

To Members of the Legacy Task Force

Thank you for the opportunity to give my views on Thomas Huxley. Institutions of higher learning across the country are grappling with how they have contributed to systemic racism. It is a profound question that raises broader issues that go far beyond whether a building should be renamed or a statue removed. How have course curriculums perpetuated racism? This is particularly true of how we teach history. At the most recent History of Science meetings a great deal of the conference was devoted to exploring the kinds of issues in regard to our discipline that you have raised concerning Huxley. For years, many science historians have been analyzing and exposing the racist views of various scientists. However, this kind of work is still known primarily to professional historians of science like myself and has not translated into the actual teaching of either history of science or science. Furthermore, by our emphasis on these more prominent and white male scientists, we continue to perpetuate the “great men of science” ethos. Why do we need scientific heroes? Can they still be heroes in spite of having flaws? Scientists are human. They are not perfect.

I am perhaps biased as a historian, but I do think history of science is an excellent way to teach the actual process of science. It provides an opportunity to look at the biases that are often embedded within a particular hypothesis. These biases are not necessarily gendered or racial but assumptions that are made that can hinder our understanding or solving of a particular scientific problem. An example that is not racially loaded was the prevailing view for decades that nucleic acid was a “stupid molecule” and did not have the complexity that was necessary to be the carrier of hereditary information. The gene had to be a protein. Although eventually refuted, how much sooner would that have occurred if there wasn’t such a bias in favor of protein?

The DNA story also highlights the importance of how history is taught that is more relevant to the issues of race and gender. Until relatively recently James Watson and Francis Crick have gotten the lion's share of the credit for elucidating the structure of DNA. Indeed, it was often referred to as the Watson-Crick model of DNA. However, what was critical to them breaking the structure was Rosalind Franklin's x-ray photograph of the molecule that was given to the men without her permission by her boss. Franklin has finally begun to get the recognition she deserves largely due to women historians. They have also highlighted the work of many other women in science. In the US, until about 30 years ago history was written primarily by not only white, but also Christian males. The history that they wrote reflected their perspective about people mainly like themselves. With these opening remarks I will address your specific questions.

What role did Huxley's beliefs on race occupy in his intellectual works, his public statements, and his life as a whole? Were they remarkable in the context of the time and place in which he lived?

Huxley was in many ways the classic Victorian. The idea of hierarchy with a notion of both hereditary racial and gender superiority has a long history in western thought that can be traced back to Aristotle. It became codified in the Middle Ages with the idea of the Great Chain of Being which had been determined by God. During the Enlightenment, such a classification became *naturalized* by philosophers of science. Huxley was a product of enlightenment values. Like Darwin, he was strongly against slavery, but one can be against slavery and still be racist and also sexist. Both men were guilty of both. However, Huxley's beliefs about race did not play a role in his defense of evolution nor did they contribute to his own research interests (although see my later comments). He gave numerous popular lectures and wrote extensively for various magazines.

In response to the end of the Civil War in the US, he wrote “Emancipation-Black and White” (*Reader*, May 20, 1865). He claimed, “It may be quite true that some negroes are better than some white men; but no rational man, cognisant of the facts, believes that the average negro is the equal, still less the superior, of the average white man.” In addition, one of the reasons he thought slavery should be abolished was because “moral law dictates that no human should dominate another with out grievous damage to his own nature.” Furthermore, the “master will benefit by freedom, more than the freed-man.” An end to slavery would result in a double emancipation, hence the title of the essay. There it is. Perfectly clear. I’m not going to try and defend it. But it certainly was typical of the times. In fact, most abolitionists had similar views.

What was the main point of Huxley’s essay? First, the bulk of the essay was actually about emancipation for women, not the negro. He argued that they should be granted the same civil and political rights as men and also equal opportunity of education. Huxley thought girls and boys were not fundamentally different, but girls were just weaker. But society should not have an educational system that accentuates this difference. He concluded by saying “The duty of man is to see that not a grain is piled upon that load beyond what Nature imposed, that injustice is not added to inequality.” Yes, Huxley clearly thought non-white races and women were not equal to white men. But such views were typical of the times and he at least should be credited with his advocacy of educating women. It was a plea to end injustice. This essay represents a call for liberal reform, but at the same time was reassuring to the white males. The natural hierarchy was in no danger of being disrupted. No need to worry about people of color or females displacing white males in positions of power. White men were naturally superior and nature will prevail. There is no way of knowing, but if what Huxley advocated had actually been carried out (and unfortunately it still has not been to this day), I would like to think he would

have changed his views. Always the empiricist, if equal opportunity had truly become a reality, hopefully the evidence would have convinced him that the “natural” inferiority of the negro and women was simply not true. Huxley’s beliefs on race were not relevant to his primary research interests and constituted a very small part in his public statements or his life as a whole. The belief in the natural inferiority of both women and non-white races was typical of Victorian English society.

