ultimately, even those who still wanted to uphold the idea of the superiority of *Homo sapiens* found that evolution by natural selection implied that any species—no matter how “superior”—was in a process of change.

Huxley sought to find a purpose for humankind within the new intellectual framework of evolution. In a certain sense, it led to a critical re-conceiving of the human, and moved beyond humanism. As much as he wanted to view the human being as the pinnacle of evolutionary progress, his vision also established that humans were not the endpoint of this process, were not complete in any sense of the word. Transhumanism turned on itself, became double-edged. Pride in the excellence of distinctly human capacities turned into a triumphant eulogy for humankind.

9.5 THE EUGENIC IMPULSE AND TRANSHUMANISM

So far, Part IV of this book has reviewed some of the futurism and new transhumanism of the 1960s–1990s, and the ways in which Huxley figured and did not figure in these accounts. The chapters have also demonstrated how his transhumanism—both in the sense of the term and the vision—got picked up, and how it was used and developed. Huxley’s

¹⁰⁷ Pilsch (2017, 7).

¹⁰⁸ MacFarlane (2020, 212–13).

¹⁰⁹ MacFarlane (2020, 200).

vision inspired and paired well with a new wave of futurism. At the same time, the new vanguards and transhumanist thinkers grew increasingly less inclined to refer to earlier twentieth-century thinkers, Huxley included.

A theme that has not yet been sufficiently explored, but that is commonly put forward as the reason why the new transhumanist movement was not inclined to refer to earlier thinkers is that these advocated eugenics in a way that had become distasteful and highly problematic by the 1970s. A more contemporary transhumanist movement is often adamant to explain that transhumanism is not eugenics. Transhumanist Simon Young, for example, has written: “Transhumanism is *not* the advocacy of some tyrannical eugenic breeding program by mad scientists in white coats or master-race fantasists, but the belief in the freedom of individual men and women to increase their own well-being and that of their children [...]”¹¹⁰

Such statements make it clear that transhumanists have felt the need for or have been forced to engage with history. This is most certainly because contemporary transhumanism promotes the enhancement of humans through augmentation of cognition, strength, and longevity and that transhumanists are generally interested in the long-term directing of human evolution. Transhumanists usually claim that theirs is not a quest for perfection, but rather for improvement, a betterment of what went before. They generally do not believe there is such a thing as objective perfection. The imaginary of transhumanism focuses on progress and process, rather than on static goals. Nonetheless, dreams of human enhancement are arguably always driven by some form of idea of human perfection behind it.¹¹¹

Critics view transhumanist ambitions in the light of historical events and find cause for alarm. References to Aldous Huxley’s *Brave New World* abound in the debate. Still, the question might be asked: Is not eugenics part of the past? The question is important because it relates to Huxley’s transhumanism and its ties to the contemporary transhumanist sociotechnical imaginary.

Several historians of science have focused on the transition from eugenics to modern biomedicine and human genetics, and there have been some controversy considering how and if such a transition should be considered. In historian of science Daniel Kevles account, the Nazi horrors

¹¹⁰Young (2006, 17).

¹¹¹Baumann et al. (2013, 647–50).

largely discredited eugenics as a social program.¹¹² Bashford and Levine, on the other hand, have emphasized that there was no sudden abandonment of eugenics after the Second World War and that moderate non-racist versions continued in some contexts.¹¹³ Bashford has underlined that claims of discontinuity are often based on a misunderstanding of eugenics in the past. Eugenics did not operate only through the radical right, but through liberal governmentalities as well, depending on national context.¹¹⁴

Paul has also argued the case for continuity and noted the similarities between the 1920s and 1930s debate and the contemporary debate concerning genetic engineering.¹¹⁵ Paul explored how both contemporary advocates and critics of possible human enhancement have turned the history of eugenics to disparate ends. To label a practice eugenics today is to denounce it, which is why both those for and against human enhancement adopt a narrative of eugenics emphasizing brutal measures of state control.¹¹⁶ Paul called for a greater sensitivity toward not only aspects of sterilization and murder, but also toward the inclusion of other projects whose goals are much closer to contemporary aspirations to improve humanity.¹¹⁷ Regarding the analysis of such projects, Huxley becomes a highly important historical figure.

The developments in the second half of the twentieth century made the division between restorative, preventive, and improving measures in medicine increasingly difficult to uphold. In examining the continuity of eugenics after the Second World War, historian of science Nathaniel Comfort has proposed the idea of a “eugenic impulse” driving scientific research and the general imagination. Comfort focused on the prevalence of a softer form of eugenics, that was from the onset motivated by the wish to alleviate suffering as well as perfecting humans. The eugenic impulse is not inherently evil. Its manifestation is dependent on historical, national, scientific, and political contexts. The idea of an enduring eugenic impulse also accounts for the close affinity between biomedical technology,

¹¹² Kevles (1995, ix, 251).

¹¹³ Bashford and Levine (eds.) (2010, 91).

¹¹⁴ Bashford (2013, 154–55).

¹¹⁵ Paul (2005, 125–26, 2007), see also Ekberg (2013, 106–7), and Nye (1993).

¹¹⁶ Paul (2005, 140).

¹¹⁷ Paul (2005).

practices to alleviate suffering and ideas of human perfection and enhancement.¹¹⁸

Huxley's vision, and the sociotechnical imaginary of transhumanism, would then be a striking example of the eugenic impulse in action. The new genetic knowledge and political events ruled out many of the older eugenic ideas and practices but did not, as here seen, rule out the possibility of biologically changing human beings. Nor did it put an end to the dream of enhancing humankind.

9.5.1 *Late Eugenics and Genetic Engineering*

Although the experience with Nazism did reduce the attractiveness of eugenic policies, it is an established fact that the debate over eugenics did not die with the Second World War. For one thing, highly regarded scientists such as Muller, Haldane and Huxley continued arguing the case for eugenics into the late 1960s.¹¹⁹ Thinking around these matters post-Second World War does demonstrate a shift in both mentalities, focus and language, but the shift is not clear-cut nor unambiguous.

The development in human molecular genetics, which would lead to the DNA-sequencing of each of the genes estimated to compose the human hereditary information, had seen a great push with the breaking of the genetic code in the early 1960s.¹²⁰ The increase in knowledge of genetics and population genetics made earlier eugenic measures seem unlikely to have any effect, but the scientific developments nevertheless roused a general understanding of the need for scientists and the general public to discuss matters of medicine, technology and ethics, because they were seen as likely to become increasingly demanding of attention.

Since the ties to an earlier eugenics movement were obvious (at least to some), the problems raised by genetic engineering and genetic curing were discussed.¹²¹ The Asilomar Conference on Recombinant DNA in California in February of 1975 was held for the purpose of discussing the dangers of biotechnology. Considering the great powers over nature now

¹¹⁸ Comfort (2012, x, 66, 244).

¹¹⁹ Paul (1984, 589).

¹²⁰ For further reading, see Hilgartner (2017).

¹²¹ Bodmer and Jones (1974, 111–12). In relation to this, Paul has stated that the prospect of human genetic engineering is inextricably entangled with fears about eugenics, see Paul (2005, 123).

available to scientists, the group present conceded to draw up voluntary guidelines to ensure the safety of recombinant DNA technology.¹²²

A scientific development of equal importance to a biopolitical debate was prenatal diagnosis and elective abortion, also introduced in the later 1960s. Amniocentesis as a method for detecting genetic disorders during pregnancy was developed in the 1960s and had become a routine part of clinical practice by the mid-1970s.¹²³ According to Kevles, prior to 1976 there were, in total, around 5000 prenatal diagnoses of genetic disorders in the United States, and 7000 in Great Britain. After 1976 the numbers rose rapidly in both countries, reaching at least 20,000 annually in the United States and 7000 annually in Great Britain.¹²⁴

The term “genetic engineering” was coined in the 1960s.¹²⁵ If and when the new futurists and transhumanists spoke of anything that had to do with biological changes to humans, they were likely to discuss it in terms of genetically or biologically engineering humans. Feinberg’s *Prometheus Project*, for example, wrote of “biological engineering,” used to denote the design and manipulation of biological organisms, including humans, so that their functions could be better performed.¹²⁶ Ettinger frequently used the word “human engineering” and stated that the new genetic knowledge would enable changes in the existing generation.¹²⁷ FM-2030 discussed techniques for gene surgery, gene manipulation, and gene deletion. He pictured “superhumans with genetically programmed knowledge, superior intelligence and bodies, etc.”¹²⁸

Huxley lived long enough to experience the rapid development in the science of genetics and was interested in the new genetics and its relation to his eugenic impulse. In 1964, he had proposed to use biochemist Roger Williams’s term propetology (1961), to denote genetic proneness, and called for a science of propetology so as to gain further knowledge of heredity on a genetic basis.¹²⁹

It was still entirely possible to explicitly connect eugenics to the new genetics in the post-Second World War era. Indeed, Paul has shown that

¹²² Sagoff (2005, 69); see also Wade (1977, 41).

¹²³ Paul (1995, 128–29).

¹²⁴ Kevles (1995, 257).

¹²⁵ Kevles (1995, 264).

¹²⁶ Feinberg (1969, 62).

¹²⁷ Ettinger (1972, 41–42, 138).

¹²⁸ Esfandiary 1973: *Up-Wingers*, 133.

¹²⁹ Huxley 1964: “Psychometabolism,” 65.

most pioneers in the field of human genetics were active eugenicists and that much early work on the heredity of clinical disease was pursued by eugenicists.¹³⁰ The molecular biologist Robert Sinsheimer, who would later organize a workshop to discuss a possible Human Genome Project, termed genetic engineering a “new eugenics” in the late 1960s.¹³¹ In 1965, the American biochemist Rollin Hotchkiss drew parallels between eugenic dreams and the new possibilities of genetic engineering.¹³² Richard Kostelanetz, one of the above-mentioned futurists, believed that the discovery of DNA and the genetic code would bring about a “more reliable method of eugenics” and eventually the individual’s biological emancipation from its inheritance.¹³³ John David Garcia, who had been inspired by Teilhard de Chardin and Huxley to envision a future transcended humanity and a merging of human and machine, discussed genetic engineering as a new “eugenic possibility.”¹³⁴

In this context, too, Huxley’s ideas were considered. His concept of “pre-adoption”—artificial insemination by a selected donor—was brought up in bioethicist Paul Ramsay’s *Fabricated Man: The Ethics of Genetic Control*.¹³⁵ Others mentioned Huxley in relation to dreams of raising IQ across the population through selective breeding. In 1970, science journalist Gerald Leach recognized Huxley as having suggested a “bold scheme of positive eugenics.”¹³⁶ During a symposium on the control of human heredity and evolution, at the Ohio Wesleyan University in 1965, Huxley’s idea of sperm banks and euteleogenesis was discussed.¹³⁷ In *The Biological Time Bomb* (1968), the British author Gordon Rattray Taylor discussed Huxley’s and Muller’s earlier eugenic ideas of artificial insemination, and drew parallels to the new possibilities of “germline choice” and genetic engineering. Taylor considered the prospect of genetically engineering a resistance in humans to chemical attacks and pollution.¹³⁸

¹³⁰ Paul (1995, 121, 124).

¹³¹ Kevles (1995, 267–68), Paul (2005, 137).

¹³² Hotchkiss (1965).

¹³³ Kostelanetz (ed.) (1968, xxxi).

¹³⁴ Garcia (1971, 261).

¹³⁵ Ramsay (1970, 48).

¹³⁶ Leach (1970, 103–5).

¹³⁷ Sonneborn (ed.) (1965, 114–15).

¹³⁸ Taylor (1968, 175–77). For another example of Huxley’s eugenics being discussed and critiqued in the 1960s, see Rayner (1966).

9.5.2 *Individual Choice*

The eugenic policies had, when actual and existing, been state-sponsored and coercive. Whether implemented or not, they were often—in particular pre-Second World War—imagined as collective solutions. By the time of the 1960s and 1970s, dreams of a rationally organized state, whether it incorporated eugenic ideals or not, had been severely tarnished by the Soviets and the Nazis. The critique of State interests increased.¹³⁹

This mindset is found among the futurists and transhumanists of the 1960s and going forward. Toffler, for example, had been highly critical of technocratic planning in *The Futurists* (1972).¹⁴⁰ Technocratic planning was, he wrote, a product of industrialism and had been hierarchical and undemocratic. Top-down controls were unworkable in the new accelerated tempo of modern life.¹⁴¹ When discussing human enhancement in *The Prometheus Project*, Feinberg wrote that future plans must include all of humankind because goals of smaller politically or religiously motivated groups could become dangerous.¹⁴²

Ettinger stressed a shift in focus away from the herd and toward the individual.¹⁴³ In 1989, FM-2030 claimed that personal global telecommunication and global mobility had eroded “mass conformity.” There would be no masses in the future.¹⁴⁴ In the 1980s and 1990s, More wholly rejected the idea of central control.¹⁴⁵ The first issue of *Extropy* magazine showcased a strong libertarian stance. Any controlled, planned, or centralized efforts—which were associated with elitism, State, and hierarchy—were discouraged and a free market was favored.¹⁴⁶

As Paul, among others, has shown the emphasis on the individual and dismissal of earlier technocratic and elitist sentiments was also instrumental in the specific discussion of biomedicine and human enhancement. American biologist and geneticist Sheldon Reed (1910–2003) coined the term “genetic counseling” in 1947, and throughout the 1950s the

¹³⁹ Bowler (2017, 39).

¹⁴⁰ Toffler (ed.) (1972, 96–130).

¹⁴¹ Toffler (ed.) (1972, 98–99).

¹⁴² Feinberg (1969, 200–1).

¹⁴³ Ettinger (1972, 243–44).

¹⁴⁴ Esfandiary (1989, 7).

¹⁴⁵ More 1990: “The Extropian Principles,” *Extropy*, 17.

¹⁴⁶ See *Extropy* 1 and *Extropy* 11 (1993, 34 ff).

argument that counseling should serve only the patient or client (the individual, not the collective) became the norm.¹⁴⁷

The 1960s also saw discussions about “germinal choice” and the possibility of allowing parents to influence the genetic constitutions of their children. Concepts such as “germline engineering” and “genetic screening” started being used. The concept of “germinal choice” was at times made synonymous with a “positive form of eugenics.” An earlier eugenics movement was now described as having been preoccupied with negative measures and negative selection. The new engineering and germinal choice were, in contrast, described as having the “exciting feature of an open-minded, clear decision made by individuals for their own good as well as for the general good.”¹⁴⁸

Contemporary enthusiasts of human enhancement often (but not always) savor a libertarian moral.¹⁴⁹ MacFarlane has argued that the transhumanism of the 1980s was initially formalized as a philosophical outlook rather than a political endeavor, and only later became a political social movement.¹⁵⁰ But transhumanism 2.0 was arguably political from the start, and, looking further back at Huxley’s transhumanism, the philosophical, scientific, political, and practical aspects of transhumanism were always inextricably linked.

The new transhumanists were not unaware of the fact that their ideals could be viewed as potentially problematic. *Extropy* magazine advertised sale of an audio taped lecture by More, discussing the question: “How is humankind to evolve, transform, progress, to change its nature, without the oppression of central control and social engineering?”¹⁵¹

The solution appears to have been to move away entirely from the collective. The individual was the object of improvement for the new transhumanists, rather than the social or political system. The new transhumanists wanted to be designers of their own rather than the managers of all of evolution. There was little of any general critique of the contemporary social, institutional, or political order (other than when it stood in the way

¹⁴⁷ Paul (1995, 127).

¹⁴⁸ Sonneborn (ed.) (1965, 123).

¹⁴⁹ Paul (2005). Older concerns, such as over-population and population control, were out of the picture for the new transhumanists as these concerns were, suggested Bashford, too close to eugenics for political comfort, Bashford (2013, 164). Regarding the global planning of population growth, see Connelly (2008, 8).

¹⁵⁰ MacFarlane (2020, 34).

¹⁵¹ *Extropy* 10, (1993, 48).

for the individual's right to choose).¹⁵² In the extreme versions, transhumanists appeared to picture utopias more or less autonomous of any existing political order, leaving all economic and political considerations to the side, instead imagining free enhanced individuals enjoying and expressing themselves in a post-scarcity future.¹⁵³

There were and are modern transhumanists who do favor a social welfare state, public health regulations, a national health insurance, and state or corporate efforts to maintain a rough equality among humans as they upgrade themselves.¹⁵⁴ In the 1980s and 1990s many tended, however, to uphold libertarian ideals and emphasize the individual's right to free choice.¹⁵⁵ The new transhumanists argued that technologies for improving humans are not a state affair but that the choice of enhancement should reside with the individual.¹⁵⁶ This sometimes extended to the idea that parents should be free to use genetic technologies to enhance their children.

FM-2030 at times argued that humankind needed to jointly decide on what genetic improvements should be pursued.¹⁵⁷ But although the new transhumanists continually spoke of seizing control of our evolutionary future, it was somewhat unclear what was meant by "our." Commenting on the topic of eugenics after the Holocaust, Bostrom has claimed that the goal of creating a new and better world through a centrally imposed vision had become "passé."¹⁵⁸ The Transhumanist FAQ also mentions the Second World War's impact on the view of eugenics and goals of human enhancement and states that the historical lessons have made modern transhumanists "deeply suspicious of collectively orchestrated change."¹⁵⁹

It would be wrongful to claim that either modern biomedicine or transhumanism is the same thing as the eugenics of the first half of the twentieth century. Practices and convictions have changed. And perhaps it is true

¹⁵² Jongsma and Sand (2016, 292).

¹⁵³ On a sidenote, Fuller has noted in contemporary transhumanism an affirmation of dynamism, which it takes to be at the core of capitalism, see Fuller (2018, 205).

¹⁵⁴ Hughes (2004, xv).

¹⁵⁵ The sociotechnical imaginary of transhumanism has also resulted in a Transhumanist Political Party that has participated in United States elections, under the lead of Libertarian futurist Zoltan Istvan and later Libertarian transhumanist Gennady Stolyarov II.

¹⁵⁶ See, for example, Bostrom 2005a: "The Transhumanist Dream," *Foreign Policy*, 4.

¹⁵⁷ Esfandiary 1973: *Up-Wingers*, 47.

¹⁵⁸ Bostrom 2005c: "A History of Transhumanist Thought," 7.

¹⁵⁹ Humanity+, "Transhumanist FAQ."

that if we leave people to make their own (reproductive or enhancement) decisions, we will avoid the mistakes of the past. If the principal wrong of eugenics was its use of state sponsorship and coercion, then human enhancement freely pursued by individuals might pose no problem.

Of course—and as the dreams of human enhancement included in Huxley’s transhumanism is a good example of—eugenics in the past entailed more than State action to cull the unfit. The argument that the choice (of enhancements) should reside with the individual does mark a clear shift in the debate, noted by scholars.¹⁶⁰ This change in attitude did not, however, happen overnight and did not necessarily come with any generational shift.

Additionally, the impulse remained: Eugenicist Herbert Brewer had defended positive eugenics in 1935, proposing that the parent of a child born from artificial insemination and eugenic choice would feel a deeper bond to the child, because the child would be an act of deliberate creativeness embodying the parent’s ideal aspirations. In 2003, Nick Bostrom speculated that germline enhancements in a child might lead to more parental love and dedication: “Some mothers and fathers might find it easier to love a child who, thanks to enhancements, is bright, beautiful, healthy, and happy.”¹⁶¹

As seen in Chap. 7, Huxley’s focus gradually shifted from collective solutions toward more individually based propositions. As early as the 1920s, Huxley had stated that the association of eugenics with the idea of state control and interference by “eugenic policemen” was mere travesty.¹⁶² Huxley’s later transhuman eugenics was not race-based, nor did it necessarily involve coercive politics. As Bashford has pointed out, and as has been shown here, Huxley did aim for augmented individual capacity.¹⁶³

¹⁶⁰ Lilley (2013, 9).

¹⁶¹ Bostrom 2003: “Human Genetic Enhancements: A Transhumanist Perspective,” 498.

¹⁶² Huxley 1926: “The Hope of Betterment,” *The Stream of Life*, 54.

¹⁶³ Bashford (2013, 158). Bashford brought up the striking example of one of Huxley’s later engagements in the New York-based Huxley Institute for Biosocial Research, which promoted longevity and attempts at curing diseases associated with aging. The institute involved the Nobel Prize winning molecular geneticist Linus Pauling, who wrote the book *How to Live Longer and Feel Better*. The enterprise shows an interesting similarity to Ray Kurzweil’s and Terry Grossman’s 2010 book *Fantastic Voyage: Live Long Enough to Live Forever*.

In 1977, social theorists Jeremy Rifkin and Ted Howard discussed Huxley in relation to germline choice and wrote that it was regrettable that eminent scientists such as him had convinced the public that reforms of the environment were useless because the human genotype was the primary problem.¹⁶⁴ Historian Paul Weindling has suggested that Huxley paved way for a 1960s “loosening of moral strictures” in questions regarding reproduction and enhancement and managed to sustain an image of eugenics as humane by linking it to the post-Second World War human rights revolution.¹⁶⁵ Although this study does not fully support Weindling’s quite serious and moralistic accusation of Huxley, the suggestion is nonetheless poignant. Perhaps because Huxley’s vision could be interpreted as liberal and focused on individual enhancement, his ideas continued to be considered and transhumanism could become a sociotechnical imaginary.

9.6 CONCLUDING DISCUSSION AND REMARKS

Despite the critique, Huxley’s vision won a significant amount of public acceptance. The new transhumanists put emphasis on biology and evolution in relation to their future visions. The transformative and transcendent element within their thinking was coupled with an evolutionary point of view. The words transhuman and transhumanism was continually used in an evolutionary context, backed by an arguably more Huxleyan than Darwinian narrative about human evolution.

Continuing themes were the human condition placed within an evolutionary context, the idea that the human species in its current form does not represent the end of human development, and the belief that evolution is accelerating. Continuity in transhumanism is also found in the marked fascination with and promotion of control, of conscious human evolution.

Huxley’s transhuman ideas inspired and paired well with a new wave of futurism. At the same time, the new vanguards and transhumanist thinkers grew increasingly less inclined to refer to earlier twentieth-century thinkers, Huxley included. When transhumanism turned into a more collectively held sociotechnical imaginary, its new leaders themselves assumed a visionary role, performing the identity of vanguards. In doing so, they used a narrative that dismissed the recent past.

¹⁶⁴ Rifkin and Howard (1977, 74–75, 168).

¹⁶⁵ Weindling (2012).

This is not to suggest that Huxley is singularly responsible for the Transhumanist movement, and that contemporary transhumanists should recognize him as their founding father. Regarding this question, the present study agrees with the observation made by Deese, that the broader cultural and technological trends—which Huxley tapped into—would most likely have proceeded the same course even if Huxley had never coined the term transhumanism.¹⁶⁶ The fact remains, however, that he did coin the term, and that not only the word but the vision of technologically altering humans and of promoting conscious evolution gained a certain amount of influence. It is possible to suggest that Max More is an originator of a philosophy of transhumanism, but that transhumanism by then had already existed as a vision for decades and that it, at the point when More systematized his philosophy, had become a sociotechnical imaginary.

When the power to imagine moved from the single “inspired” individual to a larger community and their leaders, new futurists also incorporated new technology, new science, and new politics into the greater framework of the sociotechnical imaginary. Leary had celebrated the fact that the “square” scientist of a previous generation had been replaced by an “Americanized” self-confident and optimistic one. The new transhumanists and futurists were certainly optimistic and self-confident but were not necessarily scientists. While many of the future-oriented visioners of Huxley’s generation had been natural scientists, the new transhumanists tended to have more diverse backgrounds, to be writers, philosophers, teachers, and entrepreneurs, and many came from the social sciences and the humanities.

The period of the 1970s to the 1990s was marked by an “intensification of individuality,” within transhumanism and reflecting a more general political development in society. The new transhumanists promoted morphological freedom and human enhancement in individualistic, personal terms, in a way that Huxley—who was always more interested in the human on a species level—never did.

