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Eugenic Thinking and the Cognitive Sciences

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Eugenic thinking involves distinguishing between sorts or kinds of people in terms of the perceived desirable or undesirable traits that those people are likely to transmit to future generations. Although eugenics itself is often thought of as an ideology that generated a social movement of global influence from roughly 1900 to 1945, eugenic thinking both pre-dates this period and continues to inform a range of contemporary debates and social policies, including those concerning prenatal screening, transhumanism, population control, and disability. Various sciences, including the then-nascent sciences of psychology and psychiatry, played important roles in early 20th-century eugenics, and their legacy is reflected in contemporary eugenic thinking and policies. Understanding the history of eugenics and the role of these early sciences of cognition in that history is useful in reflecting further on ongoing forms of eugenic thinking to which the contemporary cognitive sciences are relevant.

History

Eugenics originated in the late 19th century as an emerging science of human improvement ([Ipgrave et al., 2022](#)). It aimed to undertake measures to improve the “human stock” over generational time or, as we might put it now, optimize the human gene pool from which future generations would be drawn. Eugenics was both a set of ideas and a social movement that led many countries and their states or provinces to adopt policies and laws that either aimed to increase the desirable traits in the next generation—positive eugenics—or to reduce or eliminate undesirable traits—negative eugenics ([de Melo-Martin & Goering, 2022](#); [Turda, 2010](#)).

The term *eugenics* was coined by Sir Francis Galton in England in his 1883 book *Inquiries Into Human Faculty and Its Development*. In defining eugenics, Galton included both the conceptual and practical components identified above. Galton introduced eugenics as “the science of improving stock,” noting that this science “is by no means confined to questions of judicious mating, but which, especially in the cases of man, takes cognizance of all influences that tend in however remote a degree to give the more suitable races or strains of blood a better chance of prevailing speedily over the less suitable than they otherwise would have had” ([Galton, 1883](#), pp. 24–25). As the initial reference to “judicious mating” suggests, decisions about who reproduces (and who with whom) are central to eugenics. This is because influencing reproduction is one of the primary ways to affect what traits members of future generations have. And as Galton’s talk of “more suitable races or strains of blood” implies, eugenics rests on the idea that races or family-like groups constitute sorts or kinds of people that are the focus of eugenic thinking. Those groups deemed “less suitable” became what elsewhere have been called the *targets* of eugenic thinking, laws, and policies ([Wilson, 2018](#), Chapter 4).

Galton’s early and ongoing interests in establishing a science of eugenics were in showing that cognitive abilities and mental characteristics were, like physical traits, both heritable. To that end, his book *Hereditary Genius* following a pair of articles published in Macmillan’s Magazine in 1865, focused on showing that high achievement and status ran in families ([Galton, 1869](#)). Since eugenic thinking is

concerned with the traits of the present generation only insofar as these predict those of future generations, with reproduction as the key process linking the two, eugenics relies on views of what traits are heritable across generations.

Around the time that Galton was probing the desirable traits that make for high achievement and status, in the United States a series of studies began that fixed on less desirable traits that appeared to run in families. Known collectively and retrospectively as the *eugenic family studies* or “white trash studies” (Rafter, 1988), they began with [Richard Dugdale \(1877\)](#)’s *The Jukes: A Study in Crime, Pauperism, Disease, and Heredity*; coming under the direction of the Eugenics Record Office at Cold Spring Harbor from 1910, they ran until the 1930s. These studies were motivated by the perception that the phenomena named in Dugdale’s subtitle—crime, pauperism, and disease—were spiraling out of control. Eugenic family studies were based on the assumption that low intelligence and psychiatric illness were key underlying causes of such phenomena.

By the first decade of the 20th century, eugenic thinking had crystallized into a social movement with reach across much of the world. It drew on the sciences of biology and the mind for technologies to identify eugenic targets. These technologies were primarily psychological and medical in nature, including measures of intelligence, taxonomic schemes of cognitive disability and psychiatric illnesses, statistical techniques for analyzing populations, and sterilization.

The introduction of state sterilization laws, seen to be an effective way to prevent the transmission of negative eugenic traits to future generations, began in the United States in 1905 with Pennsylvania passing the first such law that year. Since that law was vetoed by Governor Pennypacker, the first *effective* sterilization law in the United States was that of Indiana, enacted in 1907. By the mid-1930s, over 30 states in the United States had adopted compulsory eugenic sterilization laws, many modified over time in response to constitutional and other legal challenges. These laws were articulated in terms of specific negative *eugenic traits*, traits that were deemed especially undesirable in future generations.