Did Huxley’s scientific work contribute, either in support or opposition, to the development of scientific racism and Social Darwinism, both during his lifetime and after? What portion of his total work did these contributions occupy, and how significant are those contributions in supporting or refuting the ideology of scientific racism?

A significant aspect of the controversy about scientific racism relates to evolutionary views on human origins. Huxley’s most significant and influential work in regard to human evolution was a series of lectures that he then developed further and became *Man’s Place in Nature* along with several other essays. Published in 1863, eight years before Darwin’s *Descent of Man*, Huxley argued powerfully and eloquently that humans were no exception to the theory of evolution. He provided detailed and compelling anatomic evidence of the similarity of humans to non-human primates. Humans were not unique, separate from the animal kingdom, but should be classified in the same group as primates. Our continuity with the animal kingdom was not just indicated by our physical characteristics. Claiming our commonality with “the brutes”, he asked “Is mother love vile because a hen shows it or fidelity base because dogs possess it?”

Furthermore, the differences between humans was sometimes even greater than that between the different species of primates. However, race played no role in his argument. There was no mention that the “primitive” (the term used in those days) races were closer to the apes. Rather, he wanted to show a line of continuity between man and beast. In the opening essay of the book, Huxley provided a history of the various ideas regarding the relationship of humans to

the “man-like apes.” Some of these earlier ideas certainly were racist, but they were not Huxley’s views. He was using this history to illustrate how confusing the systems of classification had been and pointed out how some of the descriptions of various primates were incorrect.

The publication of the *Origin* raised the problem of human origins to new heights of controversy. It rekindled the 18th century debate over whether human races were separate species or just varieties of a single species. With the possibility that humans might have descended from some ape-like creature the debate became reformulated. Were present-day human races derived from distinct species of ape-like ancestors or just varieties that developed later from one common species? If the former, it was a short step to argue for a hierarchal view of the races. Huxley, like Darwin, was committed to the idea that all the present human races shared a common ancestor. Although not stated, it implied that all the races were equal and they also used common ancestry to argue against slavery.

In “On Some Fossil Remains of Man” Huxley argued against the idea of race-specific characteristics in human skulls. Rather, the variation observed between groups was also observed with-in groups, that is, “the majority of structural variations are individual.” Huxley along with other evolutionists were absolutely clear that there were no racial characteristics unique to a particular population that justified them being declared separate species. However, their stance on the characteristics of Neanderthals was less clear when it came to race and in some ways contradictory.

Huxley provided evidence that showed the cranium capacity of the Neanderthal skull fell into the range of modern day populations. Therefore, Neanderthals were not a “missing link” between modern humans and our ancestors. But he also thought the skull showed characteristics similar to that of certain populations such as the Australian aborigines. He was optimistic that an

analysis of many more skulls and improved means of measurement would eventually be able to identify specific anatomic data that confirmed the ethnic craniology that was in place in regard to the different races. He wrote a detailed description of these various racial types and their geographical distribution (“On the Geographical Distribution of the Chief Modifications of Mankind” *Journal of the Ethnological Society of London*, 1870). There was no ranking of the races. In fact, it is quite a remarkable essay in that it suggested the kind of migration patterns of human populations that have been revealed by DNA analysis.

Since Huxley clearly refuted the idea that races were separate species, racial differences should be totally inconsequential in regard to human evolution. If the data did not support the concept of the “racialized skull,” then the analysis of an Aboriginal skull would not be any more informative than the analysis of a European skull to determine the relationship between Neanderthals and modern day humans. Yet at the same time, Huxley’s views did contribute to scientific racism, although somewhat indirectly. As Terence Keel has written, “identifiable cranial traits *were* taken to be the defining characteristics of the various stages of human development that helped evolutionists place the Neanderthal at the lower end of what was assumed to be a gradual progression towards the cultural achievement and biological constitution of the European” (*Divine Variations: How Christian Thought Became Racial Science*). Although Darwin never doubted that the so called ‘savage’ races were not a separate species from white Englishmen, it is apparent from some of his writings that they did play a role in his thinking about human evolution. However, this was not really true for Huxley and in actuality he wrote very little about race.¹

¹ For more on Huxley’s, Darwin’s and Alfred Wallace’s view on race and human evolution see S. Lyons, 2009. *Spirits, Serpents, Spirits and Skulls, Science at the margins in the Victorian Age*, chapter 5.