Biochemist Rollin Hotchkiss, who had cautiously compared the older eugenics with the new genetic engineering in the 1960s, predicted that genetic engineering would enable individuals, rather than be used in collective solutions. Because the motivation would be individual human betterment, the application and use of such methods would be

¹⁶⁶Deese (2015, 181).

irresistible.¹⁶⁷ Some 30 years later Kevles, commenting on the contemporary development, implied that human enhancement was being brought about not through state eugenics committees, but through consumer demand.¹⁶⁸ In light of that, it is somewhat prophetic that Huxley in 1926 had suggested that the “transcendence” he pictured could be “democratized” and “made more available to all who wish for it.”¹⁶⁹ And perhaps it did become available: Not exactly through a realization of the technocratic Fulfillment Society he had imagined, but instead in a commercialized, choice-oriented brave new world he could hardly have dreamt of.

¹⁶⁷ Hotchkiss (1965, 198, 201–2).

¹⁶⁸ Kevles (1995, x–xi).

¹⁶⁹ Huxley 1923: “Science and Religion,” in *Science and Civilization*, 322.

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Conclusion

Transhumanism can be regarded as a sociotechnical imaginary born out of a protest against human fundamental life conditions. It is an attempt to radically reimagine the future of our species. Pilsch has even gone so far as to say that transhumanism “is the only discourse today actively imagining a radical future as radically alien as communism’s idea of a classless society was in the late nineteenth century.”¹ Even if one does not agree with him, the transhumanist imaginary has given and continues to give impetus to philosophy as well as to the development of medicine and medical technology.² With its promotion of things that are at the cusp of being possible, and suggestions of profound change, transhumanism—and its history—offers insight into humans coming to terms with a pre-human past and a possible posthuman future.

This study’s aim has been to historicize transhumanism, by placing it in a precise historical context, to make transhumanist ideas discernible across time. In addition, the study has sought to answer the questions of how transhumanism developed in Huxley’s thinking, what Huxley’s role is in the history of transhumanism, and how the transhumanist project should be understood in relation to earlier projects of human enhancement.

¹ Pilsch (2017, 3).

² Liakos (2013, 67).

10.1 HUXLEY'S ROLE IN TRANSHUMANISM

Transhumanism 2.0 claimed as one of its goals the overcoming of the limits of human nature and, in Bostrom's words, the remolding of human nature.³ Transhumanism today ranges from the ultra-libertarian to the technoprogressivist, from atheist to Christian, and there are a wide variety of opinions regarding what goals should be pursued and in what ways. Tension within an imaginary is to be expected, as it will most likely not be a homogenous body of beliefs. Being a historical study, this book has unapologetically avoided delving deeper into present-day debates concerning what should by now perhaps better be called transhumanism 3.0.

Generally, though, transhumanism is concerned with the need for improving the human condition and overcoming human limitations through the use of science and technology. It incorporates the idea of the possibility and desirability of becoming more or other than what is currently viewed as human. Historian Elise Bohan, in her study of transhumanism, attempted to capture the ethos of transhumanism in a number of core themes, five of which were: (1) A modern scientific worldview; (2) The idea of the possibility and desirability of posthumanity; (3) The idea of conscious evolution; (4) The idea of evolutionary acceleration; and (5) The consideration of existential risks.⁴ These themes, she wrote, are fundamental to a contemporary transhumanist philosophy, or, within the context of this study, imaginary. Considering that they are, Huxley should be fully incorporated into a history of transhumanism.

Huxley had an ambitious and radical vision of the future and focused on changes of transformative impact. As the person responsible for coining the term transhumanism in English, and a promoter of a transhuman vanguard vision, Huxley—along with likeminded future-oriented thinkers of his generation—helped naturalize a way of thinking about a possible future and disseminate ideas about conscious human evolution and human enhancement into a wider sociotechnical imaginary. This study explains his influence on a new generation of futurists and suggests that his narrative about evolution and the future was perpetuated.

It is not here claimed that Huxley is singularly responsible for the genesis of the Transhumanist movement, nor that contemporary transhumanists must recognize him as their founding father. As it turns out, any

³ Bostrom 2003: "Human Genetic Enhancements: A Transhumanist Perspective," 493.

⁴ Bohan (2018, 17).

history of the origins of a sociotechnical imaginary is complicated. The broader cultural and technological trends, which Huxley tapped into, would perhaps have proceeded the same course had he never coined the word transhumanism. Nonetheless, just as it would be wrongful to claim that Huxley is the sole progenitor of contemporary transhumanism, it is equally erroneous to dismiss him as irrelevant for transhumanist history and debate. He arguably played an important role in shaping the imaginary that is transhumanism.

Huxley's transhumanism was not a one-time whim, was not born overnight, but developed over the course of decades. The idea of establishing a new set of ideas or a new belief-system for the future had occupied Huxley's thinking since the 1910s. Huxley worked out his vanguard vision in a process that borrowed from others around him and incorporated both evolutionary biology and other scientific knowledge, political ideas of eugenics and technocracy, literary tropes, and elements of philosophy and religion in an eclectic and yet very time-typical mix. As he aged, he appears to have become less hampered by scientific ambition and more adamant in promoting his vision.

Over the entirety of his scientific career, Huxley never hesitated to address philosophical questions alongside the purely scientific ones. He constructed a vision to promote the future he wished for, and certainly reached a large audience. He used his position to inform whoever listened that artificial evolutionary change in human beings could be rapid if humankind assumed its responsibility to implement it. A substantial part of Huxley's thinking was dedicated to finding ways of convincing others that humans need not accept things the way they were. This included social institutions, sexual norms, religious traditions, or anything else that was—to his mind—mistakenly viewed as something eternal and static, and barred the way for progress.

Transhumanism views the human as an organic whole that is not static, but constantly evolving toward a moving goal in which spirit strives to control the material aspects of reality. It postulates that the human species is an incomplete form that is undergoing dramatic changes. A marked interest in the human mind and a strong belief in its potential characterizes the Huxleyan as well as contemporary transhumanism, alongside an idea of the human animal as unsatisfactory.

The sociotechnical imaginary of transhumanism strongly emphasizes the role of science and technology and can be understood as connected

with a mode of thought concerning human control of life. Huxley's vision was influenced by the interwar period's general fascination with planning and social engineering, accompanied by a critique against laissez-faire attitudes in politics and economics. He certainly attempted to push the political agenda himself, by participating in a number of organizations and by promoting the implementation of specific political policies and laws, sometimes eugenic in nature. His association with Wells and other technocratic enthusiasts strengthened his convictions.

The 1930s in particular saw Huxley venting his technocratic leanings. He believed that society would progress only through conscious and careful planning, preferably by a scientific elite. More importantly, he was convinced that society, or humanity, needed a unifying system of thought, working as a motivator for the collective. Huxley was on a mission to make people aware that they needed to take responsibility for their destiny. These convictions never left Huxley, although he was clearly affected by the intellectual and political developments in the wake of the Second World War, that marked a shift in his understanding of individualism and totalitarianism. In this sense, transhumanism started out as a product of modernity and of the increasing role of biopolitics in modern society.

The internalization of (the need for) control has been noted as a feature of modern transhumanism.⁵ This internalization of control should not, however, be understood in the sense of State power over the individual, but rather in the sense of a remedy for profoundly existential issues. The idea of controlling biology can be put not only in relation to solving certain specific issues or problems but can also relate to imagining a more general overcoming of limits, which could ultimately relate to the idea of an evolutionary overcoming—perhaps of the category of the human itself.

Huxley's transhumanism was naturalistic in that it envisioned no supernatural intervention and no other order of reality than the natural. It was a system of thought attempting to emphasize the human spirit as immanent in the evolving world, and yet somehow with transcendent properties. Huxley generally exhibited a tendency to assume distinct breaks and leaps in a linear continuum, between different phases of evolution. In his view, evolution was a process wherein new levels or dimensions of existence were initiated, or steps on a ladder were ascended. Transhumanism was for Huxley an attempt to create a philosophy or a religion wherein humankind could move onto a higher order or perhaps even transcend the

⁵ Pilsch (2017, 10).

system of order altogether. Additionally, Huxley believed that the rate of (human) evolution was accelerating through the use of science and technology.

This study underlines the fact that Huxley's transhumanism advocated enhancing humans on a biological level, to the point of imagining superhumans or perhaps even a new species. With the development of transhumanism 2.0, posthuman visions became increasingly more common. In some of its furthest elaborations, the physical body was to be left behind as remains of a more primitive, less desirable era. The ultimate freedom would mean to be absolutely unencumbered by an unchosen biological heritage.

Huxley was talking not only of reducing the amount of suffering and unhappiness in the world, but also of increasing the amount of well-being and happiness. Whereas his transhumanism strove toward fulfillment and commitment, transhumanism 2.0 strove perhaps toward fulfillment rather than commitment.⁶

It remains a question, however, whether transhumanism should be understood as utopian. Although utopias are sometimes related to extraordinary and fantastical voyages, utopia is often visualized as a place. If Huxley ever envisioned a place, it would be a "fulfillment society" that could fulfill the human need for transformation and transcendence. However, Huxley's imagined future was not a place, but rather focused on the human species going forward. It was not static, but centered around ideas of actualization, movement, process, and progress.

Huxley's vanguard vision certainly carried aspects of eschatology, if by that is meant ideas concerning the ultimate destiny of humankind. In one of his transhumanist essays, Huxley claimed that humankind's ability and duty to determine the future of evolution was its "inescapable destiny."⁷ Yet there was no endpoint to Huxley's transhumanism. It was an

⁶In 1931, Bertrand Russell warned against the likes of Huxley, whom he feared would have a predominant part to play in molding the world during the next 200 years. Russell called them "practical idealists," see Russell (1931, 236–40). Transhumanism 2.0 could perhaps not be termed a form of practical idealism, but recent years has seen the rise of Effective Altruism, a philosophy and social movement that promotes using reason to figure out how to benefit others as much as possible and taking action on that basis, see MacAskill (2017). Its tool is philanthropy, and a popular priority is risks to the survival of humanity over the long-term future. Several transhumanist-adjacent thinkers, such as Nick Bostrom, have associated with the Effective Altruism movement.

⁷Huxley 1957: "Transhumanism," 14.

open-ended process of reaching higher levels of being, going into the future. This appears to be another continuous thread in the imaginary of transhumanism.

10.2 A MORE PRECISE HISTORICAL CONTEXT

If there are perennial dreams, they are re-contextualized throughout human history. Likewise, how humans can imagine the future and themselves in it is dependent on their historical context and on technoscientific knowledge.

It can certainly be rewarding to turn to history in pursuit of proto-transhuman ideas. The history of ideas is a fascinating discipline for the very reason that it is vast and interconnected.⁸ It is, however, a risky endeavor. In the search for proto-transhuman ideas expressed by earlier thinkers like, say, Francis Bacon, René Descartes, or Immanuel Kant, we risk finding similarities rather than correlations: Similarities that are more dependent upon our contemporary understanding of what was said than upon the actual meaning of what was said, when it was said. The ability to claim transhuman antecedents requires an understanding of the historical context in which these ideas were expressed, a sensitivity to the external and mental world available to these earlier thinkers.

Transhumanism is not eternal, is not an idea that has been around for as long as there have been humans. Nor is it a straightforward heir to Renaissance humanism or Enlightenment philosophy, as has otherwise often been claimed. Indeed, it is questionable whether it would have been at all possible for an Enlightenment thinker—let alone a Renaissance humanist—to envision the kind of idea of the future that transhumanism espouses, and to imagine the technological and scientific practices that are hoped to usher in this future. There is more newness than that to transhumanism within the history of ideas. However, it is not an entirely recent invention either.

Transhumanism is a product of the coproduction of science, technology, and society in nineteenth- and twentieth-century modernity. In addition to the social and environmental, transhumanism seeks to reform biological conditions of human life. Huxley nurtured a belief that it is possible to control evolution. His very definition of evolutionary progress

⁸I would encourage more detailed research on proto-transhuman ideas in the nineteenth century, for example, in relation to theories of the transmutation of species.

was an increase in control of and thereby independence from the environment. Specifically, he viewed the human capacity for control as having advanced from conquering inorganic nature, turning its focus next to organic nature, and, finally in his lifetime, beginning to explore control of human nature.

There are a number of contextual reasons for Huxley's ideas of control, as this study shows. In the first, Huxley's vision—and transhumanism 2.0—requires an idea of evolution and a special outlook on the human species' place in nature and adds something to an older and more general idea of anticipating the future and improving the human condition: The idea of fundamentally altering basic elements of the human condition, viewing the human as a biological organism. The belief is not only that it is possible to transcend human limitations, but that it can be done through controlling biology and changing the human organism, all the while embracing an older idea of science and technology as potent and inevitable.

Giovanni Pico della Mirandola's angelic humans were not risen to their heights through sheer power over nature. For Pico, human dignity and ascendance was not directly connected to scientific, technological, or mechanistic advances. The Enlightenment thinkers, albeit closer in proximity to the mode of thinking, could not regard mankind as an unfinished biological species, and were ultimately seeking to create a better world through a rational rearrangement of society, not of human biology.

The history of transhumanism should be put in relation to Huxley's historical context in general and to the history of an evolutionary way of thinking about the future in particular, taking the impact of Darwinism and the new biology into account, but also the experienced ongoing "future shock," the cognitive pressures brought on by modernization and modernity, and affecting generations throughout the twentieth century.

The future and evolution somehow go well together. Evolution does not privilege the present; the present is instead a moving instant in an endless process of change. Additionally, the "Darwinian revolution" opened for the possibility of imagining seizing control of our evolutionary future and speeding up the process. Developments within the field of experimental biology—as well as Huxley's own involvement in it—strengthened his belief in the possibility of controlling life. In that sense, transhumanism can be seen as a consequence of Darwinism, although over the course of these chapters, the study finds that Darwinism certainly is not the only reason for its existence.

Huxley's contemporary J. D. Bernal wrote that the future is the compensation and fulfillment of all that the present and the past had lacked, a fair ground on which to place hopes and desires.⁹ In his *A History of the Future*, Bowler has argued that anticipations of the future are a valuable resource for understanding the attitudes, beliefs, and expectations of a generation. At the most basic level, writes Bowler, anticipations of the future tell of human hopes for progress and fears that it all might go horribly wrong.¹⁰

Huxley is often described as a “creature of the optimistic turn-of-the-century culture.”¹¹ He is occasionally compared in contrast to his brother Aldous, who is generally viewed as having been more of a pessimist or having displayed a more cautionary approach toward the future. But Huxley's transhumanism was very much a response to perceived crises. Born out of unbounded optimism it was not.

Huxley was a man of contradictions. His near-Victorian English rigidity in thinking was matched with an impressive adaptiveness. He was progressive and sometimes radical, yet elitist and highbrow. He showed both great love of and contempt for humanity. All of this is reflected in his transhumanism. Also embedded within it lies traces of the internal battle Huxley fought when attempting to reconcile his scientific knowledge with his existential hopes and fears.

Huxley shared the anxieties of an interwar generation, and his vanguard vision reflects a more general mode of thought during the interwar period, where modernity was discussed as an existential problem, regarding what was seen as a general lack of purpose. He was grappling with disenchantment and disillusionment during a time in Britain of great scientific optimism and great humanistic pessimism, where industrialization and modernity brought on their cognitive pressures. The First World War, the economic depression, and the rise of Fascism in Europe in the 1930s all in turn undermined the confidence in human progress, while science was seen to be making great—perhaps even dangerously fast—strides. Huxley's generation was arguably already dealing with the “Future Shock” that was later conceptualized by Alvin Toffler and felt by the new transhumanists in the 1970s, 1980s, and 1990s to be an unprecedented experience to react and revolt against.

⁹ Bernal (1929, 9).

¹⁰ Bowler (2017, 2).

¹¹ Bowler (2001, 151); see also Divall (1992), Greene (1990).

What had struck Philip Toynbee, in his review of Huxley's memoirs in 1973, was how Huxley seemed to have a "certain craving for faith."¹² This study suggests that transhumanism grew out of a demand for meaning, in a post-Darwinian world. To grandfather T. H. Huxley, the cosmos was meaningless. Julian, on the other hand, needed to find meaning in it and showed an affinity for philosophers and scientists who saw purpose in nature. Seeking purpose in evolution to Huxley essentially meant the same thing as seeking a purpose in life.

In a sense, Huxley's vision was a result of what philosopher Stephen Toulmin called the human desire to feel that the importance for us of our own affairs should be reflected through the history of the universe.¹³ Huxley was occupied with the problem of how humankind should view itself in the light of the theory of evolution and worked out a post-Darwinian evolutionary vision to affirm that humankind stood in the center of history's meaning.

Transhumanism sought to establish scientifically as well as philosophically that humankind's role in the world—and in evolution—was unique and on top, and distinctly linked to power and responsibility. It aimed to transform the facts of Darwinism into an optimistic and spiritually uplifting message, as well as turning humanism into a dynamic force rather than what Huxley viewed as a static attitude toward life.

It was a difficult task, perhaps especially for an evolutionary biologist at the time. The evolutionary constriction accompanying the evolutionary synthesis ended all rational hope of purpose in evolution. It is generally known that Huxley claimed progress in evolution during a time when many scientists already believed that terms such as progress hinted at a subjective evaluation of the results of evolution that was no longer relevant for science. Especially during the second half of Huxley's life, professional science no longer spoke of progress, ascent, or destiny. Huxley's intimate knowledge of the workings of evolution made it impossible for him to claim that it was predominantly progressive. Instead, Huxley increasingly doubted progress and tried to generate it.

Evolution by natural selection is automatic, blind, and lacking foresight. The fitness selected is the overall fitness of the organism to survive and reproduce, not any specific excellence of a particular kind, ability, part,

¹² JSH Papers, RU, MS50, 138:7.

¹³ JSH Papers, RU, MS50, 123:8. Stephen Toulmin 1951: "Contemporary Scientific Mythology: The Quest for Security," *The Listener*, 22 Mar.

or organ. A consequence of this is that the emerging product will be, in evolutionary biologist Theodosius Dobzhansky's words, "an appalling mixture of excellence and weakness."¹⁴

Huxley's transhumanist interpretation of natural selection was ambivalent. He would defend Darwin's theory and concept and was convinced that natural selection was the driving force of evolution. However, the fact that it was a purposeless non-progressive process also posed a problem for him. Starting from the 1930s onward, Huxley would claim that the process of natural selection was limited and ultimately a dead end.

When Huxley spoke of evolutionary progress, it must not be understood as a trust in unchallenged and ever-ongoing progress throughout the course of all evolution. Returning to Huxley's characterization of natural selection, he affirmed that any specialization or progressive improvement by natural selection was the "exception rather than the rule."¹⁵ He knew that evolution by natural selection was dominated by accident and chance, but wanted in some way to minimize the extent to which the process was random and unforeseeable. If he could not argue that natural selection was mainly progressive, he could instead argue that it was obsolete. Evolution had entered into a new phase that would not be dominated by aimless and haphazard change.

That Huxley constructed an evolutionary system of thought that viewed humankind as the purposeful and purpose-giving agent in nature is paramount for understanding his transhumanism. Before humans, natural selection had been responsible for the transformation of life. Through its ordering principles and through chance, it had given rise to humankind, which had ushered in a new phase of evolution. It was now time for humans to take charge of the process. Humanity stood on the threshold of yet another critical point in evolution: The consciously purposive phase of evolution.¹⁶

Since he viewed evolution as a continuous process, Huxley could speak of taking control over and managing evolution, while at the same time arguing that this development would somehow follow the naturally given course of evolution. This was also reflected in his ambivalent attitude toward the processes of life. When pressed, he did not want to see humankind as something apart from nature. Yet he imbued humans with

¹⁴Dobzhansky (1967, 57).

¹⁵Huxley (1942, 485).

¹⁶Huxley (ed.) 1961: *The Humanist Frame*, 7.

transcendental abilities. This gave rise to a transhuman paradox of sorts, where humans were simultaneously struggling against nature and their own biological heritage, all the while following the lead of nature. The argument that it was “natural” was just as applicable as the argument that humankind could handle things “better than” nature.

Huxley’s transhumanism was an attempt to solve big, existential issues. Not in the least, it was an attempt to find a solution to the problem of the human animal, with its history of war, oppression, and chaos. Put in another way, it was an attempt to break free from what was felt to be the first principle of nature—the struggle for existence.

Transhumanism came about, in part, as a reaction to a disillusionment with humanity, bestowed upon many by the experience of the Great War and that the interwar period and the Second World War did little to remedy. The natural sciences and industrial capitalism had not delivered on its promises. Had the control over nature really permitted humans to live more predictable and fulfilling lives? Did not technology instead appear to be out of control? Huxley never voiced an outright critique of science and technology in general but was well aware of the fact that human innovation at times backfired. The technological systems built by humankind had become so large and complex that their human creators were unable to predict, evaluate, or influence their effects.¹⁷

Huxley was partly driven by the sensation that progress in the form of human control of environment had not been enough. No matter how well things were planned, human nature was lacking. The human being was still an animal, fighting not to give into his or her animal urges. As an organism the human was engaged in selfish struggle for survival and followed individualistic happiness-maximizing morals. Within a group, the human animal was perhaps even more dangerous: the herd-instinct could lead to a fight for survival as a “race,” something that in turn leads to race-hatred, nationalism, and war. The existential issue concerning humankind’s evolutionary heritage was that the human had remained the same, despite technological and scientific advances. The human was an animal, a *bête humaine*, that did not “fit into” modern society and perhaps needed to be made to fit into it.

The idea of the human being as unfinished was a consistent part of Huxley’s thinking and was derived from his knowledge of evolution as a process. Indeed, Huxley’s knowledge of evolution as a process helped him

¹⁷ For this as a general viewpoint, see Williams (2000, 41).

explain human shortcomings by placing them within a grander evolutionary narrative. It offered solace in the facing of the errors of humanity; this was not the end or the final result, humans could and were changing.

However, biological evolution by natural selection would not solve things quickly, if at all. If something was not consciously done, humankind may perish due to its own stupidity or simply terminate blindly with the rest of the creatures of the earth. Huxley—similarly to many eugenicists at the time—sought to eliminate, through policies of negative eugenics, those who fell below the perceived standard, to protect the human species from perceived threats of hereditary deterioration. He continued to openly propagate for discouraging “genetically defective” or “inferior” types from having children throughout his life.¹⁸ However, the focus on the problems of perceived specific abnormalities or even on the threat of degeneration became less pronounced starting in the 1930s.

As historian Roger Griffin has suggested, eugenics could not only be seen as a tool for (short-term) technocratic social engineering, but also as a solution to a spiritual crisis of civilization.¹⁹ This was true for a number of eugenicists during the time in which Huxley was active, and it was an integral part of Huxley’s transhumanism.

Huxley became increasingly convinced that the average of humanity was not enough, and that this amounted to a problem of existential proportions. Huxley seemed to argue that humanity must use eugenic and other scientific and technological measures to improve human biology and control human evolution, otherwise we would not make it. This line of reasoning is still found in parts of transhumanism today.

If, on the other hand, humankind was to follow the suggestions of Huxley, we would not only survive, but transform and transcend. The possibility of controlling evolution instilled a sense of hope and purpose. Huxley’s transhumanism offered the idea that we no longer had to fight against or adapt to nature but could instead rise above it. The meaning of human existence should be more than self-preservation and bare survival. Evolution of humans should move toward the attainment of higher goals and of fulfillment.

Huxley’s transhumanism presented a dual view of humanity as, on the one hand, the highest output of evolution and, on the other, a botched and unfinished product in need of improvement. He never left the human

¹⁸ Huxley 1962: “Eugenics in Evolutionary Perspective.”

¹⁹ Griffin (2013, 80–81).

behind in favor of the posthuman but was attempting to unite a more traditional humanistic view of the human as containing some form of core essence or potential with an evolutionary point of view of humans as a work-in-progress. This gave rise to a tension between, on the one hand, viewing the human as unique and admirable, while on the other hand nurturing an idea of the human as dissatisfactory and unfinished, up to the point of imagining something more-than or other-than human. This tension is arguably still one of transhumanism's most interesting features, as it combines humanism and a unique form of "posthumanism" in a dynamic way.

10.3 TRANSHUMANISM 2.0 AND EARLIER PROJECTS OF HUMAN ENHANCEMENT

Ethicist Nicholas Agar, who has written extensively about human enhancement, and who is pro-enhancement, nonetheless warned against transhumanist radical enhancement. Agar contrasted what he viewed as Huxley's envisaged "gradual changes to humanity" to modern proponents of so-called radical enhancements, viewing the latter as more sound.²⁰

Huxley often did have a long-range perspective. He envisioned gradual changes to humanity because he was an evolutionary biologist thinking in terms of species, but also because it was mostly only possible for him to imagine changes mediated by technology that was available or near available during his lifetime. Many of the changes he did imagine and propose were, however, radical at the time in which he was active. That they may seem modest in comparison to some modern suggestions has partly to do with the rapid developments within the fields of biomedicine and technology in the last 50 years.