The corresponding development in Europe in the first quarter of the twentieth century saw eugenic thinking institutionalized through learned societies, journals, and popular and scientific meetings. But it was only in 1929 that the first sterilization laws came into effect in Europe, both in the canton of Vaud in Switzerland and in the Scandinavian country of Denmark. The rise of the Nazi Party in Germany saw the most dramatic and extreme forms of eugenic policies enacted, starting with the 1933 Law for the Protection of Genetically Diseased Offspring, a law that led to approximately 400,000 people with disabilities being sterilized prior to the onset of the Second World War (1939–1945). The German euthanasia program known as Action T4 that extended this domestic eugenic intervention from sterilization to killing, enacted at the start of that war, introduced the gas chambers that served as a major technology facilitating the murders of the Holocaust.

Core concepts

Eugenic traits

Prominent among the eugenic traits found in sterilization laws were those concerning cognitive ability and mental health. These traits, ordered in terms of their frequency in U.S. state and Canadian provincial sterilization laws, included feeble-mindedness, insanity, epilepsy, criminality, imbecility, idiocy, sexual perversion (or depravity), mental unfitness (or deficiency), and moral depravity (or degeneracy). As this listing suggests, these laws especially targeted those perceived to have some kind of cognitive limitation or psychiatric condition on the grounds that they were unfit and would propagate these eugenic traits to their children; approximately 70% of all eugenic traits mentioned in sexual sterilization laws in the United States and Canada concerned cognitive ability or mental health. Given this, there was a clear role for psychologists in programs of eugenic sterilization, given their expertise in psychological testing ([Rose, 1985](#)). Such testing and subsequent sterilization were conducted through emerging forms of institutionalization, such as “training schools for the feeble-minded,” especially as eugenics gained state-level backing ([Miller et al., 2015](#)).

One of the roles of psychologists was to develop ways to measure those who were cognitively or psychiatrically subnormal. Emerging intelligence tests were adapted to quantify and classify those deemed “feeble-minded” or “mentally deficient” ([Thomson, 1998](#); [Trent, 1994](#)). Binet’s famous test of intelligence, for example, incorporated the more specific existing folk categories of “imbecile” and “idiot,” adapting these to designate developmentally delayed children with mental ages, respectively, of 3–7 and 2 years. Following the translation of Binet’s test from French into English by Henry Goddard in 1908, “moron” was coined in 1910 to pick out those in the general population with a putatively fixed mental age of 8–12 years. This resulted in a three-tiered schema of intellectual subnormality—moron, imbecile, idiot—that came to be widely used in the eugenics movement.

In the hands of the psychologist Lewis Terman, what became the Stanford-Binet test initially was deployed in selecting army recruits near the end of World War I (1914–1918) before being used on the general population. The three-tiered scheme was accordingly fed into the newly minted idea of an *intelligence quotient* (IQ) that remains with us 100 years on, with the fixed mental ages of moron, imbecile, and idiot mapped onto standard deviations from a normalized IQ of 100. From the 1920s, these tests were widely used to identify children who were candidates for eugenic sterilization, whether they were already housed in segregated institutions or within the regular school system or general community.

Just as cognitive abilities were being disciplined ([Foucault, 2006](#)) through such technologies, so too were the clinical sciences of psychology and psychiatry articulating more fine-grained categories for insanity and madness ([Stahnisch & Kurbegovic, 2020](#)). The timeline for scientific developments lagged behind that for the development of eugenic sterilization policies, limiting the role of psychiatric science in the process of articulating eugenic traits. *The Statistical Manual for the Use of Institutions for the Insane*, like the development of IQ testing, entwined with U.S. involvement in the First World War, was published in 1918

as the first national reference guide for mental illness. There was distinctive attention to racialized categories, reflecting the increasing involvement of psychiatry in emerging concerns about immigration, and with the aim of ensuring that those with traces of insanity or madness were not admitted into the country. By the time the first official edition of the general *Standard Classified Nomenclature of Disease*, which included a detailed section on psychobiological diseases, was published in the United States in 1933, the clinical mental sciences had become more critical of eugenics. This was exemplified by the report of the Committee of the American Neurological Association for the Investigation of Eugenic Sterilization, published in 1936, which (among other things) advocated for the removal of epilepsy as a eugenic trait in sterilization laws. The more widely-known (and influential) *Diagnostic and Statistical Manual for Mental Disorders*, typically known as “the DSM,” was not published until 1952.