Huxley's views in regard to social Darwinism are in actuality quite different than what the question implies. Social Darwinism should be called Social Spencerism as it was Herbert Spencer, not Darwin, who coined the phrase "survival of the fittest" in 1864. Darwin adopted the phrase in the 5th edition (1869) of the *Origin* (1st edition 1859) to describe the ongoing struggle for existence that resulted in natural selection. Spencer had articulated the advantages of applying evolutionary theory to social behavior, espousing an ethic that became known as Social Darwinism. In the 1860s Huxley was optimistic about the insights that evolution could provide for human society. He believed that the key to successfully playing the game of life was learning the rules of the game and those rules were the laws of nature. To learn the rules one must turn to the teacher who was Nature herself who was "fair, just, and patient." If people directed their affections and wills "into an earnest and loving desire to move in harmony with [Nature's] laws," this would lead to a just and fair society.

However, Huxley's views changed considerably in response to Spencer and his followers. Spencer argued that one's moral obligations should be to promote this struggle for existence in the social realm. Thus, he was against any sort of safety net such as the poor laws, for they only contributed to the survival of the least fit. Many people agreed and argued that such policies would result in the deterioration of society. Here was a social program, an ethic that grounded its validity in Darwin's theory. Huxley could not abide an ethic that was counter to all common decency and claimed the State had no obligation to the less fortunate members of society.

Huxley responded to the harsh extreme individualism of Spencer in a Romanes lecture entitled "Evolution and Ethics" (1893), and a longer Progelemona the following year. He argued that "Laws and moral precepts are directed to the end of curbing the cosmic process and reminding the individual of his duty to the community.... Let us understand, once and for all that

the ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it." Like many later critics, he attacked evolutionary ethics on the grounds of committing the naturalistic fallacy. Just because nature *is* a certain way does not mean nature *ought* to be that way.

In spite of a vast literature that has accumulated since Huxley wrote *Evolution and Ethics*, he provided us with one of the clearest articulations of the problem of evolutionary ethics.

The propounders of what are called the "ethics of evolution," when the "evolution of ethics" would usually better express the object of their speculations, adduce a number of more or less interesting facts and more or less sound arguments in favor of the origin of the moral sentiments, . . . by a process of evolution. . . . But as the immoral sentiments have no less been evolved, there is so far, as much natural sanction for the one as the other. The thief and the murderer follow nature just as much as the philanthropist. Cosmic evolution may teach us how the good and the evil tendencies of man may have come about; but, in itself, it is incompetent to furnish any better reason why what we call good is preferable to what we call evil than we had before.

Furthermore, Huxley's critique actually goes far deeper than this. Implicit in the various versions of evolutionary ethics was the idea that nature was progressive. Huxley denied this. In earlier writings, he had argued that one of the great strengths of Darwin's theory was that in addition to explaining how organisms change and progress, it also explained how many organisms do not progress, and some even become simpler. Thus, we cannot assume that applying the principles of evolution to the social realm would result in the progress and improvement of society. Huxley realized that "fittest" had a connotation of "best," but as he correctly pointed out, if the

environment suddenly became much cooler, the survival of the fittest would most likely bring about in the plant world a population of more and more stunted and humbler organisms. In such an environment, the lichen and diatoms might be the most fit.

Darwin's great insight was not just explaining how species change but how natural selection led to adaptation. Adaptation has been evolutionary theory's greatest strength, but also its greatest weakness because we can tell an endless number of adaptive stories. Countering Huxley's harsh view of nature, Peter Kropotkin in *Mutual Aid* (1902) claimed that natural selection promoted group characteristics and sentiments, and that we have a natural sentiment to help each other. "The fittest are the most sociable animals and sociability appears as the chief factor of evolution." Kropotkin's ideas about how to improve society were diametrically opposed to those of Spencer, yet both men claimed that their ethics came directly out of evolutionary theory. It seems more accurate to say that they read their own social/political views into evolutionary theory. Which one do we believe? Particularly in explaining human evolution, cultural biases have strongly influenced the types of stories that have been told. Huxley was responding to a particular story being told at the time. This has been the problem that continues to plague evolutionary ethics to the present day as is evidenced by the contentious literature of sociobiology and evolutionary psychology.