New technologies have been incorporated within a transhumanist imaginary. Bashford has noted that Huxley, had he lived to see it, would have been delighted when Oxford University chose to promote a Future of Humanity Institute (which was directed by Bostrom).²¹ There are many other things Huxley would be excited about in today's technoscientific society. In truth, several of the techniques and practices Huxley hoped for in a "eugenic" future have at present become a working reality.

²⁰ Agar (2010, 197).

²¹ Bashford (2013, 161).

Huxley's scientific biological view of humanity promoted a belief in personality (individuality) and in the human individual as the highest product of evolution. However, even though he was clearly interested in individual enhancement, he always focused more on what he felt to be the pressing need for the whole human species to change. He certainly did not believe every human individual should have the right to choose what they please.

Bashford suggested that the place of the individual is a key point of difference between Huxley and contemporary transhumanists.²² This study offers support to that statement. Generally, transhumanism 2.0 focused not on the transformation of social conditions but on the transformation of the human body and the human personality.²³ Whether promoting a technocratic dictatorship, or a Fulfillment Society that would aid in the individual's self-transformation, Huxley was always markedly more interested in the collective and in social change than many of his transhuman successors.

Additionally, it was not uncommon for the own personal body and the own personality to be the focal point of transhumanism 2.0, as is exemplified perhaps most clearly by the quest for personal immortality. Although Huxley could gladly entertain ideas of immortality or imagine programs of *in vitro* fertilization where elite men—like himself—would offer their personal services, he spoke less of the type of individual enhancements that are commonly discussed today and more of species change. Fuller has posed the question: Would you still believe in transhumanism even if it was unlikely that you would personally benefit from it?²⁴ Huxley would have still believed, but it remains a question for modern transhumanists.

The reason that the place of the individual shifted has partly to do with the fact that the idea of State control was heavily questioned in the decades following the Second World War. Collective measures were brought into disrepute. The experience of Nazi eugenics and state coercion was deployed in support of an antiregulatory agenda with regard to, for example, genetic engineering.²⁵ In addition, the more that was revealed about

²² Bashford (2013, 162).

²³ Liakos (2013, 67–68).

²⁴ Fuller (2020, 202). The question is paraphrased and reads: “So, do you still believe in transhumanism even if it is unlikely that you will personally benefit from it?”

²⁵ Paul (2005, 142).

human genetics and heredity, the less did old-school eugenics appear defensible or scientifically plausible.²⁶

Attempts to tie modern biotechnology and genetics to the eugenics movement can become superficial and one should be careful not to exaggerate the connections between the modern projects of human enhancement and eugenics. To label a practice eugenics today is to denounce it, which is why many critics of transhumanism tend to draw the eugenic parallel to essentially end the conversation. This is also part of the reason why Huxley has become a troubling figure for anyone wanting to write a heroic history of transhumanism.

The new transhumanists saw no true problem in promoting human enhancement. They simply did not see themselves as heirs to eugenics because eugenics was—and still is—seen as closely connected to negative suppressive measures of State control. As Paul and Bashford, among others, have pointed out, however, eugenics did not operate only through the radical right, sterilization, and murder, but through liberal governmentalities as well, and nurturing goals much closer to contemporary aspirations to improve humanity.²⁷ This historical fact complicates matters, not only for transhumanists, but for anyone participating in our contemporary techno-scientific culture.

Huxley was a eugenicist, but his efforts were directed beyond the cruder implementation of negative eugenics. He was interested in a conscious, artificial form of evolution through control and human agency for the purpose of improving *Homo sapiens*. Humanity could ensure progress, whereas natural selection could not. The human species, admittedly a product of natural evolution, should now try and transcend the vulgarity and crudeness of the natural selection mechanism.

It cannot be denied that contemporary transhumanism is tied together with aspects of eugenic thought. Nevertheless, the legacy of Huxley's vision goes beyond eugenics. Transhumanism views science and technology as a means to deal not only with societal issues, but to fulfill deep human desires. Huxley's vision reflected existential hopes and dreams about the future, as well as ideals and impulses driving science and politics. It is in focusing on the underlying impulses, longings, and existential needs driving or motivating transhumanism that the continuities and affinities become most apparent. And perhaps Huxley is making a

²⁶ Pauly (1987, 3).

²⁷ Bashford (2013, 154–55), Paul (2005).

comeback within a transhumanist context: in *The Transhumanism Handbook* (2019), the first chapter began with a quote from Huxley's "Transhumanism" essay.²⁸

The existential dimension also helps explain the trajectory between eugenics and more contemporary projects of human enhancement. Rather than speaking directly of eugenics in relation to transhumanism, this study suggests that it is more useful in those instances to speak, with a concept borrowed from Comfort, of a eugenic impulse. It is an impulse motivated by the wish to alleviate suffering as well as perfecting humans, and it is not expressed exclusively by transhumanists.

Human social life has gradually shifted to accept a greater role for genetics and there is a growing demand for high-tech medicine and its delivery through a market economy. The same development is seen with regard to many enhancement technologies, big and small. There has been strong promotion of non-directive counseling and individual choice, as well as a commercialization of medical techniques and treatments. The focus has clearly lain on the individual's right to have access to information, counseling and testing services.²⁹ To accuse contemporary transhumanists of being heirs to eugenics risks missing the bigger picture and the at times uncomfortable realization that many of us are active participants within the imaginary.

10.4 FINAL REFLECTIONS

Transhumanism gained speed and influence during the 1990s and 2000s. The expanding development of a transhumanist movement made even the man who had proclaimed the end of history consider the recommencement of history again. In 2004, the political scientist Francis Fukuyama described transhumanism as "the world's most dangerous idea."³⁰

²⁸ Lee 2019a: "Brave New World of Transhumanism," 4.

²⁹ Ekberg (2013, 95–96).

³⁰ A year prior to that alarmist declaration, Fukuyama had published *Our Posthuman Future* and described a biotechnological "revolution" already happening (and quoting Nietzsche and Aldous Huxley). Humans were on a steady course heading toward a coming dystopia, not unlike the one in *Brave New World*, where people would be seduced rather than compelled to live in an orderly society. Fukuyama believed that the use of biotechnology such as genetical engineering would lead to a dehumanization of humankind. (Fukuyama 2004, 42–43; Fukuyama 2003, 6, 12).

Fukuyama is likely the most frequently quoted, but he is far from the only critic of transhumanist endeavors. Voices have been raised in concern about the risk of enhancing inequalities alongside enhancing humans. Unleashing biotechnology would, some believe, emphasize the divide between rich and poor, the haves and have-nots, transhumans and humans. Others have suggested that transhumanism is a threat to morality itself, because morality is connected to the vulnerability of human nature.

Ethicists Michael McNamee and S. D. Edwards have argued that contemporary transhumanism has pushed the bioethical envelope and that its goals and arguments potentially lead humankind down a “slippery slope.”³¹ Pilsch has commented on what he sees as worrying linkages between a contemporary transhumanism and the neoliberal construction of subjectivity as commodity.³² Historian W. Patrick McCray has urged not to ignore the transhumanist movement, precisely because elements from it are being nudged ever closer to the mainstream, through media, money, and technology.³³

Transhumanism is controversial. Huberman, in her study of contemporary transhumanism, noted that much of the existing scholarly literature on transhumanism has revolved around the question: Is transhumanism good or bad, right or wrong?³⁴ Such questions have here been left to the side. As Tirosh-Samuelson has stated, the transhumanist discourse raises crucial issues about the meaning of being human in our contemporary technoculture.³⁵ Even if transhumanism as a contemporary sociointellectual movement is marginal, or turns out to be a soon-forgotten trend, the idea of controlling our—as individuals or as a species—future by technologically enhancing ourselves and, by extension, humankind is now part of a much larger and more resilient imagination.³⁶

The idea of controlling destiny harbors the human longing for autonomy, the dream of living untouched and unscathed by things that could hurt us physically or emotionally. Arguably, human beings are threatened and limited in our autonomy by our own physical nature. We are quite literally limited by our evolutionary past and as long as we are, is the thinking, we cannot be free.

³¹ McNamee and Edwards (2006, 516).

³² Pilsch (2017, 21).

³³ McCray (2017). See also Pilsch (2017, 4), Hauskeller (2015, 132), Hughes (2004, xvi).

³⁴ Huberman (2021, 11).

³⁵ Tirosh-Samuelson (2011, 29).

³⁶ Burdett (2015, 47).

In 1927, Huxley spoke of the new realization of the possibility of controlling not only inorganic and organic nature, but also human nature: “That has hardly as yet got a foothold; but it is coming.”³⁷ And it did come. Today, the biologist’s, medical practitioner’s, or bioengineer’s possibility to affect human biology and perhaps even evolution has increased greatly.

Medical techniques ranging from prenatal tests, surrogate motherhood, psychotropic drugs, medical genetics, individual enhancements, and possible germline enhancements are here. Technologies already permit prenatal genetic diagnosis and selective abortion in case needed, as well as donor-assisted IVF conception (in some cases with donors chosen for their physical, moral, intellectual, and/or emotional characteristics). Genetically modifying embryos is possible, especially following the discovery of the gene editing technique CRISPR/Cas9.

In addition, preventive medicine, where a disease or condition is not treated but instead prevented, is a large and growing field of immense importance, and it can be surprisingly difficult to decide where to draw the line between what could be considered prevention of harm and what is instead moving toward a goal of attainment of perfection.

The developments continue to nurture dreams of altering basic elements of the human condition, such as lifespan, morphology, and cognition. Dreams projected in media are in part driven by the scientists themselves sensationalizing the technology. Suggested techniques for application on humans often receive more positive reactions than do ideas of genetically modifying plants and animals.

Tools for genetic manipulation and human enhancement bring up difficult questions of egalitarian values as well as questions concerning free choice. Enhancement necessarily entails human action, intervention, and control and enhancing humans requires an idea of what we regard as better or enhanced, as well as of what is to be considered bad and undesirable. The geneticist Walter Bodmer once wrote that the conflict between the savory and the unsavory is the essential nature of the application of science.³⁸ This conflict is very much present in relation to human enhancement. The goal of enhanced humans also means getting rid of what we do not like.

³⁷ Huxley 1927: *Religion Without Revelation*, 324.

³⁸ Bodmer and Jones (1974, 1).

There are great benefits to be had from genetic screening, counseling, and therapy. Few would deny that individuals have a need for and should be allowed access to information concerning genetic risks, disorders, and modes of treatment. Human genetic knowledge will lead to cures and therapies for many diseases. Complexities surrounding questions of health, reproduction, and human enhancement make the implications of biotechnology notoriously difficult to evaluate.³⁹

Ethical and moral arguments in favor of human enhancement have been presented aplenty. Parents may be seen as having a moral obligation to their children, the present generations could have a moral obligation to future generations. We already “enhance” our children through access to education, learning skills, getting vaccines, etc.—why not do it through genetics? The transhumanist would argue that the state should not intervene in such choices, that individuals should be free to choose what they please.⁴⁰

Of course, individual choice is not as straightforward as is sometimes imagined. Ideas and social norms play a role in decisions, despite the absence of direct coercion. Additionally, Paul has pointed out the simple fact that practices voluntarily chosen by consumers can still have a collective impact. Some believe the current development runs the risk of becoming—or has already become—a form of “backdoor eugenics,” or eugenics of the free market.⁴¹ Arguments of good health and a better life could certainly influence individual choice. Perhaps projects of genetic screening and prenatal testing already follow an ideal of bodily perfection that could be viewed as demeaning to the disabled or developmentally different among us. Absolute reproductive autonomy for the individual could risk reinforcing a host of social prejudices. The goal of the elimination of imperfection, inconvenience, and risk perhaps in itself risks leading to the loss of tolerance for difference and unpredictability.⁴²

³⁹ Pauly (1987, 3).

⁴⁰ For a discussion of these moral stances, see Ekberg (2013, 100–2).

⁴¹ Paul (2005, 124). The “backdoor eugenics” argument was forwarded by sociologist Troy Duster, who claimed that we are today taking the “backdoor to eugenics,” the front door being closed due to the Second World War. Duster argued that the development of sperm banks, in vitro fertilization, and artificial insemination carry eugenic aims (Duster 2003, 114; Paul 1995, 133; Fuller & Lipinska referred to it as “Eugenics 2.0,” see Fuller & Lipinska 2014, 91–92).

⁴² Paul (1995, 135), Paul (2005, 144–45), Bethke Elshain (2005, 161).

The facts about the human condition are real and tragic, but are they definitive? Perhaps biology is not destiny and perhaps humans can intervene in the evolutionary process to “release the future from the shackles of the evolutionary past.”⁴³ For quite some time now, we have been moving toward a much wider acceptance of the idea that the right to control one’s own body should be extended to include the right to augment one’s body.⁴⁴ And not only our own bodies, but those of coming generations.

The effects of genetic enhancement will last far into the future.⁴⁵ If we engineer the human genome, we will be responsible for it. As philosopher Mark Sagoff put it: “The more control we have, the more the genome becomes a matter of intention and choice.”⁴⁶ The question is whether that is something to be desired or avoided. Transhumanists strive to promote the possibility for us to be more in control in our lives and of our lives. In this, they are not alone.

Perhaps transhumanism is simply a natural extension of the aims of modern medicine and technology. Should we admit that pain and sickness is a natural condition for humans, should we accept an imperfectability of human nature?⁴⁷ If we could make better humans, why shouldn’t we? In 2003, Gregory Stock—then director of the program on Medicine, Technology, and Society at the School of Public Health of the University of California—proclaimed that we would soon seize control of our evolutionary future.⁴⁸ Enthusiastic about the possibilities of human enhancement, Stock dismissed the skeptics: “No one,” he wrote, “seriously thinks that widespread medical interventions on human embryos will occur without oversight.”⁴⁹

Then, in 2018, the Chinese biophysics scientist He Jiankui in the Department of Biology of the Southern University of Science and Technology in Shenzhen, China, announced that he had used the gene editing tool CRISPR/Cas9 to genetically modify two human babies. The genetic change made will affect not only the two children, but their possible offspring for generations. The clinical trial had been conducted without any public discussion in the scientific community.

⁴³ Morton (1984, 113).

⁴⁴ Lilley (2013, 9).

⁴⁵ Baillie and Casey (2005, 3).

⁴⁶ Sagoff (2005, 90).

⁴⁷ Liakos (2013, 67).

⁴⁸ Stock (2003, 2).

⁴⁹ Stock (2003, 172).

He Jiankui wanted to “make people better” and although he was widely condemned for his actions and received a prison sentence, he has since been called a pioneer and, by Harvard geneticist George Church, “the martyr that came first.”⁵⁰ Jiankui’s actions were unprecedented, but his motivations were not.

We are arguably already past the point of no return. The new technologies will likely make enhancement inevitable. The very real possibility of applying these techniques to humans calls for the need to ask, not whether we want to go down this road, but how far we should go. It points to the necessity of awareness of what ideals are being—and what ideals should be—pursued in relation to the use of these technologies. Paying attention to the underlying ideals and impulses driving the quest for therapies and enhancements can help us better understand the complex situation related to biotechnology and biopolitics. We cannot know the future, but we can have a conversation about technology, medicine, and the consequences of transhumanism. One particularly important question regards the equalization of access to these technologies.

Huxley believed that humankind was already set upon this path and that we could do little to stop it. One of the points of his transhumanism was to argue that humankind needed to assume responsibility for its actions and take control, if we did not wish the inevitably incoming future to be chaotic.

There is a human inclination to think that we are living in a special time. Perhaps transhumanism is an excellent example of humans taking themselves for the be-all and end-all. Nonetheless, humans and human societies are, in several ways, predetermining the future. Both Huxley and the new transhumanists would at times argue that the biggest existential risk to humanity is humanity itself.⁵¹ Huxley’s transhumanism recognized that ours was the epoch in which human activity had become a dominant influence on the planet—and on ourselves. Contemporary transhumanism recognizes that humanity faces serious risks from the misuse of new technologies and argues for careful deliberation on how to reduce risks without losing beneficial applications.

Of course, careful deliberation may not be enough. Now facing ecological disaster, are we cognitively advanced enough to solve our own

⁵⁰ Spitznagel (2022).

⁵¹ Lee 2019a: “Brave New World of Transhumanism,” 26.

problems? As Ettinger phrased it in 1972, when discussing the human condition as an affliction: “The evidence is very strong that there is no cure—as long as we remain human.”⁵² A frightening thought it is, that mankind might not be up to the task of saving itself. If transhumanism is an existential solution to the long-term survival of mankind, posthumans may be the salvation—but for whom? Perhaps this is when Huxley’s transhumanism should be reconsidered: Remaining human but transcending ourselves.

⁵² Ettinger (1972, 20–21).

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SOURCES

ARCHIVAL SOURCES

THE JULIAN SORELL HUXLEY PAPERS, 1899–1980. MS 050. WOODSON RESEARCH CENTER, FONDREN LIBRARY, RICE UNIVERSITY, HOUSTON, TEXAS. (JSH PAPERS, RU, MS50)

- JSH Papers, RU, MS50, 5:9. Letter from Bergson, 14 Dec. 1912.
JSH Papers, RU, MS50, 5:15. Letter from Gilbert Murray, 24 Feb. 1917.
JSH Papers, RU, MS50, 6:5. Letters from T. S. Eliot, 26 Oct. 1921 and 31
Oct. 1921.
JSH Papers, RU, MS50, 7:1. Letter from an admirer, 19 Jan. 1922.
JSH Papers, RU, MS50, 18:4. Letter from Huxley to Teilhard, 16 Nov. 1949.
JSH Papers, RU, MS50, 57:3. Lecture notes, 1911–1912. “Every spiritual thing
has a material side...”
JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes.
JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes, lecture 1.
JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes, lecture 2.
JSH Papers, RU, MS50, 57:6. Rice Lectures 1914–1916. Notes, lecture 3.
JSH Papers, RU, MS50, 57:6. Rice 1914–1916, List of Literature.
JSH Papers, RU, MS50, 58:1. Notes for an unpublished essay, 1917.
JSH Papers, RU, MS50, 58:1. Notes Dec. 1917. “The Biological Idea of Progress,
3 questions to be considered.”

- JSH Papers, RU, MS50, 58:1. Note on religion from 15 Dec. 1917. "Where Wells is Wrong..."
- JSH Papers, RU, MS50, 58:1. Notes Dec. 1917. "The Idea of a Critical Point in Evolution."
- JSH Papers, RU, MS50, 58:2. Notes, 1917–1918. "I confess to a feeling of awe..."
- JSH Papers, RU, MS50, 58:6. Typewritten notes for an essay, 1918.
- JSH Papers, RU, MS50, 58:6. Note, 1918. "On the train to..."
- JSH Papers, RU, MS50, 58:11. Undatable material, 1916–1918. "Spiritual Biology."
- JSH Papers, RU, MS50, 59:3. Notes 1921–1922. Notes regarding the naturalistic attitude toward religion.
- JSH Papers, RU, MS50, 59:10. Drawings of graphs, "A Critical Point in Evolution."
- JSH Papers, RU, MS50, 60:3. Private notes, undatable material, 1920s.
- JSH Papers, RU, MS50, 60:6. Manuscripts, notes, 1920s. "Introductory."
- JSH Papers, RU, MS50, 60:6. Notes regarding experimental biology, 1920s.
- JSH Papers, RU, MS50, 63:4. "The Belief in Survival," 1932.
- JSH Papers, RU, MS50, 63:7. "Man's Place in the Universe," an unfinished manuscript.
- JSH Papers, RU, MS50, 64:1. "Science in the Making," 1935.
- JSH Papers, RU, MS50, 64:8. "Man's Place in Nature and Uniqueness of Man," 1930s.
- JSH Papers, RU, MS50, 67:3. "Evolution Lecture no. 2," 1949.
- JSH Papers, RU, MS50, 67:7–8. 1949.
- JSH Papers, RU, MS50, 68:1–3. 1950. Undated scrap of paper.
- JSH Papers, RU, MS50, 68:5–6, folder 5. 1950, notes. "Population and human destiny."
- JSH Papers, RU, MS50, 68:5–6, folder 6. 1950, notes.
- JSH Papers, RU, MS50, 69: 1–3. 1951, notes.
- JSH Papers, RU, MS50, 69:10. 1952.
- JSH Papers, RU, MS50, 69:11. 1952, notes.
- JSH Papers, RU, MS50, 70:9. "Scientific Humanism, Evolution, and Human Destiny," 1954.
- JSH Papers, RU, MS50, 71:2. "The Evolution of Man," 1955. "The Adventure of Humanity."
- JSH Papers, RU, MS50, 71:2. "The Evolution of Man," 1955, "The Building of Living Bodies."
- JSH Papers, RU, MS50, 71:6. Notes, 1950s.
- JSH Papers, RU, MS50, 97:2. Huxley 1921: "Living Backwards," *Discovery*, Feb.
- JSH Papers, RU, MS50, 97:7. Huxley 1927: "The World with Mechanism Enslaved, How the Race of the Future May Live," *The Evening Standard*, Wed. 12 Oct.