Immigration

Immigration policy was a second avenue, in addition to sterilization laws, that governments used to achieve eugenic ends. In keeping with the key theme of eugenic thinking that not all sorts of people are equally well-suited to stock future generations, immigration restriction policies were a feature of the early 20th-century in countries such as the United States, Canada, and Australia. The exclusion of disability at national borders has been a steadfast feature of such policies ([Baynton, 2016](#)). This includes the contemporary appeal to the “undue burden” clause of current legislation (for example, in both Canada and Australia).

A more explicit way in which eugenic thinking has operated via immigration policy has been by targeting people identified by national, ethnic, or racial descriptions. For example, the Canadian Immigration Act of 1910 contained a clause that barred “immigrants belonging to any race deemed unsuited to the climate or requirements from Canada,” and its 1923 law, “An Act Respecting Chinese Immigration” imposed a severe restriction on the immigration of “persons of Chinese origin or descent irrespective of allegiance or citizenship.” One of Australia’s first pieces of legislation after federation in 1901, informally known throughout much of its 70-year history as the “White Australia Policy,” aimed explicitly to limit Asian immigration. In the United States, the 1924 Johnson-Reid Act placed strong quotas on the number of immigrants from Asian and southern and eastern European countries by imposing an intake cap that was indexed to 2% of the 1890 U.S. Census population who had originally immigrated from the corresponding countries.

In all of these cases, the eugenic thinking of the past persists in immigration policies today. The very point of immigration restriction is to shape the multigenerational structure of the national population. That goal, together with the differential valuation of different sorts of people falling under various national, ethnic, and racial labels, was what drove both positive enticements for emigration from certain groups as well as negative immigration restriction laws. This aspect of eugenic thinking became more overt in public political discourse in the United States from 2016 with the mainstreaming of slogans such as “we

will not be replaced” and the rise of rhetoric inspired by Donald Trump, not only in the United States but elsewhere in the world.

Heritability

Given the importance of the informal idea that eugenic traits run in families or, in Galton’s original terms, that there are “more suitable races or strains of blood,” one might expect the sciences of genetics and developmental biology to have played a key role in the mediation between eugenic thinking and eugenic policies and laws governing those areas of social life most directly relating to reproduction, such as marriage, sterilization, and immigration. This mediating role was, however, surprisingly restricted. Ignorance and presumptuousness in applying the concept of a hereditary disease or condition to eugenic traits contributed to restricting the role of genetic knowledge in the eugenics movement ([Penrose, 1949](#)).

Central to eugenic studies of heritability was the use of pedigree trees that were variants on family tree diagrams emerging from the study of kinship pioneered within anthropology in the first decade of the twentieth century ([Rivers, 1910/1968](#)). Pedigree trees of various conditions and putative diseases, including alcoholism, criminality, feeble-mindedness, and polydactyly (having extra fingers or toes), featured prominently in eugenic research publications, most famously in those supported or produced by the U.S. Eugenic Records Office. These studies of the heritability of putative diseases had two limitations. First, they provided only correlational information. Second, as the sample conditions suggest, they often focused on traits that we would no longer consider to be heritable or to be diseases.

In classical genetics, “Mendelian traits” are caused by a single genetic locus. Mendelian traits can be autosomal dominant or recessive, depending on whether they require one copy of the allele at that locus (inherited from one parent) or two (one inherited from each parent). Huntington’s disease and neurofibromatosis are both Mendelian traits that are autosomal dominant disorders, whereas cystic fibrosis and Tay-Sachs are such traits that are recessive.