Nature is not just red in tooth and claw. As Huxley argued in *Man's Place in Nature*, humans are not fundamentally brutish or noble. We are both, just like our primate cousins and our ancestors. In light of recent work on group selection, altruism, and extensive studies on non-human primates, particularly the work of Franz de Waal, the possibility of building an ethics rooted in biology seems more promising. Huxley would be thrilled with this new research as it would lend support to his earlier views, that learning and abiding by nature's rules would result

in a just and fair society. But not only must nature be interpreted, every human act results from a complex interaction of nature and culture. In that regard Huxley's fundamental message in *Evolutionary and Ethics* is not historically contingent. It is an eloquent and compelling reminder that great caution must be exercised in evaluating any ethical system.

What harmful institutional practices, policies, or general practical consequences, if any, can be specifically traced to Huxley's views?

Neither Huxley's truly enormous body of scientific research or his other writings contributed in any significant way to harmful practices. Rather, he played an absolutely pivotal role in furthering education. He became a member of the London School Board and fought for the education of the common man. He lectured extensively to the working classes in an effort to enrich their lives and improve their lot. Perhaps most important, is the role he played specifically in furthering science education.

Until the middle of the nineteenth century, laboratory sciences were not part of the University curriculum. Huxley had long campaigned for courses that included laboratory practice to train future scientists. Courses such as anatomy and physiology only existed in medical schools. After the passage of the Elementary Education Bill of 1870, he was given an opportunity to organize such a course at the London School of Mines. It soon became quite famous and the first courses in elementary biology at Cambridge, Oxford, and John Hopkins universities were modeled on it. Huxley's advocacy was instrumental in establishing the Physiology Laboratory at Trinity College with his student Michael Foster heading it. That we have the life sciences with hands on laboratory experience taught not just in colleges, but in primary and secondary schools can be traced directly back to Huxley.

The task for all of us, but particularly for professional historians of science is to present a complete view of our so called scientific heroes. We need to celebrate the work that contributed to your building being named after Huxley, but also present his ideas that were more problematic. For instance, even in the area of environmentalism, Huxley's views leave something to be desired. Already by the late 1860s, there was concern about over-exploitation by commercial fisheries. Yet in 1883 Huxley claimed that it would be virtually impossible for commercial fishing to exhaust populations of fish such as cod and herring. Does this wipe out all the contributions he had made to furthering biological knowledge?

Huxley is one of the most fascinating people in the history of science. He has been in Darwin's shadow in regard to his own significant body of scientific work in developmental morphology. In spite of giving himself the name "Darwin's bulldog," he raised serious issues regarding Darwin's theory that have really only seriously been addressed in the last 40 years. In *From Cells to Organisms: Re-Envisioning Cell Theory* (University of Toronto Press, 2020), I have used Huxley's critique of Cell Theory to provide the scaffolding for the whole book. His ideas remain highly relevant to current areas of biological research. But his writings encompass far more than biology. He wrote an entire book on Hume, and he coined the word 'agnostic' to describe his own philosophical belief system. His popular essays span virtually all areas of knowledge, from the relationship of science to the Hebrew tradition to the relationship of capital to labor.

Huxley's pluses in terms of his scientific contributions as well as his insightful essays on virtually all areas of human knowledge far outweigh his negatives. The task force should do more than consider whether the building should be renamed or not. Rather, what is far more important is to think about how the Huxley College of Environmental Science presents scientific

content. Expand the curriculum to address the kinds of issues you are concerned about. Why do we think something is a fact? How have our views changed? Pay more attention to highlighting the work of scientists from different racial and gendered groups. Make a serious effort to recruit faculty from diverse backgrounds. A young black female student is going to benefit far more from having a professor that looks like her than having the building renamed.

Why not have a permanent display that presents a comprehensive view of the man, warts and all? Alongside a display that shows the evidence Huxley used to argue that dinosaurs were the connecting link between birds and reptiles (the first person to argue that), could be a display that includes his views on women and people of color. Develop a course in physical anthropology that highlights how scientific racism was perpetuated by the founders of the field along with their contributions to understanding human evolution. Terrence Keel's work would provide the basis for another excellent course. He offers a new account that shows the influence of pre-modern Christian ideas on the development of scientific ideas about race and still perpetuates racist thinking in our understanding of human variation.

Finally, as our country continues to struggle with systemic racism, we need to think carefully about how we want to deal with the past. Institutions of higher learning should play a leading role in this. Perhaps some buildings should be renamed and/or statues removed, but to paint all people with the same broad brush of being guilty of having racist views would be a mistake. In Europe and the United States one would be extremely hard pressed to find anyone in the sciences, not to mention the society at large in the nineteenth century, that did not have a hierarchical view of the races. Huxley does not belong in the same category as Confederate "heroes" whose statues are (rightly so) being removed. This would not only be dismissing

Huxley's vast contributions to scientific knowledge, but also an over-simplification and equally incorrect view of history.