- JSH Papers, RU, MS50, 99:3. Publications 1946–47, “A Re-Definition of ‘Progress’.”
- JSH Papers, RU, MS50, 99:3. “Scientific Humanism,” *The Literary Guide*, Jan. 1944.
- JSH Papers, RU, MS50, 100:1. “Humanity’s Need Is a New Ideology,” *Illustrated*, 28 Jan. 1950.
- JSH Papers, RU, MS50, 100:1. Huxley 1950: “Man Has Taken Over from Nature,” *News Chronicle*, 17 Oct. 1950.
- JSH Papers, RU, MS50, 100:1. Huxley 1950: “The Human Phenomenon,” *Encounter*, Apr.: 84–6.
- JSH Papers, RU, MS50, 101:4. Huxley 1962: “Eugenics in Evolutionary Perspective.”
- JSH Papers, RU, MS50, 101:6. Mirsky responds to Huxley in *Scientific American*, “Letters,” Jan. 1965.
- JSH Papers, RU, MS50, 101:6. Huxley responds to criticism in *The Scientific American*, “Letters,” Jan. 1965: 6–9.
- JSH Papers, RU, MS50, 101:10. Huxley & Nicholson 1969: “Life in 1980: Man’s Deteriorating Environment,” *The Times*, 7 Oct.
- JSH Papers, RU, MS50, 101:10. Fairbrother 1969: “Man’s Use of His Natural Habitat,” *Times*, 10 Oct.
- JSH Papers, RU, MS50, 106:1. Public Health Congress and Exhibition Voluntary Sterilisation, 1934.
- JSH Papers, RU, MS50, 113:2. Notes of the Ninth Meeting of the Idea-systems Group, 14 Mar. 1951.
- JSH Papers, RU, MS50, 121:2. Talbot, Neville 1912: “The Modern Situation.”
- JSH Papers, RU, MS50, 121:3. Noyes, Alfred 1928: “The Diminishing Road,” *Spectator*, 28 Mar.
- JSH Papers, RU, MS50, 121:3. Haldane, J. B. S. 1927: “The Golden Age—and Then! Will Man Return to Barbarism, or Live for Ever and Colonise the Stars?” *Evening Standard*, 10 Oct.
- JSH Papers, RU, MS50, 136:1. Huxley: “The Thyroid Gland and the Control of Animal Growth,” *The Illustrated London News*, 16 Feb. 1920.
- JSH Papers, RU, MS50, 136:1. “When Girls May Be Boys. Probing One of Life’s Deepest Mysteries,” *Daily Sketch*, 19 Feb. 1922.
- JSH Archives Series XI 136:1. “Secret of Longer Life: Mr. Huxley on Control of Growth,” *The Time*, 22 Feb. 1920.
- JSH Papers, RU, MS50, 136:1. *Overseas Daily Mail*, 28. Feb. 1920.
- JSH Papers, RU, MS50, 136:1. “Thyroidine,” *The Clarion*, 5 Mar. 1920.
- JSH Papers, RU, MS50, 136:1. “Birth Control Instruction: ‘Good Far Outweighs Possible Evils’,” *Birmingham Gazette*, 1 May 1921.
- JSH Papers, RU, MS50, 136:3. West, Clement Ashlin 1924: “The New Scientific Religion,” *London Quarterly Review*, Jul.: 29–39

- JSH Papers, RU, MS50, 136:4. "Religion Without a God. Where Professor Julian Huxley is at Fault," *North Mail and Newcastle Chronicle*, 4 Oct. 1930. Article written anonymously.
- JSH Papers, RU, MS50, 136:4. "Professor Huxley's Outlook," *Dundee Advertiser*, 3 Oct. 1930.
- JSH Papers, RU, MS50, 136:4. "Biology and the Humanities," *The Times*, 10 Feb. 1930.
- JSH Papers, RU, MS50, 136:4. "The Basis of Morality," *Bolton Evening News*, 3 Oct. 1930.
- JSH Papers, RU, MS50, 136:4. "The Example of Russia," *Daily Mail*, 8 Oct. 1930, anonymous commentator.
- JSH Papers, RU, MS50, 136:4. "Scientist Criticised," *Oxford Daily Telegraph*, 3 Oct. 1930.
- JSH Papers, RU, MS50, 136:4. "Peter Pan Professor," *Aberdeen Evening Express*, 3 Oct. 1930.
- JSH Papers, RU, MS50, 136:4. "Value of Biology: Professor Huxley on Science in Schools," *The Daily Telegraph*, 10 Feb. 1930.
- JSH Papers, RU, MS50, 136:5. "Mr. Julian Huxley's Library," *John O'London's Weekly*, 11 May 1937.
- JSH Papers, RU, MS50, 136:5. "Huxley Envisages the Eugenic Race," *New York Times*, 6 Sept. 1937.
- JSH Papers, RU, MS50, 136:5. Chesterton, 1934: "Who Is the Ascetic?" *G.K.'s Weekly*, 1 Feb.
- JSH Papers, RU, MS50, 137:1. "Profile—Julian Huxley," *The Observer*, 15 Dec. 1946.
- JSH Papers, RU, MS50, 137:2. Chamberlain 1947: "Mr. Huxley Reappraises Man's Role in the Universe," *The New York Times*, Oct. Reviewing Huxley's *Man in the Modern World: An Eminent Scientist Looks at Life Today*, essays selected from *The Uniqueness of Man*, 1941, and *On Living in a Revolution*, 1944.
- JSH Papers, RU, MS50, 137:4. Stepney, Joost 1957: "His Grandfather's Battles," *Truth*, 12 Apr.
- JSH Papers, RU, MS50, 137:4. Batson, Eric J. 1958: "New Bottles for New Wine," review of Huxley's *New Bottles for New Wine* as well as Bertrand Russell's *Why I Am Not a Christian and Other Essays on Religion and Related Subjects*, *The Shavian*, Sept.: 26–9.
- JSH Papers, RU, MS50, 137:4. "Evolutionary Humanism," *The Times Literary Supplement*, review of *New Bottles for New Wine*, unknown author, 1957.
- JSH Papers, RU, MS50, 137:4. Bibby, Cyril 1957: "The Destiny of Man," *Observer*, 10 Nov.
- JSH Papers, RU, MS50, 137:4. Skelton, Humphrey 1958: "Man Without God," review of *New Bottles for New Wine*, *The Humanist*, Feb.: 14–15.
- JSH Papers, RU, MS50, 138:1. "How Can Man Improve Man?" *New Scientist*, 14 Jun. 1962.

- JSH Papers, RU, MS50, 138:1. "Letters. Readers Reply to Last Week's Article by Sir Julian Huxley," *The Observer*, 10 Sept. 1961.
- JSH Papers, RU, MS50, 138:1. "Mankind Controls Own Destiny, Evolutionary Humanism Holds," *Vancouver Sun*, 15 Mar. 1961.
- JSH Papers, RU, MS50, 138:1. "Breeding for Brains," *The Observer*, 7 Jun. 1962.
- JSH Papers, RU, MS50, 138:1. "Huxley's Recipe for Supermen," *The Christian*, 15 Jun. 1962.
- JSH Papers, RU, MS50, 138:1. Greer, Philip 1964: "The Religion of Julian Huxley," *The Humanist*, May: 134–36.
- JSH Papers, RU, MS50, 138:1. "Science and God," *The Observer*, 17 Jul. 1960, Dr. Mascal replies to Huxley's ideas.
- JSH Papers, RU, MS50, 138:1. "Birth Control Should be Ministry Responsibility: Sir J. Huxley," *The Times*, 14 Jul. 1965.
- JSH Papers, RU, MS50, 138:2. Nott, Kathleen 1961: "Mankind and Man Alone," review of *The Humanist Frame*, *Observer*, 15 Oct.
- JSH Papers, RU, MS50, 138:2. "Humanism Hailed as New Religion," *The New York Times*, 22 Aug. 1962.
- JSH Papers, RU, MS50, 138:2. Trevor-Roper, Hugh 1961. "The Tertiary Humanists," *The Sunday Times*, review of *The Humanist Frame*, 17 Sept.
- JSH Papers, RU, MS50, 138:2. Huxley 1961: "The Humanist Frame," *The Sunday Times*, a response to Hugh Trevor-Roper, 29 Oct.
- JSH Papers, RU, MS50, 138:2. McCall, Colin 1961: "Views and Opinions: Sir Julian Huxley and Religion," *The Freethinker*, 22 Sept., vol. 81, no. 38.
- JSH Papers, RU, MS50, 138:2. "Only Human," *Sunday Telegraph*, Sept. 1961, review of *The Humanist Frame* by Rebecca West.

MATERIAL OF DIRECTOR-GENERAL, JULIAN HUXLEY.
UNESCO ARCHIVES, PUNES, UNESCO HEADQUARTERS, 7
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- Series DG. Documents of the Director General, FR PUNES AG 06-DG, subseries Speeches of the Director General. Sir. J. Huxley, 6 Dec. 1946–9 Dec. 1948. BBC broadcast about Unesco, Nov. 1946.
- Series DG. Documents of the Director General, FR PUNES AG 06-DG, subseries Speeches of the Director General, 6 Dec. 1946–9 Dec. 1948 Sir J. Huxley, 10 Dec. 1948–15 Dec. 1948. Dr. Torres-Bodet, First Meeting of the Programme Commission, 1946.
- MDG Huxley, PUNES. These/34 (microfiche). Raymonde Braidy, 1986: *Julian Huxley: évolution et humanisme*, thesis, Nanterre, Université de Paris X.

F. M. ESFANDIARY/FM-2030 PAPERS, 1943–2000:
 MSSCOL 4846. MANUSCRIPTS AND ARCHIVES DIVISION,
 STEPHEN A. SCHWARZMAN BUILDING, THE NEW YORK
 PUBLIC LIBRARY, NEW YORK. (FM-2030
 PAPERS, MSSCOL4846)

FM-2030 Papers, MssCol 4846. III. Teaching and seminar files, 1969–2000—
 New School, 1969–1983—Box 31, folder 1: Reading lists, 1967–1989.

BIBLIOGRAPHIES OF HUXLEY

For a comprehensive guide to the Julian Sorell Huxley Papers in Houston, Texas, see Bates, Sarah C., Mary G. Winkler and Christina Riquelmy. 1987. *A Guide to the Papers of Julian Sorell Huxley*. Texas: Rice University

For a bibliography of the collected works of Huxley, see the one compiled by Jens-Peter Green in Baker, John Rendal. 1978. *Julian Huxley. Scientist and World Citizen, 1887–1975*. Paris: United Nations Educational, Scientific and Cultural Organization

PRINTED PRIMARY SOURCES: WORKS AND ARTICLES BY
 HUXLEY IN CHRONOLOGICAL ORDER

- Huxley, Julian. 1912. *The Individual in the Animal Kingdom*. Cambridge: Cambridge University Press
1912. "Some Phenomena of Regeneration in Sycon: With a Note on the Structure of Its Collar-Cells," *Philosophical Transactions of the Royal Society of London. Series B, Containing Papers of a Biological Character*, vol. 202: 165–189
1919. "Biology and Human Progress," *The Manchester Guardian*, 15 Aug.
1920. "Metamorphosis of Axolotl Caused by Thyroid-feeding," *Nature*, 104: 435
1920. "Intersexes in Drosophila and Different Types of Intersexuality," *Science, New Series*, vol. 52, no. 1333: 59–60
1921. "The Control of the Life-Cycle (ii)," *The English Review*, Apr.: 299–310
1921. "The Control of the Life-Cycle (iii)," *The English Review*, May: 411–419
1921. "The Control of the Life-Cycle (iv)," *The English Review*, Jun.: 493–498
- Huxley, Julian and Lancelot T. Hogben. 1922. "Experiments on Amphibian Metamorphosis and Pigment Responses in Relation to Internal Secretions," *Proceedings of the Royal Society of London. Series B, Containing Papers of a Biological Character*, vol. 93, no. 649: 36–53
1923. "Biology in Utopia," review of H. G. Wells's *Men Like Gods for Nature*, reprinted in Huxley, 1929. *Essays in Popular Science*: 67–74

1923. "Progress, Biological and Other," in *Essays of a Biologist*, 3–64. London: Chatto & Windus
1923. "Biology and Sociology," in *Essays of a Biologist*, 67–102. London: Chatto & Windus
1923. "Rationalism and the Idea of God," in *Essays of a Biologist*, 207–231. London: Chatto & Windus
1923. "Religion and Science: Old Wine in New Bottles," in *Essays of a Biologist*, 235–304. London: Chatto & Windus
1923. *Essays of a Biologist*. London: Chatto & Windus
1923. "Science and Religion," in *Science and Civilization*, the Unity Series VI. Ed. F. S. Marvin, 279–329. London: Oxford University Press
1923. "The British Journal of Experimental Biology," *Science*, New Series, vol. 58, no. 1493: 102
1924. "'Sexual Sublimation': A Biologist's View," *The New Republic*, 23 Jan.
1924. "Eugenics and Heredity," *The New Statesman*, 14 Jun.
1924. "Nature or Nurture," *New Leader*, 29 Nov.
1924. "America Revisited III: The Negro Problem," *The Spectator*, 133: 821–822
1925. "Studies on Amphibian Metamorphosis II," *Proceedings of the Royal Society of London. Series B, Containing Papers of a Biological Character*, vol. 98, no. 688: 113–146
1925. "Birth Control—Individual and Social Ethics," *Nature*, 26 Sept.
1926. "The Continuity of Life," in *The Stream of Life*, 1–5. London: Watts & Co.
1926. "The Evolution of Man," in *The Stream of Life*, 44–49. London: Watts & Co.
1926. "The Hope of Betterment," in *The Stream of Life*, 50–56. London: Watts & Co.
1926. *The Stream of Life*. London: Watts & Co.
1926. "The Biological Basis of Individuality," *Journal of Philosophical Studies*, vol. 1, no. 3: 305–319
- Huxley, Julian and J. B. S. Haldane. 1927. *Animal Biology*, Oxford: Oxford University Press
1927. "Why Popularize Science?" *The Science News-Letter*, vol. 11, no. 319: 329
1927. "Mind Considered from the Point of View of Biology," *Journal of Philosophical Studies*, (Jul.) vol. 2, no. 7: 330–348
1927. "The Modification of Development by Means of Temperature Gradients," *Development Genes And Evolution*, (Nov.) vol. 112, no. 1: 480–516
1927. "The Tissue-Culture King," *Amazing Stories*, Aug., vol. 2, no. 5: 451–459
1927. "The World with Mechanism Enslaved. How the Race of the Future May Live," *The Evening Standard*, 12 Oct.
1927. *Religion Without Revelation*. New York & London: Harper & Brothers
1928. "Progress Shown in Evolution," in *Creation by Evolution*, ed. by Frances Mason. 327–339. New York: Macmillan

1929. "Heredity I," in *Essays in Popular Science*, first published 1926, 1–8. London: Chatto and Windus
1929. "Heredity II," in *Essays in Popular Science*, first published 1926, 9–28. London: Chatto and Windus
1929. "The Meaning of Death," in *Essays in Popular Science*, first published 1926, 106–127. London: Chatto and Windus
1929. "Elixir Vitae," in *Essays in Popular Science*, first published 1926, 128–130. London: Chatto and Windus
1929. "Birth Control," in *Essays in Popular Science*, first published 1926, 131–136. London: Chatto and Windus
1929. *Essays in Popular Science*, first published 1926. London: Chatto and Windus
- Huxley, Julian *et al.*, 1931. *Why I Reject the Idea of God*, discussion by Huxley, Inge, Woodlock and Haldeman-Julius. Kansas: Haldeman-Julius Publications
1932. *A Scientist Among the Soviets*. London: Chatto & Windus
1932. *What Dare I Think? The Challenge of Modern Science to Human Action & Belief*. London: Chatto & Windus
1933. "Man as a Relative Being," in *Science in the Changing World*, ed. Mary Adams, 109–130. London: Allen & Unwin
1933. "Man and Reality," in *Science in the Changing World*, ed. Mary Adams, 186–198. London: Allen & Unwin
1934. *If I Were Dictator*. New York & London: Harper & Brothers Publishers
1934. *Scientific Research and Social Needs*. London: C. A. Watts and Co.
1935. "Chemical Regulation and the Hormone Concept," *Biological Reviews*, vol. 10, no. 4: 427–441
1936. "Eugenics and Society," *Eugenics Review*, vol. 28, no. 1: 11–31
1936. "The State and the Consumer," *Public Administration*, vol. 14, no. 3: 247–255
1936. "Marxist Eugenics," review of H. J. Muller's *Out of the Night* in *Eugenics Review*, (Apr.) vol. 28, no. 1: 66–68
- Huxley, Julian *et al.* 1938. "Abortion and the Law," *The British Medical Journal*, vol. 2, no. 4046: 198
1938. "Darwin's Theory of Sexual Selection and the Data Subsumed by it, in the Light of Recent Research," *The American Naturalist*, vol. 72, no. 742: 416–433
- Huxley, Julian and A. C. Haddon. 1939. *We Europeans: A Survey of "Racial" Problems*, with a chapter on Europe Overseas by A. M. Carr-Saunders. First published in 1935. Harmondsworth, Middlesex, England: Penguin Books
1940. "Science, War and Reconstruction," *Science, New Series*, vol. 91, no. 2355: 151–158
1941. "The Uniqueness of Man," in *The Uniqueness of Man*. 1–33. London: Chatto & Windus
1941. "Eugenics and Society," in *The Uniqueness of Man*. 34–84. London: Chatto & Windus

1941. "Scientific Humanism," in *The Uniqueness of Man*. 260–276. London: Chatto & Windus
1941. "Life can be worth living," in *The Uniqueness of Man*. 291–300. London: Chatto & Windus
1941. *The Uniqueness of Man*. London: Chatto & Windus
1941. *Democracy Marches*. London: Chatto & Windus
1941. *Reconstruction and Peace: Needs and Opportunities*. Book written under the pseudonym Balbus. Published in the series The Democratic Order, no. 10, ed. Francis Williams. London: Kegan Paul, Trench, Trubner & Co.
1942. *Evolution: The Modern Synthesis*. New York and London: Harper & Brothers Publishers
1942. "The Biologist Looks at Man," *Fortune*, vol. 26, no. 6: 139–141, 146, 148, 150, 152
1942. "Colonies In A Changing World," *The Political Quarterly*, vol. 13, no. 4: 384–399
1942. "Science, Natural and Social," in *Science and Man: Twenty-Four Original Essays*, ed. Ruth Nanda Anshen, 270–286. New York: Harcourt, Brace and Company
1943. "Human Nature IS Changing," *Daily Herald*, 28 Sept.
1944. "The Future," in *Reshaping Man's Heritage: Biology in the Service of Man*, Huxley *et al.*, 89–96. London: George Allen & Unwin
- Huxley, Julian, H. G. Wells, J. B. S. Haldane, W. G. Ogg, J. C. Drummond, W. F. Crick, J. W. Munro, J. Fisher, W. H. Kauntze, L. J. Witts, Major P. G. Edge, J. M. Mackintosh and sir E. V. Appleton, 1944. *Reshaping Man's Heritage: Biology in the Service of Man*. London: George Allen & Unwin
1944. *On Living in a Revolution*. Third impression, 1945. London: Chatto & Windus
1945. "Science and the House," in *Science at Your Service*, Huxley *et al.*, 11–17. London: George Allen & Unwin
- Huxley, Julian *et al.*, 1945. *Science at Your Service*. London: George Allen & Unwin
1945. "The Vindication of Darwinism," in *Touchstone for Ethics 1893–1943*, 1947, by Julian Huxley and Thomas Henry Huxley. 167–192. New York and London: Harper & Brothers Publishers
1946. *UNESCO: Its Purpose and Philosophy*. Preparatory Commission of the United Nations Educational, Scientific and Cultural Organisation. London: The Frederick Printing Co.
1946. "A Philosophy for Dictators," extract from *If I Were Dictator*, 1934, reprinted by permission of the author in *Leviathan in Crisis. An International Symposium on the State, Its Past, Present, and Future*, by Fifty-four Twentieth Century Writers, ed. Waldo R. Browne. New York: The Viking Press
- Huxley, Julian and Thomas Henry Huxley. 1947a. *Evolution and Ethics, 1893–1943*. London: The Pilot Press

- Huxley, Julian and Thomas Henry Huxley. 1947b. *Touchstone for Ethics 1893–1943*. New York and London: Harper & Brothers Publishers
1951. “Knowledge, Morality, Destiny,” two lectures delivered by Huxley as the William Alanson White Memorial Lectures in Washington on the nineteenth and twentieth of April. *Psychiatry*, vol. 14, no. 2: 129–151
1951. “A Foreword,” in *Psychiatry*, vol. 14, no. 2: 128
1953. *Evolution in Action*. New York: Harper & Brothers
1955. “Man’s Place and Role in Nature,” in *The Unity of Knowledge*, ed. Lewis Leary, 79–97. Columbia University Bicentennial Conference Series. Garden City, New York: Doubleday & Company
1957. “Transhumanism,” in *New Bottles for New Wine*, 13–17. London: Chatto & Windus
1957. “A Re-Definition of Progress,” in *New Bottles for New Wine*, 18–40. London: Chatto & Windus
1957. “Population and Human Fulfilment,” in *New Bottles for New Wine*, 168–212. London: Chatto & Windus
1957. “Knowledge, Morality, and Destiny,” in *New Bottles for New Wine*, 245–278. London: Chatto & Windus
1957. “Evolutionary Humanism,” in *New Bottles for New Wine*, 279–312. London: Chatto & Windus
1957. *New Bottles for New Wine*. London: Chatto & Windus
1959. *Religion Without Revelation*, revised edition first published in 1957, reprinted 1959. London: Max Parrish and Co.
1960. *Knowledge, Morality, Destiny*, original title *New Bottles For New Wine*. New York: New American Library of World Literature
- Huxley, Julian, ed. 1961. *The Humanist Frame*. London: George Allen & Unwin
1962. “Psychometabolism,” *Journal of Neuropsychiatry*, vol. 3, suppl. no. 1: S1–14
1962. “Eugenics in Evolutionary Perspective,” paper delivered as The Galton Lecture in London, June 6, 1962. Published in *The Eugenics Review*, 1962, 54:123, as well as in *Perspectives in Biology and Medicine*, 1963, vol. 6, no. 2: 155–185
1963. “The Future of Man: Evolutionary Aspects,” in *Man and his Future*, ed. Gordon Wolstenholme, 1–22. A Ciba Foundation Volume. Boston and Toronto: Little, Brown and Company
1964. “The Emergence of Darwinism,” in *Essays of a Humanist*, 9–34. London: Chatto & Windus
1964. “Higher and Lower,” in *Essays of a Humanist*, 35–52. London: Chatto & Windus
1964. “Psychometabolism,” in *Essays of a Humanist*, 53–71. London: Chatto & Windus
1964. “The Humanist Frame,” in *Essays of a Humanist*, 72–115. London: Chatto & Windus

1964. "Education and Humanism," in *Essays of a Humanist*, 116–146. London: Chatto & Windus
1964. "The New Divinity," in *Essays of a Humanist*, 218–226. London: Chatto & Windus
1964. "Eugenics in Evolutionary Perspective," in *Essays of a Humanist*, 251–280. London: Chatto & Windus
1964. *Essays of a Humanist*. London: Chatto & Windus
- Huxley, Julian and Max Nicholson. 1969. "Life in 1980. Man's Deteriorating Environment," *The Times*, 7 Oct.
1970. *Memories*. New York, Evanston, San Francisco, London: Harper and Row Publishers
1971. "Science and Synthesis," originally a lecture from 1965, in *Science and Synthesis. An international Colloquium organized by Unesco on the Tenth Anniversary of the Death of Albert Einstein and Teilhard de Chardin*, Maheu, René *et al.*, 28–36. New York, Heidelberg and Berlin: Springer-Verlag
1971. "The Crisis in Man's Destiny," in *Voices of Concern: the Playboy College Reader*, 406–420. New York, Chicago, San Francisco, Atlanta: Harcourt Brace Jovanovich
1973. *Memories II*. New York, Evanston, San Francisco, London: Harper & Row Publishers

OTHER PRINTED PRIMARY SOURCES

- Adams, Mary, ed. 1933. *Science in the Changing World*. London: Allen & Unwin
- Agar, Nicholas. 2007a. "Whereto Transhumanism? The Literature Reaches a Critical Mass," *The Hastings Center Report*, vol. 37, no. 3: 12–17
- Agar, Nicholas. 2007b. "Human vs. Posthuman. Nicholas Agar Replies," *The Hastings Center Report*, vol. 37, no. 5: 5–6
- Agar, Nicholas. 2010. *Humanity's End: Why We Should Reject Radical Enhancement*. A Bradford Book, Cambridge and London: The MIT Press
- Alexander, S. 1931. "L. T. Hobhouse: His Life and Work," *Economica*, no. 33: 265–269
- Allen, Dick, ed. 1971. *Science Fiction: The Future*. New York: Harcourt Brace Jovanovich
- Anshen, Ruth Nanda, ed. 1942. *Science and Man: Twenty-four Original Essays*. New York: Harcourt, Brace and Company
- "A Survey of Futures Research in the United States." 1970. *The Futurist*, vol. 4, no. 5: 200–204
- Belgion, Montgomery. 1934. "Men Like Ants," in *Essays of the Year 1933–1934*, ed. F. J. Harvey Darton, 366–378. London: The Argonaut Press
- Bergson, Henri. 1911. *Creative Evolution*. London: Macmillan and Co.