In using pedigree trees to guide and apply eugenic policies of sterilization and immigration restriction, basic facts about Mendelian inheritance, such as whether a trait is autosomal dominant or recessive, were mostly ignored. This matters because to eliminate or significantly limit a Mendelian recessive trait through sterilization or immigration restriction, policies need to apply to *carriers* of the recessive gene(s), making such policies ineffective or unworkable in practice given the relatively low frequency of the corresponding traits in the population. For the most part, it was simply assumed that eugenic traits were Mendelian and dominant and that the proposed interventions would be effective in eliminating them in the long run. As a matter of fact, with one exception, none of the eugenic traits listed that were the chief grounds for sterilization are Mendelian, let alone Mendelian dominant traits. The sole exception is Huntington’s chorea, which features only in the 1942 amendment to the Sexual Sterilization Act of Alberta and nowhere else in North American legislation ([Wilson, 2018](#), pp. 65–76).

Questions, controversies, and new developments

Dehumanization

Eugenic thinking fundamentally involves identifying eugenic traits and distinguishing between “more suitable” and “less suitable” kinds of people. The sorts of people who become targets of eugenics are people with disabilities (especially cognitive or psychiatric disabilities) and those racialized as non-white. Because eugenic interventions involve acting on a person in a way that would otherwise be unacceptable, they are often thought of as forms of *dehumanization*. How the process of dehumanization operates is one area in which psychologists and other cognitive scientists have made contributions that inform how eugenic thinking is viewed ([Kronfeldner, 2021](#); [Smith, 2021](#)).

Dehumanization involves conceiving of or treating a human being as *something less than human*. Perhaps unsurprisingly, much of the research on dehumanization has focused on racialization and views of persons with disabilities. The contemporary use of the concept originates in social psychology in theorizing about the attribution of distinctive emotional and other states to members of in-groups and out-groups ([Leyens et al., 2000](#); [Yzerbyt et al., 2000](#)). Out-group members were found to be ascribed a narrower and less nuanced range of emotions—those such as fear and anger that are also attributed to nonhuman animals—in what is described as a process of *infrahumanization*.

This work has been subsequently extended this work by arguing that there are two forms of dehumanization, one of which assimilates those dehumanized to *machines* and the other of which assimilates them to *animals* ([Haslam, 2006, 2013, 2021](#); [Haslam & Loughnan, 2014](#)). In the first of these, *mechanistic dehumanization*, a person or group is thought of as lacking traits that define human nature, traits that we may share with nonhuman animals; in the second, *animalistic dehumanization*, a person or group is thought of as lacking traits that are distinctively human, such as the richer suite of emotional states that were found to be withheld from out-group members ([Leyens et al., 2000](#)).

One of the implications of this work on in-group and out-group attributions of emotions is that eugenic thinking itself, and not just “eugenic interventions,” is dehumanizing. The general point that people can be dehumanized by how they are thought of by others seems obvious. Less obvious is the more specific idea that that the process of dehumanization can start simply with the distinction between a more-valued and a less-valued group. If this is true, then there are questions about how far this aspect of dehumanization reaches. Does simply *raising the possibility* that certain kinds of people are of less eugenic value than others have dehumanizing effects? Does *arguing against that possibility* do so? Given the historical devaluation of people with disabilities and racialized populations through eugenic thinking in the past, such questions should temper the hubristic ways in which eugenic thinking persists, particularly among philosophers and bioethicists ([Barker & Wilson, 2019](#)).

Newgenics

There have been long-standing concerns that, although eugenics as a global social movement ended around 1945, the specter of eugenics has maintained a ghostly presence in late 20th-century thinking. Such concerns were spurred in the 1990s by the development of the Human Genome Project, the big science project in the biological sciences to sequence the three billion base pairs in the human genome, completed (in some sense) in 2000. Prominent researchers warned of eugenics coming in through “the backdoor” of individual parental choice, aided by the expansive genetic knowledge promised by the Human Genome Project ([Duster, 2003](#); [Kevles, 1985/1998](#)).

These new forms of eugenics—*newgenics* for short—driven by individual choice, rather than state mandates, include selective termination decisions made through prenatal screening technologies and the positive selection of desirable traits in so-called “designer babies.” Newgenics raises many controversial issues in bioethics at the philosophical interface of technology and human nature ([Wilson, 2022](#)). Some of these beckon for exploration from those trained in the cognitive sciences.

Consider what is sometimes called *the expressivist objection* to prenatal diagnosis with selective termination. This is the objection that this practice, which targets fetuses with a genetic profile diagnostic of later disability (e.g., those with trisomy 21, diagnostic of Down Syndrome), expresses a negative view of people with the corresponding disability. In other words, the practice of selective termination solely on the basis of such a diagnostic trait expresses a form of ableism and in so doing reinforces ableist views not just of traits but of people with those traits. Although the expressivist objection has generated philosophical discussion, the empirical issue of whether and how the practice affects the attitudes and views of those participating in it, or others, has not been adequately explored.