- Bergson, Henri. 1935. *The Two Sources of Morality and Religion*. New York: Henry Holt and Company
- Bernal, John Desmond. 1929. *The World, the Flesh and the Devil. An Enquiry into the Future of the Three Enemies of the Rational Soul*. London: Kegan Paul, Trench, Trubner & Co.
- Bloch, Ernst. 1986. *The Principle of Hope*. Cambridge, Massachusetts: The MIT Press
- Bloomfield, Paul. 1949. "The Eugenics of the Utopians: The Utopia of the Eugenists," *The Eugenics Review*, vol. 40, no. 4: 191–198
- Bodmer, Walter F. and Alun Jones. 1974. *Our Future Inheritance: Choice or Chance?* London: Oxford University Press
- Bostrom, Nick. 2003. "Human Genetic Enhancements: A Transhumanist Perspective," *The Journal of Value Inquiry*, 37: 493–506. Netherlands: Kluwer Academic Publishers
- Bostrom, Nick, *et al.* 2003. "The Transhumanist FAQ. A General Introduction," version 2.1. <https://nickbostrom.com/views/transhumanist.pdf>. Accessed 4 Dec. 2023
- Bostrom, Nick. 2005a. "The Transhumanist Dream," *Foreign Policy*, no. 146: 4
- Bostrom, Nick. 2005b. "The Fable of the Dragon Tyrant," *Journal of Medical Ethics*, 31: 273–277
- Bostrom, Nick. 2005c. "A History of Transhumanist Thought," originally published in *Journal of Evolution and Technology*, 14:1 (April 2005). Reprinted in *Academic Writing Across the Disciplines*, 2011, eds. Michael Rectenwald and Lisa Carl, New York: Pearson Longman. Available at <https://nickbostrom.com/papers/history.pdf>. Accessed 5 Dec. 2023
- Bostrom, Nick, James Hughes and Jonathan D. Moreno. 2007. "Human vs. Posthuman," *The Hastings Center Report*, vol. 37, no. 5: 4–7
- Bostrom, Nick. 2009. "Why I Want to Be a Posthuman When I Grow Up," in *Medical Enhancement and Posthumanity*, eds. B. Gordijn and R. Chadwick, 107–137. Dordrecht: Springer
- Bostrom, Nick and Anders Sandberg. 2009. "The Wisdom of Nature: An Evolutionary Heuristic for Human Enhancement," in *Human Enhancement*, eds. Nick Bostrom and Julian Savulescu, 375–416. Oxford: Oxford University Press
- Brewer, Herbert. 1935. "Euteleogenesis," *Eugenics Review*, vol. 27, no. 2: 121–126
- Brockman, John, ed. 2003. *The New Humanists: Science at the Edge*. New York: Barnes & Noble Books
- Broom, Robert. 1933. *The Coming of Man: Was It Accident or Design?* London: H. F. & G. Witherby
- Browne, Waldo R., ed. 1946. *Leviathan in Crisis: An International Symposium on the State, Its Past, Present, and Future, by Fifty-four Twentieth Century Writers*. Comprised of essays by Julian Huxley, Aldous Huxley, L. T. Hobhouse,

- Bertrand Russell, Franz Oppenheimer, H. G. Wells, William Ralph Inge, C. E. M. Joad, Lewis Mumford, *et al.* New York: The Viking Press
- Browning, Geraldine O., Joseph L. Alioto and Seymour M. Farber, eds. 1973. *Teilhard de Chardin: In Quest of the Perfection of Man*. Rutherford: Fairleigh Dickinson University Press
- Bury, J. B. 1920. *The Idea of Progress: An Inquiry into Its Origin and Growth*. London: Macmillan and Co.
- Chase, Stuart. 1968. *The Most Probable World*. New York, Evanston and London: Harper & Row Publishers
- Clarke, Arthur C. 1953. *Childhood's End*. New York: Harcourt, Brace & World
- Clarke, Arthur C. 1962. *Profiles of the Future: An Enquiry into the Limits of the Possible*. London: Victor Gollancz
- Clarke, Arthur C. 1967. *The Coming of the Space Age: Famous Accounts of Man's Probing of the Universe*. New York: Merendith Press
- Coates, Joseph F. and Jennifer Jarratt. 1989. *What Futurists Believe*, second printing 1990. Bethesda, Maryland: World Future Society
- Cohn, Victor. 1956. 1999. *Our Hopeful Future*. Indianapolis and New York: The Bobbs-Merrill Company
- Conklin, Edwin Grant. 1921. *The Direction of Human Evolution*. New York: Charles Scribner's Sons
- Conklin, Edwin Grant. 1923. *Heredity and Environment in the Development of Men*, fifth edition revised. Princeton: Princeton University Press
- Cornish, Edward. 1970. "Future Shock," *The Futurist*, vol. 4, no. 5: 175–180
- Cousins, Ewert H., ed. 1972. *Hope and the Future of Man*. Philadelphia: Fortress Press
- Crew, F. A. E., *et al.* 1939. "Social Biology and Population Improvement," *Nature*, vol. 144, no. 3646: 521–522
- Crowther, J. G., ed. 1934. *Science Today: The Scientific Outlook on World Problems Explained by Leading Exponents of Modern Scientific Thought*. Arranged by Sir J. Arthur Thomson. London: Eyre and Spottiswoode
- Dahlstrom, Carl E. W. L. 1946. "Zola's 'Bête Humaine'," *Modern Language Notes*, vol. 61, no. 6: 431–432
- Dann, Jack, ed. 1978. *Immortal: Short Novels of the Transhuman Future*. New York, Hagerstown, San Francisco and London: Harper & Row Publishers
- Darton, F. J. Harvey. 1934. *Essays of the Year 1933–1934*. London: The Argonaut Press
- Darwin, Charles. 1859. *On the Origin of Species By Means of Natural Selection or the Preservation of Favoured Races In the Struggle For Life*. London: John Murray
- Decker, Clarence R. 1934. "Zola's Literary Reputation in England," *PMLA*, vol. 49, no. 4: 1140–1153
- Delfgaauw, Bernard. 1969. *Evolution: The Theory of Teilhard de Chardin*. New York and Evanston: Harper & Row Publishers

- Dick, Steven J. and Mark L. Lupisella, eds. 2009. *Cosmos and Culture: Cultural Evolution in a Cosmic Context*. Washington, DC: NASA United States Government Printing Office
- Disch, Robert, ed. 1970. *The Ecological Conscience: Values for Survival*. Englewood Cliffs, NJ: Prentice-Hall
- Dobzhansky, Theodosius. 1956. *The Biological Basis of Human Freedom*. New York: Columbia University Press
- Dobzhansky, Theodosius. 1965. "Letters," *Scientific American*, vol. 212, no. 3: 8
- Dobzhansky, Theodosius. 1967. *The Biology of Ultimate Concern*. New York: The New American Library
- Dobzhansky, Theodosius. 1975. *Mankind Evolving: The Evolution of the Human Species*. First printed in 1962. New Haven and London: Yale University Press
- Drawbridge, C. L. 1932. *The Religion of Scientists: Being Recent Opinions Expressed by Two-hundred Fellows of the Royal Society on the Subject of Religion and Theology*. London: Ernest Benn
- Drexler, Eric K. 1986. *Engines of Creation: Challenges and Choices of the Last Technological Revolution*. Garden City, NY: Anchor Press and Doubleday
- Drummond, Henry. 1895. *The Ascent of Man*. The Lowell Lectures, fifth edition. New York: James Pott & Co. Publishers
- Dyson, A. E. 1958. "Homosexual Acts. Call to Reform Law," *The Times*, 7 Mar.: 11
- Eliot, T. S. 1950. *The Cocktail Party*. Originally published in 1949. New York: Harcourt, Brace and Company
- Ellis, Havelock. 1894. *Man and Woman: A Study of Human Secondary Sexual Characters*. London: Walter Scott
- Esfandiary, F. M. 1973. *Up-Wingers*. New York: The John Day Company
- Esfandiary, F. M. 1974. "Transhumans—2000," in *Woman in the Year 2000*, ed. Maggie Tripp, 291–298. New York: Arbor House
- Esfandiary, F. M. 1981. "Up-Wing Priorities," *Future Life*, no. 27: 70–73
- Esfandiary, F. M. 1989. *Are You a Transhuman? Monitoring and Stimulating Your Personal Rate of Growth in a Rapidly Changing World*. New York: Warner Books
- Ettinger, Robert. 1964. *The Prospect of Immortality*. New York: Doubleday & Company
- Ettinger, Robert. 1972. *Man into Superman: The Startling Potential of Human Evolution—And How to Be Part of It*. New York: St. Martin's Press
- Ettinger, Robert. 1978. "The Transhuman Condition," in *Immortal: Short Novels of the Transhuman Future*, ed. Jack Dann, vii–xiii. New York, Hagerstown, San Francisco and London: Harper & Row Publishers
- Feinberg, Gerald. 1969. *The Prometheus Project: Mankind's Search for Long-Range Goals*. New York: Doubleday
- Ferkiss, Victor C. 1969. *Technological Man: The Myth and the Reality*. New York: George Braziller

- Ferkiss, Victor C. 1977. *Futurology: Promise, Performance, Prospects*. The Washington Papers Series. Beverly Hills and London: Sage Publications
- Francoeur, Robert T. 1970. *Utopian Motherhood: New Trends in Human Reproduction*. New York: Doubleday & Company
- Freud, Sigmund. 1922. *Group Psychology and the Analysis of the Ego*. London and Vienna: The International Psycho-Analytical Press
- Fromm, Erich. 1959. "Value, Psychology, and Human Existence," in *New Knowledge in Human Values*, ed. Abraham H. Maslow, 151–164. Chicago: Henry Regnery Company
- Funk, Charles Earl, ed. 1946. *Funk & Wagnalls New Standard Dictionary of the English Language*. Vol. 2. New York and London: Funk & Wagnalls Company
- Funk, Charles Earl, ed. 1954. *Funk & Wagnalls Standard Dictionary of the English Language*. Vol. 2. New York: Funk & Wagnalls Company
- Galton, Francis. 1883. *Inquiries into Human Faculty and Its Development*. London: Macmillan and Co.
- Garcia, John David. 1971. *The Moral Society: A Rational Alternative to Death*. New York: The Julian Press
- Gibbs, Philip. 1922. *The Day After To-Morrow: What is Going to Happen to the World?* London: Hutchinson & Co. Publishers
- Glenn, Jerome Clayton. 1989. *Future Mind: Artificial Intelligence, Merging the Mystical and the Technological in the 21st Century*. Washington, DC: Acropolis Books
- Gordijn, Bert and Ruth Chadwick, eds. 2009. *Medical Enhancement and Posthumanity*. Dordrecht: Springer
- Halacy, D. S. 1965. *Cyborg: Evolution of the Superman*. With an introduction by Manfred Clynes. New York and Evanston: Harper & Row Publishers
- Halacy, D. S. 1974. *Genetic Revolution: Shaping Life for Tomorrow*. New York, Evanston, San Francisco and London: Harper & Row Publishers
- Haldane, J. B. S. 1923. *Daedalus or Science and the Future*. London: Kegan Paul, Trench, Trubner & Co.
- Haldane, J. B. S. 1924. *A Mathematical Theory of Natural and Artificial Selection*. Part 1. *Transactions of the Cambridge Philosophical Society*, 23: 19–41
- Haldane, J. B. S. 1930. *Possible Worlds, and Other Essays*. First published 1927. London: Chatto and Windus
- Haldane, J. B. S. 1938. *The Inequality of Man, and Other Essays*. First published in 1932. Middlesex, England: Penguin Books
- Haldane, J. B. S. 1946. *A Banned Broadcast, and Other Essays*. London: Chatto and Windus
- Harman, Willis. 1972. "The New Copernican Revolution," in *Futures Conditional*, ed. Robert Theobald, 180–189. Indianapolis: The Bobbs-Merrill Company
- Harman, Willis and Joseph Campbell. 1982. *Changing Images of Man*. Oxford and New York: Pergamon Press

- Harrington, Alan. 1970. *The Immortalist: An Approach to the Engineering of Man's Divinity*. New York: Random House
- Hobhouse, L. T. 1901. *Mind in Evolution*. London: Macmillan and Co.
- Hogben, Lancelot. 1938. *Science for the Citizen: A Self-Educator Based on the Social Background of Scientific Discovery*. London: George Allen & Unwin
- Hogben, Lancelot. 1939a. "The Creed of a Scientific Humanist," in *Dangerous Thoughts*, 13–24. London: George Allen & Unwin
- Hogben, Lancelot. 1939b. *Dangerous Thoughts*. London: George Allen & Unwin
- Hogben, Lancelot. 1963. *Science in Authority*. New York: W. W. Norton & Company
- Hoggart, Richard. 1978. *An Idea and Its Servants: Unesco From Within*. London: Chatto & Windus
- Hollingshead, A. B. 1941. "The Concept of Social Control," *American Sociological Review*, vol. 6, no. 2: 217–224
- Holloway, Maurice. 1943. "Man and Mr. Huxley," *The Modern Schoolman*, vol. 20, no. 3: 157–164
- Hotchkiss, Rollin. 1965. "Portents for a Genetic Engineering," *Journal of Heredity*, vol. 56, no. 5: 197–202
- Huxley, Aldous. 1932. *Brave New World*. London: Chatto & Windus
- Huxley, Aldous. 1947. *The Perennial Philosophy*. First published in 1946. London: Chatto & Windus
- Huxley, Aldous. 1949. *Beyond the Mexique Bay: A Traveller's Journal*. First published in 1920. London: Chatto & Windus
- Huxley, Aldous. 1957. *Proper Studies: The Proper Study of Mankind is Man*. London: Chatto & Windus
- Huxley, Aldous. 1961. "Human Potentialities," in *The Humanist Frame*, ed. Julian Huxley, 417–432. London: George Allen & Unwin
- Huxley, Aldous. 1965. *Brave New World Revisited*. New York and Evanston: Harper & Row Publishers
- Huxley, Aldous. 1969. *Letters of Aldous Huxley*, ed. Grover Smith. London: Chatto & Windus
- Huxley, Aldous. 1992. *Huxley and God: Essays*, ed. Jacqueline Hazard Bridgeman. San Francisco: Harper San Francisco
- Huxley, Aldous. 1994. *Between the Wars: Essays and Letters*, ed. David Bradshaw. Chicago: Ivan R. Dee
- Huxley, Juliette. 1986. *Leaves of the Tulip Tree: Autobiography by Juliette Huxley*. London: John Murray Publishers
- Huxley, Thomas Henry. 1896a. *Man's Place in Nature, and Other Anthropological Essays*. New York: D. Appleton and Company
- Huxley, Thomas Henry. 1896b. *Evolution and Ethics, and Other Essays*. New York: D. Appleton and Company

- Inge, William Ralph. 1920. *The Idea of Progress*. The Romanes Lecture, delivered 27 May. Oxford: Clarendon Press
- Inge, William Ralph. 1930. *Christian Ethics and Modern Problems*. New York: G. P. Putnam's Sons
- "Introduction." 1988. *Extropy: Vaccine for Future Shock*, no. 1: 1–2
- Jennings, H. S. 1930. *The Biological Basis of Human Nature*. New York: W. W. Norton & Company
- Kahn, Herman and Anthony J. Wiener. 1967. *The Year 2000: a Framework for Speculation on the Next Thirty-Three Years*. New York: Macmillan
- Kemeny, John G. 1972. *Man and the Computer*. New York: Charles Scribner's Sons
- Kostelanetz, Richard, ed. 1968. *Beyond Left and Right: Radical Thought for Our Times*. New York: William Morrow and Company
- Kostelanetz, Richard. 1971a. "Visions for Our Time," *The Futurist*, vol. 5, no. 3: 112–114, 118–120
- Kostelanetz, Richard, ed. 1971b. *Human Alternatives: Visions for Us Now*. New York: William Morrow and Co.
- Kuhns, William. 1973. *The Post-Industrial Prophets: Interpretations of Technology*. New York, Evanston, San Francisco and London: Harper & Row Publishers
- Kurzweil, Ray. 1999. *The Age of Spiritual Machines: When Computers Exceed Human Intelligence*. New York: Penguin Books
- Kurzweil, Ray. 2003. "The Singularity," in *The New Humanists: Science at the Edge*, ed. John Brockman, 215–232. New York: Barnes & Noble Books
- Kurzweil, Ray. 2005. *The Singularity Is Near: When Humans Transcend Biology*. New York: Viking Press
- Langer, Susanne K. 1942. *Philosophy in a New Key: A Study In the Symbolism of Reason, Rite, and Art*. Cambridge, Massachusetts: Harvard University Press
- Lankester, E. Ray. 1880. *Degeneration: A Chapter in Darwinism*. London: Macmillan and Co.
- Lankester, E. Ray. 1890a. "Biology and the State," in *The Advancement of Science: Occasional Essays and Addresses*, 63–111. London: Macmillan and Co.
- Lankester, E. Ray. 1890b. *The Advancement of Science: Occasional Essays and Addresses*. London: Macmillan and Co.
- Lankester, E. Ray. 1905. *Extinct Animals*. New York: Henry Holt and Company
- Lankester, E. Ray. 1923a. "Progress!" in *Great and Small Things*, 74–82. London: Methuen & Co.
- Lankester, E. Ray. 1923b. *Great and Small Things*. London: Methuen & Co.
- Lawrence, D. H. 1952. *The Later D. H. Lawrence*. Selected with introductions by William York Tindall. New York: Alfred A. Knopf
- Lawrence, D. H. 1963a. "Reflections on the Death of a Porcupine," in *Reflections on the Death of a Porcupine and Other Essays*, 193–219. Bloomington: Indiana University Press

- Lawrence, D. H. 1963b. "Aristocracy," in *Reflections on the Death of a Porcupine and Other Essays*, 223–240. Bloomington: Indiana University Press
- Lawrence, D. H. 1963c. *Reflections on the Death of a Porcupine and Other Essays*. Bloomington: Indiana University Press
- Leach, Gerald. 1970. *The Bocrats*. New York: McGraw-Hill
- Leary, Lewis, ed. 1955. *The Unity of Knowledge*. Columbia University Bicentennial Conference Series. Garden City, New York: Doubleday & Company
- Leary, Timothy. 1957. *Interpersonal Diagnosis of Personality: A Functional Theory and Methodology for Personality Evaluation*. New York, Chichester, Brisbane, Toronto and Singapore: John Wiley & Sons
- Leary, Timothy. 1979. *The Game of Life*. Culver City, CA: Peace Press
- Leary, Timothy. 1980. "Scientist Superstars," *Future Life Magazine*, no. 24: 70–73
- Leary, Timothy. 1982. *Changing My Mind, Among Others: Lifetime Writings, Selected and Introduced by the Author*. Englewood Cliffs, NJ: Prentice-Hall
- Leary, Timothy. 1987. *Info-Psychology (a Revision of Exo-Psychology): A Manual on the Use of the Human Nervous System According to the Instructions of the Manufacturers and a Navigational Guide for Plotting the Evolution of the Human Individual*. Los Angeles and Phoenix: Falcon Press
- Leary, Timothy. 1995. *High Priest*. Originally published in 1968. Berkeley, California: Ronin Publishing
- Leary, Timothy. 1996. *The Intelligence Agents*. Originally published in 1979. Tempe, Arizona: New Falcon Publications
- Leary, Timothy. 1998. *The Politics of Ecstasy*. California: Ronin Publishing
- LeConte, Joseph. 1877. "On Critical Periods in the History of the Earth, and Their Relation to Evolution; On the Quaternary as Such a Period," *The American Naturalist*, vol. 11, no. 9: 540–557
- LeConte, Joseph. 1878. *Elements of Geology*. New York: D. Appleton and Company
- Lewis, C. S. 1947. *The Abolition of Man*. Originally published in 1943. New York: The Macmillan Company
- Lorenz, Konrad. 1966. *On Aggression*. Originally published in 1963 under the title *Das Sogenannte Böse: Zur Naturgeschichte der Aggression*. New York: Harcourt, Brace & World
- MacAskill, William. 2017. "Effective Altruism: Introduction," *Essays in Philosophy*, vol. 18, no. 1
- Maheu, René *et al.* 1971. *Science and Synthesis: An International Colloquium Organized by Unesco on the Tenth Anniversary of the Death of Albert Einstein and Teilhard de Chardin*. New York, Heidelberg and Berlin: Springer
- Marvin, F. S. 1918. "Review of *Recollections* by John Viscount Morley, O. M.," *The Hibbert Journal*, vol. 16: 641–644
- Marvin, F. S., ed. 1923. *Science and Civilization*. The Unity Series 6. London: Oxford University Press
- Maslow, Abraham H. 1968. *Toward a Psychology of Being*. Second edition. New York, Toronto, London and Melbourne: D. Van Nostrand Company

- Maslow, Abraham H., ed. 1970. *New Knowledge in Human Values*. Originally published in 1959. Chicago: Henry Regnery Company
- Maslow, Abraham H. 1971. *The Farther Reaches of Human Nature*. New York: The Viking Press
- Mason, Frances, ed. 1928. *Creation by Evolution*. New York: Macmillan
- Massingham, H. J. 1932. "Thomas Henry Huxley," in *The Great Victorians*, ed. H. J. Massingham and Hugh Massingham, 227–238. New York: Doubleday, Doran & Company
- Massingham, H. J. and Hugh Massingham, eds. 1932. *The Great Victorians*. New York: Doubleday, Doran & Company
- McDougall, William. 1920. *The Group Mind: A Sketch of the Principles of Collective Psychology with Some Attempts to Apply Them to the Interpretation of National Life and Character*. Cambridge: Cambridge University Press
- McLaughlin, P. J. 1958. "Evolutionism as Religion," *Philosophical Studies*, no. 8: 56–63
- Medawar, Peter B. 1959. *The Future of Man*. New York: New American Library
- Medawar, Peter B. 1961. "Review of *The Phenomenon of Man* by Pierre Teilhard de Chardin," *Mind*, vol. 70, no. 277: 99–106
- Millikan, Robert. 1927. *Evolution in Science and Religion*. New Haven: Yale University Press
- Mirsky, Alfred E. 1964. "Essays of a Humanist by Julian Huxley," *Scientific American*, vol. 211, no. 4: 135–138
- Moltmann, Jürgen. 1972. "Hope and the Biomedical Future of Man," in *Hope and the Future of Man*, ed. Ewert H. Cousins, 89–105. Philadelphia: Fortress Press
- More, Max. 1989. "Review of *Are You a Transhuman?*" *Extropy*, no. 4: 30–31
- More, Max. 1990a. "Editorial," *Extropy*, no. 6: 4
- More, Max. 1990b. "Transhumanism: Toward a Futurist Philosophy," *Extropy*, no. 6: 6–12
- More, Max. 1990c. "The Extropian Principles," *Extropy*, no. 6: 17–18
- More, Max. 1991. "Futique Neologisms," *Extropy: The Journal of Transhumanist Thought*, no. 7: 33–36
- More, Max. 1993. "Technological Self-transformation: Expanding Personal Extropy," *Extropy*, no. 10: 15–24
- More, Max. 1996a. "Editorial: The Cultural Propagation of Transhumanism," *Extropy*, no. 17: 5
- More, Max. 1996b. "The Heat Death of Timothy Leary," *Extropy*, no. 17: 37–39
- More, Max. 2010. "The Overhuman in the Transhuman," *Journal of Evolution and Technology*, vol. 21, no. 1: 1–4
- More, Max. 2011. "True Transhumanism: A Reply to Don Ihde," in *H±. Transhumanism and Its Critics*, ed. Gregory M. Hansell and William Grassie, 136–146. Philadelphia, PA: Metanexus Institute

- More, Max. 2013. "The Philosophy of Transhumanism," in *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, eds. Max More and Natasha Vita-More, 3–17. West Sussex, UK: Wiley-Blackwell
- More, Max and Natasha Vita-More, eds. 2013. *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*. West Sussex, UK: Wiley-Blackwell
- Morgan, Conwy Lloyd. 1903. *An Introduction to Comparative Psychology*, second edition, London: The Walter Scott Publishing
- Morgan, Conwy Lloyd, 1912: *Instinct and Experience*, New York: The Macmillan Company.
- Morgan, Conwy Lloyd. 1928. *Emergent Evolution*. The Gifford Lectures delivered in the university of St. Andrews 1922. New York: Henry Holt and Company, London: Williams and Norgate
- Morley, John, 1874: *On Compromise*, London: Chapman and Hall.
- Muller, H. J. 1936. *Out of the Night. A Biologist's View of the Future*. London: Victor Gollancz
- Muller, H. J. 1965. "Germinal Choice," *The Eugenics Review*, vol. 57, no. 3: 100–104
- Mumford, Lewis. 1967. *The Myth of the Machine: Technics and Human Development*. New York: Harcourt Brace Jovanovich
- Nietzsche, Friedrich. 1899. *Thus Spake Zarathustra: A Book for All and None*. Translated by Alexander Tille. London: T. Fisher Unwin
- Nietzsche, Friedrich. 1908. *Ecce Homo*. Leipzig: Insel Verlag
- Nietzsche, Friedrich. 1911. *Thus Spake Zarathustra: A Book for All and None*. In *The Complete Works of Friedrich Nietzsche, the First Complete and Authorised English Translation*, ed. Oscar Levy. Vol. 11: Thus Spake Zarathustra. Translated by Thomas Common. New York: The Macmillan Company
- Nietzsche, Friedrich. 1924. *The Will to Power. An Attempted Transvaluation of All Values*. Vol. II, books III and IV. Translated by Anthony M. Ludovici. First published 1910. London: George Allen & Unwin
- Persson, Ingmar and Julian Savulescu. 2012a. Moral Enhancement, Freedom, and the God Machine. *The Monist*, Neuroethics, vol. 95, no. 3: 399–421
- Persson, Ingmar and Julian Savulescu. 2012b. *Unfit for the Future: The Need for Moral Enhancement*. Oxford: Oxford University Press
- Pico della Mirandola, Giovanni. 1956. *Oration on the Dignity of Man*. Translated by A. Robert Caponigri. Chicago, IL: Regery Gateway
- Ramsay, Paul. 1970. *Fabricated Man: The Ethics of Genetic Control*. New Haven: Yale University Press
- Rayner, Sture. 1966. "Julian Huxley and His View on Eugenics in Evolutionary Perspective," *Hereditas*, vol. 56: 207–212
- Rioch, David McK. 1951. "An Appreciation," *Psychiatry*, vol. 14, no. 2: 127–128

- Rosenfeld, Albert. 1985. *Prolongevity II: An Updated Report on the Scientific Prospects for Adding Good Years to Life*. New York: Alfred A. Knopf
- Rostand, Jean. 1959. *Can Man Be Modified?* New York: Basic Books
- Russell, Bertrand. 1924. *Icarus, or the Future of Science*. New York: E. P. Dutton and Company
- Russell, Bertrand. 1931. *The Scientific Outlook*. London: George Allen & Unwin
- Russell, Bertrand. 1935. *Religion and Science*. London: Thornton Butterworth
- Sandberg, Anders. 2013. "Morphological Freedom—Why We Not Just Want It, but Need It," in *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, eds. Max More and Natasha Vita-More, 56–64. Based on a talk given at the TransVision 2001 conference in Berlin. West Sussex, UK: Wiley-Blackwell
- Sandhurst, B. C. 1946. *How Heathen is Britain?* London: Collins
- Sarton, George. 1924. "The New Humanism," *Isis*, vol. 6, no. 1: 9–42
- Schiller, Ferdinand Canning Scott. 1926. *Tantalus, or The Future of Man*. First edition 1924. London: Kegan Paul, Trench, Trubner & Co.
- Science and Religion: A Symposium*. 1931. Twelve printed talks that constituted a BBC series broadcast between September and December 1930. Speakers included Julian Huxley, J. Arthur Thomson, J. S. Haldane, Bishop E. W. Barnes, B. Malinowski, Dean H. R. L. Sheppard, B. H. Streeter, C. W. O'Hara, Arthur S. Eddington, S. Alexander, Dean W. R. Inge, and L. P. Jack. London: Gerald Howe
- Seidenberg, Roderick. 1961. *Anatomy of the Future*. Chapel Hill: The University of North Carolina Press
- Shaw, George Bernard. 1903. *Man and Superman. A Comedy and a Philosophy*. Westminster: Archibald Constable & Co.
- Shaw, George Bernard. 1911. "The Religion of the Future, Mr. Bernard Shaw on Heresy, and Mr. Bernard Shaw as Heretic." Cambridge: Heretics Society
- Shaw, George Bernard. 1921. *Back to Methuselah. A Metabiological Pentateuch*. London: Oxford University Press
- Simon, Julian. 1981. *The Ultimate Resource*. Princeton, NJ: Princeton University Press
- Simpson, George Gaylord. 1949. *The Meaning of Evolution*. New Haven: Yale University Press
- Simpson, George Gaylord. 1971. "The Divine Non Sequitur," in *Teilhard de Chardin: In Quest of the Perfection of Man*, ed. Geraldine O. Browning, Joseph L. Alioto and Seymour M. Farber, 88–102. Rutherford: Fairleigh Dickinson University Press
- Snelson, Robin. 1979. "Interview with Timothy Leary," *Future Life Magazine*, no. 10: 32–34, 66
- Sonneborn, T. M., ed. 1965. *The Control of Human Heredity and Evolution*. New York and London: Macmillan

- Spender, Stephen. 1986. *Journals, 1939–1983*. Ed. John Goldsmith. New York: Random House
- Stock, Gregory. 2003. *Redesigning Humans: Choosing Our Genes, Changing Our Future*. Boston and New York: Houghton Mifflin Company
- Talbot, Neville S. 1912. “The Modern Situation,” in *Foundations: A Statement of Christian Belief in Terms of Modern Thought: by Seven Oxford Men*, ed. B. H. Streeter, 1–24. London: Macmillan
- Taylor, Gordon Rattray. 1968. *The Biological Time Bomb*. New York and Cleveland: The World Publishing Company
- Teilhard de Chardin, Pierre. 1937. “L’énergie Humaine,” in *L’énergie humaine*, 141–200. Paris: Éditions du Seuil
- Teilhard de Chardin, Pierre. 1942. “La montée de l’autre,” in *L’activation de l’énergie*, 65–81. Paris: Éditions du Seuil
- Teilhard de Chardin, Pierre. 1950. “From the Pre-human to the Ultra-human: The Phases of a Living Planet,” in *The Future of Man*, 289–297. New York and Evanston: Harper & Row
- Teilhard de Chardin, Pierre. 1955. *Le phénomène humain*. Paris: Éditions du Seuil
- Teilhard de Chardin, Pierre. 1959. *The Phenomenon of Man*. With an introduction by Julian Huxley. London: Wm. Collins Sons & Co.
- Teilhard de Chardin, Pierre. 1962a. *Letters from a traveller*. New York: Harper & Brothers Publishers
- Teilhard de Chardin, Pierre. 1962b. *L’énergie humaine*. Paris: Éditions du Seuil
- Teilhard de Chardin, Pierre. 1963. *L’activation de l’énergie*. Paris: Éditions du Seuil
- Teilhard de Chardin, Pierre. 1964. *The Future of Man*. New York and Evanston: Harper & Row
- “The Biology of Mind. Review of *Essays of a Biologist*.” 1924. *The British Medical Journal*, vol. 1, no. 3301: 632–33
- Theobald, Robert, ed. 1972. *Futures Conditional*. Indianapolis, NY: The Bobbs-Merrill Company
- Tinker, Jon. 1973. “Huxley: a Question of Genes,” *New Scientist*, Jun. 21
- Toffler, Alvin. 1971. *Future Shock*. First published in 1970. London, New York and Toronto: Bantam Books
- Toffler, Alvin, ed. 1972. *The Futurists*. New York: Random House
- Toffler, Alvin. 1980. *The Third Wave*. New York: William Morrow and Company
- “Transhumanist FAQ Live,” H+pedia. https://hpluspedia.org/wiki/Transhumanist_FAQ_Live. Accessed 4 Dec. 2023
- Tripp, Maggie, ed. 1974. *Woman in the Year 2000*. New York: Arbor House
- Trotsky, Leon. 1957. *Literature and Revolution*. First published in 1923. New York: Russell & Russell
- Vernadsky, Vladimir. 1945. “The Biosphere and the Noösphere,” *American Scientist*, vol. 33, no. 1: 1–12
- Vich, Miles A. 1976. “Anthony J. Sutich: An Appreciation,” *Journal of Transpersonal Psychology*, vol. 8, no. 1: 2

- Vita-More, Natasha. 1983. "Transhumanist Manifesto." <https://natashavita-more.com/transhumanist-manifesto/>. Accessed 5 Dec. 2023
- Vita-More, Natasha. 1997. *Create: A Brief History of Transhuman Beginnings and a Window Into Extrinsic Creativity*. More Art Studio
- Vita-More, Natasha. 2013. "Aesthetics. Bringing the Arts and Design into the Discussion of Transhumanism," in *The Transhumanist Reader. Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, eds. Max More and Natasha Vita-More, 18–27. West Sussex, UK: Wiley-Blackwell
- Vita-More, Natasha. 2019. "History of Transhumanism," in *The Transhumanism Handbook*, ed. Newton Lee, 49–61. Springer Nature Switzerland AG
- Vitray, Laura. 1946. "Unesco: Adventure in Understanding," *Free World*, Nov.: 23–28
- Vittoz, Dr Roger. 1911. *Treatment of Neurasthenia by Teaching of Brain Control*. London: Longman Green & Co.
- Voices of Concern: The Playboy College Reader*. 1971. Ed. by the Editors of Playboy. New York, Chicago, San Francisco and Atlanta: Harcourt Brace Jovanovich
- Voronoff, Serge. 1920. *Life: A Study of the Means of Restoring Vital Energy and Prolonging Life*. New York: E. P. Dutton & Company
- Voss, Peter. 1996. "Extropy Now!" *Extropy*, no. 17: 25–27
- Waddington, C. H. 1944. *Science and Ethics*. London: George Allen & Unwin
- Walker, Mark. 2009. "Enhancing Genetic Virtue: A Project for Twenty-First Century Humanity?" *Politics and the Life Sciences*, vol. 28, no. 2: 27–47
- Walsh, Chad. 1958. "Review of Huxley's *Religion Without Revelation* from 1957," *The Journal of Religion*, vol. 38, no. 3: 210–211
- Watson, John. 1897. "Henry Drummond," *The North American Review*, vol. 164, no. 486: 513–525
- Webb, Sidney. 1910. "Eugenics and the Poor Law: The Minority Report," *Eugenics Review*, Nov.: 233–241
- Weil, Gunther, Ralph Metzner and Timothy Leary. 1993. *The Psychedelic Reader: Classic Selections from the Psychedelic Review*. First published in 1965. New York: Citadel Press
- Wells, H. G. 1896. *The Island of Doctor Moreau*. New York: Stone & Kimball
- Wells, H. G. 1902. *Anticipations (of the Reaction of Mechanical and Scientific Progress Upon Human Life and Thought)*. London: Chapman & Hall
- Wells, H. G. 1905. *A Modern Utopia*. London: Chapman & Hall
- Wells, H. G. 1921. *The Sleeper Awakes & Men Like Gods*. London: Odhams Press
- Wells, H. G. 1923. *Men Like Gods*. New York: The Macmillan Company
- Wells, H. G, Julian Huxley and G. P. Wells. 1931. *The Science of Life*. London, Toronto, Melbourne and Sidney: Cassell and Company
- Wells, H. G. 1934. *Experiment in Autobiography: Discoveries and Conclusions of a Very Ordinary Brain (Since 1866)*. Volume II. London: Victor Gollancz and the Cresset Press

- Wells, H. G. 1935. *The Shape of Things to Come: The Ultimate Revolution*. First published in 1933. London: Hutchinson's & Co.
- Wells, H. G. 1939. *Fate of Man. An Unemotional Statement of the Things That are Happening to Him Now, and of the Immediate Possibilities Confronting Him*. New York and Toronto: Alliance Book Corporation, Longmans, Green and Co.
- Wells, H. G. 1945. *Mind at the End of Its Tether*. London and Toronto: William Heinemann
- West, Clement Ashlin. 1924. "The New Scientific Religion," *London Quarterly Review*, Jul.: 29–39
- Whitehead, Alfred North. 1925. *Science and the Modern World*. Lowell Lectures. New York: The Macmillan Company
- Whyte, Lancelot Law. 1944. *The Next Development in Man*. London: The Cresset Press
- Widgery, Alban G. 1927. *Contemporary Thought of Great Britain*. London: Williams and Norgate
- Wilson, Edwin H. 1951. "An Interview with Julian Huxley," *The Humanist*, no. 4: 170–174
- Wilson, Robert Anton. 2000. *Prometheus Rising*. First published in 1983. Arizona: New Falcon Publications
- Woodger, J. H. 1929. *Biological Principles: A Critical Study*. London: Kegan Paul, Trench, Trubner & Co.
- Wolstenholme, Gordon, ed. 1963. *Man and his Future*. A Ciba Foundation Volume. Boston and Toronto: Little, Brown and Company
- Young, Louise B., ed. 1970. *Evolution of Man*. Prepared by the American Foundation for Continuing Education. New York: Oxford University Press
- Young, Simon. 2006. *Designer Evolution: A Transhumanist Manifesto*. New York: Prometheus Books
- Zola, Émile. 1901. *The Monomaniac (La Bête Humaine)*. Translated by Edward Vizetelly. London: Hutchinson & Co.

SECONDARY LITERATURE

- Adams, Mark B. 2000. "The Last Judgment: The Visionary Biology of J. B. S. Haldane," *Journal of the History of Biology*, 33: 457–491
- Adams, Mark B. 2004. "The Quest for Immortality: Visions and Presentiments in Science and Literature," in *The Fountain of Youth. Cultural, Scientific, and Ethical Perspectives on a Biomedical Goal*, eds. Stephen G. Post and Robert H. Binstock, 38–71. Oxford: Oxford University Press
- Ahamed, Sarah, Palak Madan and Avinash Kumar Singh. 2019. "Transhumanism in India: Past, Present and the Future," in *The Transhumanism Handbook*, ed. Newton Lee, 701–714. Springer Nature Switzerland AG

- Aldiss, Brian W. 1973. *Billion Year Spree: The True History of Science Fiction*. Garden City, NY: Doubleday & Company
- Allen, Ann Taylor. 2000. "Feminism and Eugenics in Germany and Britain, 1900–1940: A Comparative Perspective," *German Studies Review*, vol. 23, no. 3: 477–505
- Allen, Garland E. 1975. *Life Science in the Twentieth Century*. New York: Wiley
- Allen, Garland E. 1992. "Julian Huxley and the Eugenic View of Human Evolution," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 193–222. Texas: Rice University Press
- Allen, Garland E. 2014. "The History of Evolutionary Thought," in *The Princeton Guide to Evolution*, eds. Jonathan B. Losos, David A. Baum, Douglas J. Futuyma, Hopi E. Hoekstra, Richard E. Lenski, Allen J. Moore, Catherine L. Peichel, Dolph Schluter, Michael J. Whitlock, 10–27. Princeton: Princeton University Press
- Alter, Peter. 1987. *The Reluctant Patron: Science and the State in Britain 1850–1920*. Translated by Angela Davies. Oxford, Hamburg and New York: Berg Publishers
- Andersson, Jenny. 2018. *The Future of the World: Futurology, Futurists, and the Struggle for the Post-Cold War Imagination*. Oxford: Oxford University Press
- Anker, Peder. 2001. *Imperial Ecology: Environmental Order in the British Empire, 1895–1945*. Cambridge, MA and London, England: Harvard University Press
- Ankersmit, Frank. 2013. "Aftermaths and 'Foremaths': History and Humans," in *Crafting Humans: From Genesis to Eugenics and Beyond*, ed. Marius Turda, 9–37. Goettingen: V & R Unipress
- Annan, Noel. 1969. "The Intellectual Aristocracy," in *Studies in Social History. A Tribute to G. M. Trevelyan*, ed. John Harold Plumb, 241–287. First published 1955. Freeport, NY: Books for Libraries Press
- Ansell-Pearson, Keith & Paul S. Loeb, eds. 2022. *Nietzsche's Thus Spoke Zarathustra. A Critical Guide*. Cambridge: Cambridge University Press
- Ayala, Francisco J. 1988. "Can 'Progress' be Defined as a Biological Concept?" in *Evolutionary Progress*, ed. Matthew H. Nitecki, 75–96. Chicago and London: The University of Chicago Press
- Babich, Babette. 2017. "Nietzsche's Post-Human Imperative: On the 'All-too-Human' Dream of Transhumanism," in *Nietzsche and Transhumanism: Precursor or Enemy?* Ed. Yunus Tuncel, 101–113. The Nietzsche Now Series, Cambridge: Cambridge Scholars Publishing
- Bailey, Tom. 2021. "Will to Power: Nietzsche's Transcendental Idealism," in *The Journal of Nietzsche Studies*, vol. 52, no. 2: 260–289
- Baillie, Harold W. and Timothy K. Casey. 2005. *Is Human Nature Obsolete? Genetics, Bioengineering, and the Future of the Human Condition*. Cambridge, Massachusetts, London, England: The MIT Press

- Baker, John Rendal. 1976. "Julian Sorell Huxley. 22 June 1887–14 February 1975," *Biographical Memoirs of Fellows of the Royal Society*, vol. 22: 206–238. Later published as *Julian Huxley: Scientist and World Citizen 1887 to 1975*, 1978. Paris: United Nations Educational, Scientific and Cultural Organization
- Baker, John Rendal. 1978. *Julian Huxley. Scientist and World Citizen, 1887–1975*. With a bibliography compiled by Jens-Peter Green. Paris: United Nations Educational, Scientific and Cultural Organization
- Barkan, Elazar. 1992a. *The Retreat of Scientific Racism: Changing Concepts of Race in Britain and the United States Between the World Wars*. Cambridge: Cambridge University Press
- Barkan, Elazar. 1992b. "The Dynamics of Huxley's Views on Race and Eugenics," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 230–237. Texas: Rice University Press
- Barker, Joshua. 2015. "Guerilla Engineers: The Internet and the Politics of Freedom in Indonesia," in *Dreamscapes of Modernity. Sociotechnical Imaginaries and the Fabrication of Power*, eds. Jasanoff & Kim, 199–218. Chicago and London: The University of Chicago Press
- Barnett, Richard. 2006. "Education or Degeneration: E. Ray Lankester, H. G. Wells and *The Outline of History*," *Studies in History and Philosophy of Biological and Biomedical Sciences*, 37: 203–229
- Bashford, Alison and Philippa Levine, eds. 2010. *The Oxford Handbook of the History of Eugenics*. Oxford: Oxford University Press
- Bashford, Alison. 2013. "Julian Huxley's Transhumanism," in *Crafting Humans: From Genesis to Eugenics and Beyond*, ed. Marius Turda, 153–167. Goettingen: V & R Unipress
- Bashford, Alison. 2022. *The Huxleys: An Intimate Story of Evolution*. Chicago: University of Chicago Press
- Bass, Eben R. 1981. *Aldous Huxley. An Annotated Bibliography of Criticism*. New York and London: Garland Publishing
- Baumann, Holger, Jan-Christoph Heilinger and Johann A. R. Roduit. 2013. "Human Enhancement and Perfection," *Journal of Medical Ethics*, vol. 39, no. 10: 647–650
- Bayram, Baris. 2019. "Utilizing Transhumanism for the United Nations Global Goals," in *The Transhumanism Handbook*, ed. Newton Lee, 681–683. Springer Nature Switzerland AG
- Beatty, John. 1992. "Julian Huxley and the Evolutionary Synthesis," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 81–89. Texas: Rice University Press
- Beniger, James R. 1986. *The Control Revolution: Technical and Economic Origins of the Information Society*. Cambridge, Massachusetts and London, England: Harvard University Press
- Bethke Elstain, Jean. 2005. "The Body and the Quest for Control," in *Is Human Nature Obsolete? Genetics, Bioengineering, and the Future of the Human*

- Condition*, eds. Harold W. Baillie and Timothy K. Casey, 155–171. Cambridge, Massachusetts and London, England: The MIT Press
- Bischof, Marco. 2007. “Vernadsky’s Noosphere and Slavophile Sobornost: Some Early Concepts of Field Phenomena in Social Life,” in *Biophotonics and Coherent Systems of Biology*, eds. Lev Vladimirovich Belousov, Vladimir Leonidovich Voelikov and Victor S. Martynyuk, 279–297. New York: Springer
- Blackford, Russell. 2021. *At the Dawn of a Great Transition: The Question of Radical Enhancement*. Posthuman Studies vol. 3, ed. Stefan Lorenz Sorgner. Basel, Schweiz: Schwabe Verlag
- Blake, Charlie, Claire Molloy and Steven Shakespeare, eds. 2012. *Beyond Human: From Animality to Transhumanism*. London and New York: Continuum
- Boehrer, Bruce Thomas. 2010. *Animal Characters. Nonhuman Beings In Early Modern Literature*. Philadelphia and Oxford: University of Pennsylvania Press
- Bohan, Elise. 2018. *A History of Transhumanism*. Thesis for Doctor of Philosophy, Macquarie University, Dept. of Modern History
- Borgmann, Albert. 1984. *Technology and the Character of Everyday Life*. Chicago: University of Chicago Press
- Bowler, Peter J. 1977. “Edward Drinker Cope and the Changing Structure of Evolutionary Theory,” *Isis*, vol. 68, no. 2: 249–265
- Bowler, Peter J. 1983. *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades around 1900*. Baltimore: Johns Hopkins University Press
- Bowler, Peter J. 1993. *Biology and Social Thought: 1850–1914*. Berkeley: Office for History of Science and Technology, University of California
- Bowler, Peter J. 2001. *Reconciling Science and Religion. The Debate in Early-Twentieth-Century Britain*. Chicago and London: The University of Chicago Press
- Bowler, Peter J. 2003. *Evolution: The History of an Idea*. Berkeley: University of California Press
- Bowler, Peter J. 2004. “The Spectre of Darwinism: The Popular Image of Darwinism in Early Twentieth Century Britain,” in *Darwinian Heresies*, ed. Lustig, Richards and Ruse, 48–68. Cambridge: Cambridge University Press
- Bowler, Peter J. 2017. *A History of the Future: Prophets of Progress from H. G. Wells to Isaac Asimov*. Cambridge: Cambridge University Press
- Bradshaw, David, ed. 1994. *The Hidden Huxley: Contempt and Compassion for the Masses 1920–1936*. London and Boston: Faber and Faber
- Braidy, Raymonde. 1986. *Julian Huxley: évolution et humanisme*. Thesis, Nanterre, Université de Paris X. Item available at UNESCO Archives THESE/34 microfiche
- Bravo, Francisco. 1967. *Christ in the Thought of Teilhard de Chardin*. Notre Dame, London: University of Notre Dame Press

- Broberg, Gunnar and Nils Roll-Hansen. 1996. *Eugenics and the Welfare State: Sterilization Policy in Denmark, Sweden, Norway, and Finland*. East Lansing: Michigan State University Press
- Burdett, Michael S. 2011. "Contextualizing a Christian Perspective on Transcendence and Human Enhancement," in *Transhumanism and Transcendence. Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner, 19–36. Washington, DC: Georgetown University Press
- Burdett, Michael S. 2014. *Technology and the Rise of Transhumanism: Beyond Genetic Engineering*. Cambridge: Grove Books
- Burdett, Michael S. 2015. *Eschatology and the Technological Future*. London and New York: Routledge, Taylor & Francis Group
- Burrow, J. W. 2000. *The Crisis of Reason: European Thought, 1848–1914*. New Haven and London: Yale University Press
- Cain, Joe. 2009. "Rethinking the Synthesis Period in Evolutionary Studies," *Journal of the History of Biology*, no. 4: 621–648
- Cardwell, D. S. L. 1972. *The Organisation of Science in England*. London: Heinemann
- Carey, John. 1992. *The Intellectuals and the Masses: Pride and Prejudice among the Literary Intelligentsia, 1880–1939*. London and Boston: Faber and Faber
- Carrigan, Kali. 2019. "Taking Up the Cosmic Office: Transhumanism and the Necessity of Longevity," in *The Transhumanism Handbook*, ed. Newton Lee, 465–474. Springer Nature Switzerland AG
- Chamberlin, J. E. 1981. "An Anatomy of Cultural Melancholy," *Journal of the History of Ideas*, vol. 42, no. 4: 691–705
- Chamberlin, J. E. and S. L. Gilman, eds. 1985. *Degeneration: The Darker Side of Progress*. New York: Columbia University Press
- Childs, D. J. 2001. *Modernism and Eugenics: Woolf, Eliot, Yeats, and the Culture of Degeneration*. Cambridge: Cambridge University Press
- Church, Jeffrey. 2016. "Nietzsche's Early Ethical Idealism," *Journal of Nietzsche Studies*, vol. 47, no. 1: 81–100
- Churchill, Frederick B. 1992. "The Elements of Experimental Embryology: a Synthesis for Animal Development," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 107–126. Texas: Rice University Press
- Cisney, Vernon W. and Nicolae Morar. 2016. *Biopower: Foucault and Beyond*. Chicago and London: The University of Chicago Press
- Clark, Ronald W. 1960. *Sir Julian Huxley, F. R. S*. New York: Phoenix House
- Clark, Ronald W. 1968. *The Huxleys*. New York: McGraw-Hill
- Cohen, Noam. 2017. *The Know-It-Alls: The Rise of Silicon Valley as a Political Powerhouse and Social Wrecking Ball*. New York: The New Press
- Cole-Turner, Ronald, ed. 2011. *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*. Washington, DC: Georgetown University Press