Racial differences in intelligence research

A third area of contemporary controversy regarding eugenic thinking and the cognitive sciences concerns the rise (or return) of *racial differences in intelligence* research ([Bird et al., 2024](#); [Jackson, 2020](#)). Early claims that there were heritable and genetically based racial differences in intelligence, as indicated by persistent differences in IQ scores across races, were retracted by their proponents in the first half of the century. The publication of a notorious article reviving these claims ([Jensen, 1969](#)) continues to anchor ongoing research on racial differences in intelligence ([Flynn, 1980](#); [Sesardic, 2000](#)), research recently augmented by the incorporation of genome-wide association studies ([Savage et al., 2018](#)).

To see how eugenic thinking persists within contemporary forms of this research program, consider a recent article that generated much controversy ([Cofnas, 2020](#)). The critical focus of the argument in this paper is the presumption that interest in hereditarian accounts of racial differences in intelligence is “inherently morally suspect or even racist” (abstract), with the author advocating for the pursuit of “free inquiry” in this domain (sections 3–5). Despite what might be thought of as its modest aims, and not so much as mentioning eugenics, let alone eugenic thinking, the article nonetheless follows other racial

differences in intelligence research in exemplifying eugenic thinking. Fundamental to eugenic thinking is the idea that traits of differential value to future generations vary across certain groups. The trait of interest here is intelligence and the groups are races, designated by terms such as “Black” and “White,” where these are conceptualized as biologically discrete or distinct populations.

Like research on dehumanization and newgenics, this research draws from a variety of disciplines that range across the cognitive, biological, and social sciences. In addition to questions about how dehumanization operates as a socio-psychological process, or the ways in which the routinization of selective termination interacts with ableist attitudes, in this research there are questions about intelligence and its measure, as well as about the use of genome-wide association studies–based methodologies for investigating psychological and psychiatric states. But there are also questions of whether and in what ways this very field of research is dehumanizing.

Bioethicists and philosophers wondering aloud about eugenic futures have been willing enough to self-designate as proponents of *liberal eugenics* ([Agar, 2004](#)) or *utopian eugenics* ([Kitcher, 2000](#)). The controversy over the publication of this article ([Larsen et al., 2020](#); [van Leeuwen & Herschbach, 2020](#)) suggests that the appetite for endorsements of eugenic thinking in the realm of race and IQ within the cognitive sciences may be markedly more limited.

Broader connections

Ongoing discussions of eugenic thinking involving dehumanization, newgenics, and racial differences in intelligence research have both scientific and political dimensions. The importance to eugenic thinking of the past of cognitive abilities and cognitive and psychiatric limitations position cognitive scientists to make active, critical contributions to each of these controversial topics. The same is true of the recent resurgence of work in artificial general intelligence.

Early explorations of artificial intelligence systems, producing programs such as Logic Theorist ([Newell & Simon, 1956](#)) and General Problem Solver ([Newell & Simon, 1972](#)), were key to the development of cognitive science. Following several “AI winters” ([Jordan & Russell, 1999](#), p. lxxiv), the pursuit of artificial general intelligence has in recent years aroused not only the enthusiasm of researchers in computational intelligence but also substantial financial backing from some of the wealthiest people on the planet. Both enthusiasm and investment have been fueled by the claim that artificial general intelligence provides the key to human survival and improvement in an increasingly challenging world.

This link between humanity’s future and improving, augmenting, or replacing human intelligence with artificial general intelligence systems should at least raise questions about the ways in which science and politics are entwined in this ongoing intrigue with artificial general intelligence. Distinctive contemporary views and movements, such as effective altruism and transhumanism, certainly coalesce with eugenic thinking not only in their aim of human improvement but also in their appeal to emerging human (or posthuman) technologies to solve the social ailments of the day. Some have recently argued

(Gebbru & Torres, 2024) for the stronger view that the promise of utopia via the pursuit of artificial general intelligence constitutes a new wave of eugenic thinking. Cognitive scientists informed by knowledge of eugenics past and present surely have much to contribute here as well.

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