- Collini, Stefan. 1991. *Public Moralists: Political Thought and Intellectual Life in Britain 1850–1930*. Oxford: Clarendon Press
- Collini, Stefan, Richard Whatmore and Brian Young, eds. 2000. *History, Religion, and Culture. British Intellectual History 1750–1950*. Cambridge: Cambridge University Press
- Comfort, Nathaniel. 2012. *The Science of Human Perfection: How Genes Became the Heart of American Medicine*. New Haven and London: Yale University Press
- Connelly, Matthew. 2008. *Fatal Misconception: The Struggle to Control World Population*. Cambridge, Massachusetts and London, England: The Belknap Press of Harvard University Press
- Cordeiro, José Luis. 2019. “The Boundaries of the Human: From Humanism to Transhumanism,” in *The Transhumanism Handbook*, ed. Newton Lee, 63–74. Springer Nature Switzerland AG
- Costello, Donald Paul. 1961. *Henry Van Peters Wilson 1863–1939: A Biographical Memoir*. Washington, DC: National Academy of Sciences
- Coupland, Philip. 2000. “H. G. Wells’s ‘Liberal Fascism’,” *Journal of Contemporary History*, (Oct.) vol. 35, no. 4: 541–558
- Cuénot, Claude. 1965. *Teilhard de Chardin: A Biographical Study*. Baltimore: Helicon
- Dale, Alzina Stone. 1982. *The Outline of Sanity: A Biography of G. K. Chesterton*. Grand Rapids, MI: William B. Eerdmans Publishing Company
- Danahay, Martin. 2012. “Wells, Galton and Biopower: Breeding Human Animals,” *Journal of Victorian Culture*, vol. 17, no. 4: 468–479
- Dard, Olivier and Alexandre Moatti. 2017. “The History of Transhumanism (cont.),” *Notes and Queries*, vol. 64, no. 1: 167–170
- Davis, J. Colin. 1981. *Utopia and the Ideal Society: A Study of English Utopian Writing*. Cambridge: Cambridge University Press
- Dawkins, Richard. 2008. *The Oxford Book of Modern Science Writing*. Oxford: Oxford University Press
- Deese, R. S. 2015. *We Are Amphibians: Julian and Aldous Huxley on the Future of Our Species*. California: University of California Press
- Deretic, Irina and Stefan Lorenz Sorgner, eds. 2016. *From Humanism to Meta-, Post-, and Transhumanism?* Frankfurt am Main: Peter Lang
- Dillistone, Frederick William. 1981. *Religious Experience and Christian Faith*. London: SCM Press
- Divall, Colin. 1985. *Capitalising on “Science”: Philosophical Ambiguity in Julian Huxley’s Politics 1920–1950*. Thesis for the Department of Science and Technology Policy, University of Manchester
- Divall, Colin. 1992. “From a Victorian to a Modern: Julian Huxley and the English Intellectual Climate,” in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 31–44. Texas: Rice University Press

- Donaldson, Steve and Ron Cole-Turner, eds. 2018. *Christian Perspectives on Transhumanism and the Church: Chips in the Brain, Immortality, and the World of Tomorrow*. Palgrave Studies in the Future of Humanity and its Successors, eds. Calvin Mercer and Steve Fuller. Cham: Palgrave Macmillan
- Doyle, Richard. 2011. *Darwin's Pharmacy: Sex, Plants, and the Evolution of the Noösphere*. Seattle and London: University of Washington Press
- Dronamraju, Krishna R. 1993. *If I Am to Be Remembered: The Life and Work of Julian Huxley With Selected Correspondence*. Singapore: World Scientific Publishing
- Dunaway, David King. 1990. *Huxley in Hollywood*. London: Bloomsbury Publishing
- Durant, John R. 1989a. "Julian Huxley and the Development of Evolutionary Studies," in *Evolutionary Studies: A Centenary Celebration of the Life of Julian Huxley*, ed. M. Keynes, 26–40. London: Palgrave Macmillan
- Durant, John R. 1989b. "Evolution, Ideology and World View: Darwinian Religion in the Twentieth Century," in *History, Humanity and Evolution: Essays for John C. Greene*, ed. James R. Moore, 355–374. Cambridge: Cambridge University Press
- Durant, John R. 1992. "The Tension at the Heart of Huxley's Evolutionary Ethology," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 150–160. Texas: Rice University Press
- Duster, Troy. 2003. *Backdoor to Eugenics*. New York: Routledge
- Dustin, Ashley. 2014. "Sprezzatura: How Transhumanists Can Improve Themselves by Looking Into The Past," *H+Magazine*, Jan. 7.
- Dyson, Freeman. 1988. *Infinite In All Directions*. New York: Harper and Row
- Ebbatson, Roger. 1982. *The Evolutionary Self: Hardy, Forster, Lawrence*. Brighton: Harvester Press
- Ekberg, Merryn. 2013. "Eugenics: Past, Present, and Future," in *Crafting Humans: From Genesis to Eugenics and Beyond*, ed. Marius Turda, 89–107. Goettingen: V & R Unipress
- Eriksson, Jonnie. 2010. *Monstrosity and Man: Paré, Deleuze, and Teratological Traditions in French Philosophy from Renaissance Humanism to Posthumanism*. Original Swedish title *Monstret & Människan: Paré, Deleuze och teratologiska traditioner i fransk filosofi, från renässanshumanism till posthumanism*. Lund: Sekel Bokförlag
- Erlingsson, Steindór J. 2009. "The Costs of Being a Restless Intellect: Julian Huxley's Popular and Scientific Career in the 1920s," *Studies in History and Philosophy of Biological and Biomedical Sciences*, no. 40: 101–108
- Erlingsson, Steindór J. 2013. "Institutions and Innovation: Experimental Zoology and the Creation of the *British Journal of Experimental Biology* and the Society for Experimental Biology," *The British Journal for the History of Science*, no. 46: 73–95

- Esposito, Maurizio. 2011. "Utopianism in the British Evolutionary Synthesis," *Studies in History and Philosophy of Biological and Biomedical Sciences*, no. 42: 40–49
- Esposito, Roberto. 2008. "Totalitarianism or Biopolitics? Concerning a Philosophical Interpretation of the Twentieth Century," *Critical Inquiry*, vol. 34, no. 4: 633–644
- Esteban Castro, José, Bridget Fowler and Luís Gomes, eds. 2018. *Time, Science and the Critique of Technological Reason. Essays in Honour of Hermínio Martins*. Cham: Springer International Publishing
- Evans, John H. 2018. *Morals Not Knowledge: Recasting the Contemporary U.S. Conflict between Religion and Science*. California: University of California Press
- Farman, Abou. 2012. "Re-Enchantment Cosmologies: Mastery and Obsolescence in an Intelligent Universe," *Anthropological Quarterly*, vol. 85, no. 4: 1069–1088
- Farman, Abou. 2023. "Transhumanism," in *The Open Encyclopedia of Anthropology*, ed. Felix Stein. <https://doi.org/10.29164/22transhumanism>. Accessed 5 Dec. 2023
- Faubion, James. 1998. *Aesthetics, Method and Epistemology: Essential Works of Foucault 1954–1984*. Vol. 2. New York: The New Press
- Ferrando, Rafael Monterde. 2020. "El transhumanismo de Julian Huxley: Una nueva religión para la humanidad," *Cuadernos de Bioética*, vol. 31, no. 101: 71–85
- Ferrando, Rafael Monterde. 2021. "Génesis histórica del transhumanismo: Evolución de una idea," *Cuadernos de Bioética*, vol. 32, no. 105: 141–148
- Fillard, Jean-Pierre. 2020. *Transhumanism: A Realistic Future?* Singapore: World Scientific Publishing
- Fleckstein, Marilyn Mahoney. 1978. *Julian Huxley on the Perfectibility of Man*. Thesis, the Catholic University of America
- Foot, Michael. 1995. *The History of Mr Wells*. London, New York, Toronto, Sydney and Auckland: Doubleday
- Foucault, Michel. 1978. "Life: Experience and Science," in *Aesthetics, Method and Epistemology: Essential Works of Foucault 1954–1984*. Vol. 2, ed. James Faubion, 465–478. New York: The New Press
- Francis, Mark. 2007. *Herbert Spencer and the Invention of Modern Life*. Ithaca, NY: Cornell University Press
- Freeden, Michael. 1978. *The New Liberalism: An Ideology of Social Reform*. Oxford: Clarendon Press
- Freeden, Michael. 1979. "Eugenics and Progressive Thought: A Study in Ideological Affinity," *The Historical Journal*, no. 3: 645–671
- Freeman, D. 1974. "The Evolutionary Theories of Charles Darwin and Herbert Spencer," *Current Anthropology*, no. 15: 211–237

- Frodeman, Robert. 2019. *Transhumanism, Nature, and the Ends of Science*, Routledge Studies in Contemporary Philosophy, New York & London: Routledge, Taylor & Francis Group.
- Fukuyama, Francis. 2003. *Our Posthuman Future: Consequences of the Biotechnology Revolution*. Great Britain: Profile Books
- Fukuyama, Francis. 2004. "Transhumanism. The Worlds Most Dangerous Ideas," *Foreign Policy*, no. 144: 42–43
- Fuller, Steve. 2006. "Notes Towards a Renaissance in British Sociology: A Response to Turner," *The British Journal of Sociology*, vol. 57, no. 2: 199–204
- Fuller, Steve. 2011. *Humanity 2.0. What it Means to be Human Past, Present and Future*. Basingstoke, Hampshire: Palgrave Macmillan
- Fuller, Steve. 2012. *Preparing for Life in Humanity 2.0*. Basingstoke: Palgrave Macmillan
- Fuller, Steve and Veronika Lipinska. 2014. *The Proactionary Imperative: A Foundation for Transhumanism*. Hampshire: Palgrave Macmillan
- Fuller, Steve. 2016. "Morphological Freedom and the Question of Responsibility and Representation in Transhumanism," *Confero*, vol. 4, no. 2: 33–45
- Fuller, Steve. 2018. "Transhumanism's Fabian Backstory: A Companion to Martins' Later Work," in *Time, Science and the Critique of Technological Reason. Essays in Honour of Hermínio Martins*, eds. Esteban Castro, José, Bridget Fowler and Luís Gomes, 191–207. Cham: Springer International Publishing
- Fuller, Steve. 2020. *Nietzschean Meditations: Untimely Thoughts at the Dawn of the Transhuman Era*. Posthuman Studies, ed. Stefan Lorenz Sorgner. Schweiz: Schwabe Verlag
- Gallagher, Idella J. 1970. *Morality in Evolution: The Moral Philosophy of Henri Bergson*. Hague, Netherlands: Martinus Nijhoff
- Gardner, Andy. 2009. "Adaptation as Organism Design," *Biology Letters*, no. 5: 861–864
- Gasking, Elizabeth. 1970. *The Rise of Experimental Biology*. New York: Random House
- Gayon, Jean. 2000. "History of the Concept of Allometry," *American Zoologist*, vol. 40, no. 5: 748–758
- Gex, Maurice. 1957. "Vers un humanism cosmologique: La synthèse de Teilhard de Chardin," *Revue de Théologie et de Philosophie*, vol. 7, no. 3: 186–205
- Glover, Willis B. 1972. "Religious Orientations of H. G. Wells: A Case Study in Scientific Humanism," *The Harvard Theological Review*, vol. 65, no. 1: 117–135
- Gore, Al. 2013. *The Future: Six Drivers of Global Change*. New York: Random House
- Goss, Boaz. 2018. "Christianity's Rigged Debate with Transhumanism," in *Christian Perspectives on Transhumanism and the Church: Chips in the Brain, Immortality, and the World of Tomorrow*, eds. Steve Donaldson and Ron Cole-Turner, 75–93. Palgrave Studies in the Future of Humanity and Its Successors, eds. Calvin Mercer and Steve Fuller. Cham, Switzerland: Palgrave Macmillan

- Gould, Stephen J. 1977. "The Return of Hopeful Monsters," *Natural History*, no. 86: 24, 30
- Green, Jens-Peter. 1981. *Krise und Hoffnung: Der Evolutionshumanismus Julian Huxleys*. Thesis, Heidelberg: Carl Winter Universitätsverlag
- Greene, John C. 1981. *Science, Ideology, and World View*. Berkeley, LA and London: University of California Press
- Greene, John C. 1990. "The Interaction of Science and World View in Sir Julian Huxley's Evolutionary Biology," *Journal of the History of Biology*, vol. 21, no. 1: 39–55
- Greenslade, William. 1994. *Degeneration, Culture and the Novel 1880–1940*. Cambridge: Cambridge University Press
- Gregory, Rosalyn and Benjamin Kohlmann, eds. 2012. *Utopian Spaces of Modernism: British Literature and Culture, 1885–1945*. Basingstoke, Hampshire: Palgrave Macmillan
- Griffin, Roger. 2013. "Bio-nomic Man (and Woman): Fantasies of Anthropological Revolution as a Reaction to Modernity's Nomic Crisis," in *Crafting Humans: From Genesis to Eugenics and Beyond*, ed. Marius Turda, 71–87. Goettingen: V & R Unipress
- Grosskurth, Phyllis. 1980. *Havelock Ellis: A Biography*. London: Allen Lane
- Grumett, David. 2011. "Transformation and the End of Enhancement: Insights from Pierre Teilhard de Chardin," in *Transhumanism and Transcendence. Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner, 37–50. Washington, DC: Georgetown University Press
- Haines, Georges. 1969. *Essays on German Influence Upon English Education and Science 1850–1919*. Hamden, CT: Archon Books
- Hale, Piers J. 2006. "The Search for Purpose in a Post-Darwinian Universe: George Bernard Shaw, 'Creative Evolution', and Shavian Eugenics: 'The Dark Side of the Force'," *History and Philosophy of Life Sciences*, no. 28: 191–214
- Hale, Piers J. 2014. *Political Descent: Malthus, Mutualism, and the Politics of Evolution*. Chicago: The University of Chicago Press
- Hall, Melinda. 2016. *The Bioethics of Enhancement: Transhumanism, Disability, and Biopolitics*. Lanham: Lexington Books
- Hammond, Andy. 2009. "J. B. S. Haldane, Holism, and Synthesis in Evolution," *Transactions of the American Philosophical Society*, vol. 99, no. 1: 49–70
- Hansell, Gregory M. and William Grassie, eds. 2011. *H±. Transhumanism and Its Critics*. Philadelphia, PA: Metanexus Institute
- Hansot, Elisabeth. 1974. *Perfection and Progress: Two Modes of Utopian Thought*. Cambridge, MA and London, England: The MIT Press
- Haraway, Donna. 2004. "A Manifesto For Cyborgs: Science, Technology, and Socialist Feminism in the 1980s," in *The Haraway Reader*, 7–45. New York: Routledge

- Haraway, Donna and Nicholas Gane. 2006. "When We Have Never Been Human, What Is to Be Done?: Interview with Donna Haraway," *Theory, Culture & Society*, vol. 23, no. 7–8: 135–158
- Harrison, Peter and Joseph Wolyniak. 2015. "The History of 'Transhumanism'," *Notes and Queries*, vol. 62, no. 3: 465–467
- Hauskeller, Michael. 2007. "A Legacy of Love? Reflections on the New 'Humanitarian' Eugenics," in *Utopie heute I, Zur aktuellen Bedeutung, Funktion und Kritik des utopischen Denkens und Vorstellens*, ed. B. Sitter-Liver, 405–419. Stuttgart, Germany: Kohlhammer
- Hauskeller, Michael. 2010. "Nietzsche, the Overhuman and the Posthuman: A Reply to Stefan Sorgner," *Journal of Evolution and Technology*, vol. 21, no. 1: 5–8
- Hauskeller, Michael. 2012. "Reinventing Cockaigne: Utopian Themes in Transhumanist Thought," *The Hastings Center Report*, vol. 42, no. 2: 39–47
- Hauskeller, Michael. 2015. "A Cure for Humanity: The Transhumanisation of Culture," *Trans-humanities Journal*, vol. 8, no. 3: 131–147
- Hauskeller, Michael. 2016. *Mythologies of Transhumanism*. Cham: Palgrave Macmillan
- Hayward, Rhodri. 2012. "The Invention of the Psychosocial: An Introduction," *History of the Human Sciences*, vol. 25, no. 5: 3–12
- Helmstadter, Richard J. and Bernard Lightman, eds. 1990. *Victorian Faith in Crisis: Essays on Continuity and Change in Nineteenth-Century Religious Belief*. Great Britain: Macmillan Academic and Professional
- Helsing, Daniel. 2019. *The Literary Construction of the Universe: Narratives of Truth, Transcendence, and Triumph in Contemporary Popularizations of Physics and Astronomy*. Thesis, Division of Comparative Literature, Centre for Languages and Literature, Lund University. *Critica Litterarum Lundensis* 18. Lund: Media-Tryck
- Herbert, Sandra. 1977. "The Place of Man in the Development of Darwin's Theory of Transmutation. Part II," *Journal for the History of Biology*, vol. 10, no. 2: 155–227
- Hilgartner, Stephen. 2015. "Capturing the Imaginary: Vanguard, Visions and the Synthetic Biology Revolution," in *Science and Democracy. Making Knowledge and Making Power in the Biosciences and Beyond*, eds. Stephen Hilgartner, Clark A. Miller and Rob Hagendijk, 33–55. New York and London: Routledge
- Hilgartner, Stephen. 2017. *Reordering Life: Knowledge and Control in the Genomics Revolution*. Cambridge and London: MIT Press
- Hubback, David. 1989. "Julian Huxley and Eugenics," in *Evolutionary Studies*, eds. Milo Keynes and G. Ainsworth Harrison, 194–206. London: Macmillan
- Huberman, Jenny. 2021. *Transhumanism: From Ancestors to Avatars*. Cambridge: Cambridge University Press

- Hughes, James. 2004. *Citizen Cyborg: Why Democratic Societies Must Respond to the Redesigned Human of the Future*. Boulder: Westview Press
- Hughes, Thomas P. 2000. "Introduction," in *Cultures of Control*, ed. Miriam R. Levin. Amsterdam: Harwood Academic Publishers
- Ironside, Philip. 1996. *The Social and Political Thought of Bertrand Russell: The Development of an Aristocratic Liberalism*. Cambridge: Cambridge University Press
- Jasanoff, Sheila and Sang-Hyun Kim. 2009. "Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea," in *Minerva*, vol. 47, No. 2: 119–146
- Jasanoff, Sheila. 2015a. "Future Imperfect: Science, Technology, and the Imaginations of Modernity," in *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, eds. Sheila Jasanoff and Sang-Hyun Kim, 1–33. Chicago and London: University of Chicago Press
- Jasanoff, Sheila. 2015b. "Imagined and Invented Worlds," in *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, eds. Sheila Jasanoff and Sang-Hyun Kim, 321–341. Chicago and London: The University of Chicago Press
- Jasanoff, Sheila and Sang-Hyun Kim, eds. 2015. *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. Chicago and London: The University of Chicago Press
- Jasanoff, Sheila. 2016. "Perfecting the Human: Posthuman Imaginaries and Technologies of Reason," in *Perfecting Human Futures: Transhuman Visions and Technological Imaginations*, eds. Hava Tirosh-Samuels and J. Benjamin Hurlbut, 73–95. Wiesbaden: Springer Fachmedien
- Jones, Greta. 1980. *Social Darwinism and English Thought: The Interaction between Biological and Social Theory*. Brighton: Harvester Press
- Jones, Greta. 1982. "Eugenics and Social Policy between the Wars," *The Historical Journal*, vol. 25, no. 3: 717–728
- Jongsma, Karin and Martin Sand. 2016. "Towards an Ageless Society: Assessing a Transhumanist Programme," in *Ageing and Technology: Perspectives from the Social Sciences*, eds. Emma Domínguez-Rué and Linda Nierling, 291–310. Transcript Verlag
- Jorion, Paul. 2022a. "Introduction," in *Humanism and Its Discontents: The Rise of Transhumanism and Posthumanism*, ed. Paul Jorion, 1–16. Cham: Springer International Publishing
- Jorion, Paul, ed. 2022b. *Humanism and Its Discontents: The Rise of Transhumanism and Posthumanism*. Cham: Springer International Publishing
- Kevles, Daniel J. 1992. "Huxley and the Popularisation of Science," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 238–251. Texas: Rice University Press

- Kevles, Daniel J. 1995. *In the Name of Eugenics: Genetics and the Uses of Human Heredity*. Cambridge, MA: Harvard University Press
- Keynes, Milo and G. Ainsworth Harrison, eds. 1989. *Evolutionary Studies: A Centenary Celebration of the Life of Julian Huxley*. London: Macmillan
- Klerkx, Greg. 2006. "The Transhumanists as Tribe," in *Better Humans? The Politics of Human Enhancement and Life Extension*, eds. Paul Miller and James Wilsdon, 59–66. London: Demos
- Knowles, Lori P. and Gregory E. Kaebnick, eds. 2007. *Reprogenetics: Law, Policy, and Ethical Issues*. Baltimore, MD: Johns Hopkins University Press
- Kohlmann, Benjamin. 2012. "Introduction," in *Utopian Spaces of Modernism. British Literature and Culture, 1885–1945*, eds. Rosalyn Gregory and Benjamin Kohlmann, 1–15. Basingstoke, Hampshire: Palgrave Macmillan
- Koltko-Rivera, Mark E. 1998. "Maslow's 'Transhumanism': Was Transpersonal Psychology Conceived as 'A Psychology Without People In It?'" *Journal of Humanistic Psychology*, vol. 38, no. 1: 71–80
- Kripal, Jeffrey J. 2007. *Esalen: America and the Religion of No Religion*. Chicago: University of Chicago Press
- Krüger, Oliver. 2021. *Virtual Immortality: God, Evolution, and the Singularity in Post- and Transhumanism*. Bielefeld: Transcript Verlag
- Largent, Mark A. 2009. "The So-Called Eclipse of Darwinism," in *Descended From Darwin: Insights Into the History of Evolutionary Studies, 1900–1970*, eds. Joe Cain and Michael Ruse, 3–21. Philadelphia: American Philosophical Society
- Le Dévédec, Nicholas. 2018. "Unfit for the Future? The Depoliticization of Human Perfectibility, From the Enlightenment to Transhumanism," *European Journal of Social Theory*, vol. 21, no. 4: 488–507
- Lee, Newton, ed. 2016. *Google It: Total Information Awareness*. New York: Springer
- Lee, Newton. 2019a. "Brave New World of Transhumanism," in *The Transhumanism Handbook*, ed. Newton Lee, 3–48. Springer International Publishing
- Lee, Newton, ed. 2019b. *The Transhumanism Handbook*. Springer Nature Switzerland AG: Springer International Publishing
- LeMahieu, D. L. 1992. "The Ambiguity of Popularization," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 252–256. Texas: Rice University Press
- Leroy, Pierre. 1980. *Letters From My Friend Teilhard de Chardin, 1948–1955. Including Letters Written During His Final Years in America*. New York and Ramsey: Paulist Press
- Leroy et al. 1993. *The Letters of Teilhard de Chardin and Lucile Swan*. Scranton: The University of Scranton Press

- Lester, Joseph. 1995. *E. Ray Lankester and the Making of Modern British Biology*. Ed. Peter J. Bowler. Oxford: British Society for the History of Science
- Levin, Miriam R. 2000a. "Contexts of Control," in *Cultures of Control*, ed. Miriam R. Levin, 13–40. Amsterdam: Harwood Academic Publishers
- Levin, Miriam R. ed. 2000b. *Cultures of Control*. Amsterdam: Harwood Academic Publishers
- Liakos, Antonis. 2013. "The End of History as the Liminality of the Human Condition: From Kojève to Agamben," in *Crafting Humans: From Genesis to Eugenics and Beyond*, ed. Marius Turda, 63–70. Goettingen: V & R Unipress
- Liesen, Laurette T. and Mary Barbara Walsh. 2012. "The Competing Meanings of 'Biopolitics' in Political Science: Biological and Postmodern Approaches to Politics," *Politics and the Life Sciences*, vol. 31, no. 1–2: 2–15
- Lightman, Bernard. 2007. *Victorian Popularizers of Science: Designing Nature for New Audiences*. Chicago and London: The University of Chicago Press
- Lightman, Bernard. 2010. "Darwin and the Popularization of Evolution," *Notes and Records of the Royal Society of London*, vol. 64, no. 1: 5–24
- Lilley, Stephen. 2013. *Transhumanism and Society: The Social Debate over Human Enhancement*. Dordrecht, Heidelberg, New York and London: Springer
- Lovejoy, Arthur O. 1957. *The Great Chain of Being: A Study of the History of an Idea*. The William James Lectures Delivered at Harvard University, 1933. Cambridge, MA: Harvard University Press
- Lubac, Henri de. 1967. *The Religion of Teilhard de Chardin*. New York and Paris: Desclée Company
- Lustig, Abigail. 2004a. "Introduction. Biologists on Crusade," in *Darwinian Heresies*, eds. Abigail Lustig, Robert Richards and Michael Ruse, 1–13. Cambridge: Cambridge University Press
- Lustig, Abigail. 2004b. "Natural Atheology," in *Darwinian Heresies*, eds. Abigail Lustig, Robert Richards and Michael Ruse, 69–83. Cambridge: Cambridge University Press
- Lustig, Abigail, Robert Richards and Michael Ruse, eds. 2004. *Darwinian Heresies*. Cambridge: Cambridge University Press
- Lutz, Peter L. 2002. *The Rise of Experimental Biology: An Illustrated History*. Totowa, NJ: Humana Press
- MacFarlane, James Michael. 2020. *Transhumanism as a New Social Movement: The Techno-Centred Imagination*. Palgrave Studies in the Future of Humanity and Its Successors, eds. Calvin Mercer and Steve Fuller. Basingstoke: Palgrave Macmillan
- MacKenzie, Donald. 1976. "Eugenics in Britain," *Social Studies of Science*, vol. 6, no. 3–4: 499–532
- MacKenzie, Norman and Jeanne MacKenzie. 1973. *The Time Traveller: The Life of H. G. Wells*. London: Weidenfeld and Nicolson

- Mager, Astrid and Christian Katzenbach. 2021. "Future Imaginaries in the Making and Governing of Digital Technology: Multiple, Contested, Commodified," *New Media & Society*, vol. 23, no. 2: 223–236
- Manuel, Frank E. 1971a. "Toward a Psychological History of Utopias," in *Utopias and Utopian Thought*, ed. Frank E. Manuel, 69–98. Boston: Beacon Press
- Manuel, Frank E. ed. 1971b. *Utopias and Utopian Thought*. Boston: Beacon Press
- Manzocco, Roberto. 2019. *Transhumanism: Engineering the Human Condition. History, Philosophy and Current Status*. Springer Nature Switzerland AG, published in association with Praxis Publishing, Chichester, UK
- Mauskopf, Seymour H. and Michael Rogers McVaugh. 1980. *The Elusive Science: Origins of Experimental Psychical Research*. Baltimore: Johns Hopkins University Press
- Mayer, Anna-K. 2005. "When Things Don't Talk: Knowledge and Belief in the Inter-War Humanism of Charles Singer (1876–1960)," *The British Journal for the History of Science*, vol. 38, no. 3: 325–347
- Mayr, Ernst and William B. Provine. 1980. *The Evolutionary Synthesis: Perspectives on the Unification of Biology*. Cambridge: Cambridge University Press
- Mazarakis, John. 2016. "The Grand Narratives of Democratic and Libertarian Transhumanism: A Lyotardian Approach to Transhumanist Politics," *Confero*, vol. 4, no. 2: 11–31
- Mazumdar, Pauline. 1992. *Eugenics, Human Genetics and Human Failings: The Eugenics Society, Its Sources and Its Critics in Britain*. London and New York: Routledge
- Mazumdar, Pauline. 2002. "'Reform' Eugenics and the Decline of Mendelism," *Trends in Genetics*, vol. 18, no. 1: 48–52
- McCray, W. Partick. 2013. *The Visioneers: How a Group of Elite Scientists Pursued Space Colonies, Nanotechnology, and a Limitless Future*. Princeton and Oxford: Princeton University Press
- McCray, W. Patrick. 2017. "Silicon Valley's Bonfire of the Vainglorious," *Los Angeles Review of Books*, 17 Jul.
- McCulloch, Winifred. 1979. *A Short History of the American Teilhard Association*. Published for The American Teilhard Association for the Future of Man. Pennsylvania: ANIMA Publications
- McNabb, John. 2015. "The Beast Within: H. G. Wells, The Island of Doctor Moreau and Human Evolution in the mid-1890s," *Geological Journal*, vol 50, no. 3: 383–397
- McNamee, Michael J. and S. D. Edwards. 2006. "Transhumanism, Medical Technology and Slippery Slopes," *Journal of Medical Ethics*, vol. 32, no. 9: 513–518
- Mead, Henry. 2010. "Edwardian Intellectuals and Political Religions: A Survey," in *Religion Compass*, no. 4: 643–656

- Mendieta, Eduardo. 2016. "The Biotechnological *Scala Naturae* and Interspecies Cosmopolitanism: Patricia Piccinini, Jane Alexander, and Guillermo Gómez-Peña," in *Biopower: Foucault and Beyond*, eds. Vernon W. Cisney and Nicolae Morar, 158–179. Chicago and London: The University of Chicago Press
- Mercer, Calvin and Derek F. Maher. 2014. *Transhumanism and the Body. The World Religions Speak*. Palgrave Studies in the Future of Humanity and Its Successors, eds. Calvin Mercer and Steve Fuller. Palgrave Macmillan US
- Mercer, Calvin and Tracy J. Trothen, eds. 2017. *Religion and Human Enhancement: Death, Values, and Morality*. Palgrave Studies in the Future of Humanity and Its Successors, eds. Calvin Mercer and Steve Fuller. Cham: Palgrave Macmillan
- Mercer, Calvin and Tracy J. Trothen. 2021. *Religion and the Technological Future: An Introduction to Biobacking, Artificial Intelligence, and Transhumanism*. Switzerland: Springer Nature Switzerland AG
- Meyer, Donald H. 1982. "Secular Transcendence: The American Religious Humanists," *American Quarterly*, vol. 34, no. 5: 524–542
- Midgley, Mary. 1992. *Science as Salvation: A Modern Myth and Its Meaning*. London and New York: Routledge
- Miller, Paul and James Wilsdon. 2006a. "Stronger, Longer, Smarter, Faster," in *Better Humans? The Politics of Human Enhancement and Life Extension*, eds. Paul Miller and James Wilsdon, 13–27. London: Demos
- Miller, Paul and James Wilsdon, eds. 2006b. *Better Humans? The Politics of Human Enhancement and Life Extension*. London: Demos
- Mills, Catherine. 2016. "Biopolitics and the Concept of Life," in *Biopower: Foucault and Beyond*, eds. Vernon W. Cisney and Nicolae Morar, 82–101. Chicago and London: The University of Chicago Press
- Mills, John A. 1998. *Control: A History of Behavioral Psychology*. New York: New York University Press
- Moatti, Alexandre. 2020. *Aux racines du transhumanisme: France, 1930–1980*. Éditions Odile Jacob
- Morton, Peter. 1984. *The Vital Science: Biology and the Literary Imagination, 1860–1900*. London: George Allen & Unwin
- Murray, Nicholas. 2002. *Aldous Huxley: An English Intellectual*. London: Time Warner
- Neill, Anna. 2021. "Becoming Animal in *The Island of Dr. Moreau*," in *Human Evolution and Fantastic Victorian Fiction*, 79–93. New York and London: Routledge
- Newton Harvey, E. 1953. "Edwin Grant Conklin: 1863–1952," *Science*, vol. 117, no. 3052: 703–705
- Nichols, James W. 1965. "Julian Huxley: The Specialist as Rhetorician," *College Composition and Communication*, vol. 16, no. 1: 7–13
- Nitecki, Matthew H. ed. 1988. *Evolutionary Progress*. Chicago and London: University of Chicago Press

- Norris, Margot. 1985. *Beasts of the Modern Imagination: Darwin, Nietzsche, Kafka, Ernst & Lawrence*. London: The Johns Hopkins Press
- Nye, Robert A. 1993. "The Rise and Fall of the Eugenics Empire: Recent Perspectives on the Impact of Biomedical Thought in Modern Society," *The Historical Journal*, vol. 36, no. 3: 687–700
- O'Connell, Mark. 2017. *To Be a Machine: Adventures Among Cyborgs, Utopians, Hackers, and the Futurists Solving the Modest Problem of Death*. London: Granta Books
- Olby, Robert. 2004. "Huxley, Sir Julian Sorell (1887–1975)," *Oxford Dictionary of National Biography*, Oxford University Press
- Ostberg, René. 2023. "Transhumanism," *Encyclopedia Britannica*, 12 Oct. 2023, <https://www.britannica.com/topic/transhumanism>. Accessed 5 Dec. 2023
- Overy, Richard. 2010. *The Morbid Age: Britain and the Crisis of Civilization*. London: Penguin
- Owen, John. 1974. *L. T. Hobbouse: Sociologist*. London: Thomas Nelson and Sons
- Paul, Diane. 1984. "Eugenics and the Left," *Journal of the History of Ideas*, vol. 45, no. 4: 567–590
- Paul, Diane. 1995. *Controlling Human Heredity: 1865 to the Present*. Atlantic Highlands, NJ: Humanities Press
- Paul, Diane. 2005. "Genetic Engineering and Eugenics: The Uses of History," in *Is Human Nature Obsolete? Genetics, Bioengineering, and the Future of the Human Condition*, eds. Harold W. Baillie and Timothy K. Casey, 123–151. Cambridge, MA and London, England: The MIT Press
- Paul, Diane. 2007. "On Drawing Lessons from the History of Eugenics," in *Reprogenetics: Law, Policy, and Ethical Issues*, eds. Lori P. Knowles and Gregory E. Kaebnick, 3–19. Baltimore: Johns Hopkins University Press
- Pauly, Philip J. 1987. *Controlling Life: Jacques Loeb and the Engineering Ideal in Biology*. Oxford: Oxford University Press
- Peed, Emily. 2016. "The Splintering and Controversy of Transhumanism," in *Google It: Total Information Awareness*, ed. Newton Lee, 499–509. New York: Springer
- Phillips, Paul T. 2013. *Contesting the Moral High Ground: Popular Moralists in Mid-Twentieth Britain*. Montreal: McGill-Queen's University Press
- Pick, Daniel. 1989. *Faces of Degeneration: A European Disorder, c. 1848–c. 1918*. Cambridge: Cambridge University Press
- Pickens, D. K. 1968. *Eugenics and the Progressives*. Nashville: Vanderbilt University Press
- Pilsch, Andrew. 2011. *Transhumanism: Evolutionary Logic, Rhetoric, and the Future*. Dissertation in English. The Pennsylvania State University Graduate School
- Pilsch, Andrew. 2017. *Transhumanism: Evolutionary Futurism and the Human Technologies of Utopia*. Minneapolis and London: University of Minnesota Press

- Popper, Karl. 1982. *Unended Quest: An Intellectual Autobiography*. La Salle and London: Open Court
- Post, Stephen G. and Robert H. Binstock. 2004. *The Fountain of Youth: Cultural, Scientific, and Ethical Perspectives on a Biomedical Goal*. Oxford: Oxford University Press
- Preece, Rod. 2005. *Brute Souls, Happy Beasts, and Evolution: The Historical Status of Animals*. Vancouver and Toronto: UBC Press
- Provine, William B. 1988. "Progress in Evolution and Meaning in Life," in *Evolutionary Progress*, ed. M. Nitecki, 49–74. Chicago: University of Chicago Press
- Rachels, James. 1991. *Created From Animals: The Moral Implications of Darwinism*. Oxford and New York: Oxford University Press
- Raven, Charles E. 1962. *Teilhard de Chardin: Scientist and Seer*. New York and Evanston: Harper & Row Publishers
- Ray, L. J. 1983. "Eugenics, Mental Deficiency and Fabian Socialism Between the Wars," *Oxford Review of Education*, vol. 9, no. 3: 213–222
- Redding, Micah. 2019. "Christian Transhumanism: Exploring the Future of Faith," in *The Transhumanism Handbook*, ed. Newton Lee, 777–794. Springer Nature Switzerland AG
- Redvaldsen, David. 2015. "Eugenics, Socialism and Artificial Insemination: The Public Career of Herbert Brewer," *Historical Research*, vol. 88, no. 239: 138–160
- Regis, Ed. 1990. *Great Mambo Chicken and the Transhuman Condition*. New York: Addison-Wesley Publishing Company
- Renwick, Chris. 2016. "New Bottles for New Wine: Julian Huxley, Biology and Sociology in Britain," *The Sociological Review Monographs*, vol. 64, no. 1: 151–167
- Rideau, Émile. 1967. *The Thought of Teilhard de Chardin*. Transl. by René Hague. New York and Evanston: Harper & Row
- Rifkin, Jeremy and Ted Howard. 1977. *Who Should Play God? The Artificial Creation of Life and What It Means for the Future of the Human Race*. New York: Dell Publishing
- Robb, Georges. 1996. "The Way of All Flesh: Degeneration, Eugenics, and the Gospel of Free Love," *Journal of the History of Sexuality*, vol. 6, no. 4: 589–603
- Roberts, Adam. 2016. *The History of Science Fiction*. Palgrave Histories of Literature. London: Palgrave Macmillan
- Rowbotham, Sheila and Jeffrey Weeks. 1977. *Socialism and the New Life: The Personal and Sexual Politics of Edward Carpenter and Havelock Ellis*. London: Pluto Press
- Ruse, Michael. 1989. *The Darwinian Paradigm: Essays on Its History, Philosophy, and Religious Implications*. London and New York: Routledge

- Ruse, Michael. 1996. *Monad to Man: The Concept of Progress in Evolutionary Biology*. Cambridge, MA and London, England: Harvard University Press
- Ruse, Michael. 2001. *Mystery of Mysteries: Is Evolution a Social Construct?* Cambridge, MA and London, England: Harvard University Press
- Ruse, Michael. 2004. "Adaptive Landscapes and Dynamic Equilibrium. The Spencerian Contribution to Twentieth-Century American Evolutionary Biology," in *Darwinian Heresies*, eds. Abigail Lustig, Robert Richards and Michael Ruse, 131–150. Cambridge: Cambridge University Press
- Ruse, Michael. 2006. *Darwinism and Its Discontents*. Cambridge: Cambridge University Press
- Ruse, Michael. 2009. "New Introduction to T. H. Huxley's *Evolution and Ethics*," in *Evolution and Ethics*, Thomas Henry Huxley. Princeton: Princeton University Press
- Sagoff, Mark. 2005. "Nature and Human Nature," in *Is Human Nature Obsolete? Genetics, Bioengineering, and the Future of the Human Condition*, eds. Harold W. Baillie and Timothy K. Casey, 67–98. Cambridge, MA and London, England: The MIT Press
- Scott, Anne. 2004. "Visible Incarnations of the Unseen: Henry Drummond and the Practice of Typological Exegesis," *The British Journal for the History of Science*, vol. 37, no. 4: 435–454
- Shanahan, Timothy. 2004. *The Evolution of Darwinism: Selection, Adaptation, and Progress in Evolutionary Biology*. Cambridge: Cambridge University Press
- Seaman, John W. 1978. "L. T. Hobhouse and the Theory of 'Social Liberalism'," *Canadian Journal of Political Science*, vol. 11, no. 4: 777–801
- Searle, G. R. 1971. *The Quest for National Efficiency: A Study in British Politics and Political Thought 1899–1914*. Berkeley and Los Angeles: University of California Press
- Searle, G. R. 1976. *Eugenics and Politics in Britain 1900–1914*. Leiden: Noordhoff International Publishing
- Searle, G. R. 1979. "Eugenics and Politics in Britain in the 1930s," *Annals of Science*, vol. 36, no. 2: 159–169
- Sententia, Wrye. 2013. "Freedom by Design: Transhumanist Values and Cognitive Liberty," in *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, eds. Max More and Natasha Vita-More, 355–360. West Sussex, UK: Wiley-Blackwell
- Skodo, Admir. 2017. "Eugenics and Pragmatism: F. C. S. Schiller's Philosophical Politics," *Modern Intellectual History*, vol. 14, no. 3: 661–687
- Sluga, Glenda. 2010. "UNESCO and the (One) World of Julian Huxley," *Journal of World History*, vol. 21, no. 3: 393–418
- Smart, Alan. 2011. "The Humanism of Postmodernist Anthropology and the Post-Structuralist Challenges of Posthumanism," *Anthropologica*, vol. 53, no. 2: 332–334

- Smart, Alan and Josephine Smart. 2017. *Posthumanism*. Toronto: University of Toronto Press
- Smith, Grover, ed. 1969. *Letters of Aldous Huxley*. London: Chatto & Windus
- Smith, Roger. 1992. *Inhibition: History and Meaning in the Sciences of Mind and Brain*. Berkeley, LA: University of California Press
- Smith, Roger. 2003. "Biology and Values in Interwar Britain: C. S. Sherrington, Julian Huxley and the Vision of Progress," *Past & Present*, no. 178: 210–242
- Smocovitis, Vassiliki Betty. 1996. *Unifying Biology: The Evolutionary Synthesis and Evolutionary Biology*. Princeton, NJ: Princeton University Press
- Smocovitis, Vassiliki Betty. 2012. "Humanizing Evolution: Anthropology, the Evolutionary Synthesis, and the Prehistory of Biological Anthropology, 1927-1962," *Current Anthropology*, vol. 53, no. S5, The Biological Anthropology of Living Human Populations: World Histories, National Styles and International Networks: S108–S125
- Smocovitis, Vassiliki Betty. 2016. "The Unifying Vision: Julian Huxley, Evolutionary Humanism, and the Evolutionary Synthesis," in *Pursuing the Unity of Science: Ideology and Scientific Practice Between the Great War and the Cold War*, eds. Geert Somsen and Harmke Kamminga, chap. 3. London: Routledge
- Sommer, Marianne. 2014. "Biology as a Technology of Social Justice in Interwar Britain: Arguments from Evolutionary History; Heredity, and Human Diversity," *Science, Technology and Human Values*, vol. 39, no. 4: 561–586
- Sommer, Marianne. 2016. *History Within: The Science, Culture, and Politics of Bones, Organisms, and Molecules*. Chicago and London: The University of Chicago Press
- Sommer, Marianne. 2020. "Scientific Humanism and the Anthropocene, or the Dream of Steering the Evolution of the Human and Natural World," *Práticas da História*, no. 11: 199–223
- Sparrow, Robert. 2011. "A Not-So-New Eugenics: Harris and Savulescu on Human Enhancement," *The Hastings Center Report*, vol. 41, no. 1: 32–42
- Speaight, Robert. 1967. *The Life of Teilhard de Chardin*. New York: Harper & Row
- Spitznagel, Eric. 2022. "How One Scientist Lost Big Trying to Genetically Enhance Unborn Babies," *New York Post*, Dec. 10. <https://nypost.com/2022/12/10/how-one-scientist-lost-big-trying-to-genetically-enhance-unborn-babies/>. Accessed 7 Dec. 2023
- Sorgner, Stefan Lorenz. 2009. "Nietzsche, the Overhuman, and Transhumanism," *Journal of Evolution and Technology*, vol. 20, no.1: 29–42
- Sorgner, Stefan Lorenz. 2020. *On Transhumanism*. University Park, PA: Pennsylvania State University Press
- Stansky, Peter. 1992. "Particulars in Huxley's Intellectual Climate," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 45–48. Texas: Rice University Press

- Stapleton, Julia. 2000. "Political Thought and National Identity in Britain, 1850–1950," in *History, Religion, and Culture. British Intellectual History 1750–1950*, eds. Stefan Collini, Richard Whatmore and Brian Young, 245–269. Cambridge: Cambridge University press
- Steinhart, Eric. 2008. "Teilhard de Chardin and Transhumanism," *Journal of Evolution and Technology*, 20: 1–22
- Storey, William. 2015. "Cecil Rhodes and the Making of a Sociotechnical Imaginary for South America," in *Dreamscapes of Modernity. Sociotechnical Imaginaries and the Fabrication of Power*, eds. Sheila Jasanoff and Sang-Hyun Kim, 34–55. Chicago and London: The University of Chicago Press
- Swetlitz, Marc. 1995. "Julian Huxley and the End of Evolution," *Journal of History of Biology*, 28: 181–217
- Thatcher, David S. 1970. *Nietzsche in England, 1890–1914: The Growth of a Reputation*. Toronto: University of Toronto Press
- Thomson, Mathew. 1998. *The Problem of Mental Deficiency: Eugenics, Democracy and Social Policy in Britain c. 1870–1959*. Oxford: Clarendon Press
- Tirosh-Samuelson, Hava. 2011. "Engaging Transhumanism," in *H±. Transhumanism and Its Critics*, eds. Gregory M. Hansell and William Grassie, 19–54. Philadelphia, PA: Metanexus Institute
- Tirosh-Samuelson, Hava and Kenneth L. Mossman. 2012a. "New Perspectives on Transhumanism," in *Building Better Humans? Refocusing the Debate on Transhumanism*, eds. Hava Tirosh-Samuelson and Kenneth L. Mossman, 29–52. Frankfurt am Main: Peter Lang
- Tirosh-Samuelson, Hava and Kenneth L. Mossman, eds. 2012b. *Building Better Humans? Refocusing the Debate on Transhumanism*. Frankfurt am Main: Peter Lang
- Tirosh-Samuelson, Hava and J. Benjamin Hurlbut. 2016. *Perfecting Human Futures: Transhuman Visions and Technological Imaginations*. Weisbaden: Springer Fachmedien Wiesbaden
- Tumilty, Emma and Michele Battle-Fisher. 2022. *Transhumanism: Entering an Era of Bodyhacking and Radical Human Modification*. International Library of Bioethics 100. Cham: Springer International Publishing AG
- Tuncel, Yunus, ed. 2017. *Nietzsche and Transhumanism: Precursor or Enemy? The Nietzsche Now Series*. Cambridge: Cambridge Scholars Publishing
- Turda, Marius. 2010. *Modernism and Eugenics*. Palgrave Macmillan UK
- Turda, Marius, ed. 2013a. *Crafting Humans: From Genesis to Eugenics and Beyond*. Goettingen: V & R Unipress
- Turda, Marius. 2013b. "Crafting a Healthy Nation: European Eugenics in Historical Context," in *Crafting Humans: From Genesis to Eugenics and Beyond*, ed. Marius Turda, 109–126. Goettingen: V & R Unipress

- Turner, Frank M. 1978. "The Victorian Conflict Between Science and Religion: A Professional Dimension," *Isis*, vol. 69, no. 3: 356–376
- Turner, Frank M. 1980. "Public Science in Britain, 1880–1919," *Isis*, vol. 71, no. 4: 589–608
- Wade, Nicholas. 1977. *The Ultimate Experiment: Man-Made Evolution*. New York: Walker and Company
- Wall, Michael. 1960. "The Story of the 'Brains Trust'," *The Listener*, May 5: 791–793
- Waters, C. Kenneth and Albert Van Helden, eds. 1992. *Julian Huxley: Biologist and Statesman of Science*. Texas: Rice University Press
- Weindling, Paul. 2012. "Julian Huxley and the Continuity of Eugenics in Twentieth-century Britain," *Journal of Modern European History*, vol. 10, no. 4: 480–499
- Werskey, Gary. 1978. *The Visible College: The Collective Biography of British Scientific Socialists of the 1930s*. New York: Holt, Rinehart and Winston
- Wiener, Martin J. 1992. "The English Style of Huxley's Thought," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 49–52. Texas: Rice University Press
- Wildt, Carol Marie. 1973. *Julian Huxleys Conception of Evolutionary Progress*. Dissertation in philosophy, Saint Louis University
- Williams, Rosalind. 2000. "Nature Out of Control: Cultural Origins and Environmental Implications of Large Technological Systems," in *Cultures of Control*, ed. Miriam R. Levin. Amsterdam: Harwood Academic Publishers
- Wilson, Edward O. 1998. *Consilience: The Unity of Knowledge*. London: Little, Brown and Company
- Witkowski, J. A. 1992. "Julian Huxley in the Laboratory: Embracing Inquisitiveness and Widespread Curiosity," in *Julian Huxley: Biologist and Statesman of Science*, eds. C. Kenneth Waters and Albert Van Helden, 79–103. Texas: Rice University Press
- Wolfe, Cary. 2009. *What Is Posthumanism?* Minneapolis: University of Minnesota Press
- Youngs, Tim. 2013. *Beastly Journeys: Travel and Transformation at the Fin de Siècle*. Liverpool University Press
- Zakariya, Nasser. 2016. "Scientific Humanisms and Technological Utopias: Situating the Transhumanist Imagination," in *Perfecting Human Futures: Transhuman Visions and Technological Imaginations*, eds. Hava Tirosh-Samuelson and J. Benjamin Hurlbut, 269–289. Weisbaden: Springer Fachmedien Wiesbaden

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