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The Ethics Behind Eugenics and Genetic Engineering

The ‘control of nature’ is a phrase conceived in arrogance, born of the Neanderthal age of biology and the convenience of man.

--Rachel Carson

The recent growth and progress made within genetics and biotechnology has made it possible for science fiction to become reality. Even today, wealthy parents can choose the sex of their child and soon will be able to select for the likelihood for intelligence or athletic ability in their offspring. The growing prevalence and acceptance of genetic engineering has led scientists to seek focused ways to select for “desirable” traits such as intelligence, physical features, and athletic abilities. However, in doing so, they raise many ethical concerns revolving around these so-called “designer babies.” While these technologies have already showed immense promise in warding off debilitating genetic disorders, there are also many potential threats. If we are able to specify the traits we want for our children, as we would specify what traits we want in say a toaster, what prevents a child from becoming a commodity? Also worrisome is the risk of exaggerated class separation. Emerging biotechnological techniques are too costly for anyone but the wealthy; if only the well off can afford these therapies, then what prevents even further segregation between the rich and the poor? And who is to say that by selecting for certain traits that we think are beneficial, we

aren't really hurting our gene pool? As this complex issue continues to evolve, and scientists continue to push the limits of what they can accomplish, it will become increasingly important that we address these pertinent questions.

Eugenics social philosophy aims at improving hereditary traits in humans by promoting reproduction by people with "superior" traits and reducing reproduction by people with inferior traits. The eugenics movement, first coined by Sir Francis Galton, scientist and Charles Darwin's cousin, has a long and complex history (Fernald 3). In 1850 upon reading *Origin of Species*, Galton concluded that "Natural selection is thwarted by human civilization" in our protection of the "weak", and that "genius and talent" were heritable traits (3). Around the same time, the Anglo-Saxon majority in the US began attributing the large percentages of eastern and southern European immigrants among criminals, prostitutes, slum dwellers, and feebleminded to biological factors (Kelves 2). Afraid of being out-reproduced and worried that the quality of the American population would suffer as a result, eugenic measures were implemented. One notable example of "positive eugenics" in America was the Oneida Community founded in 1848 by John Humphrey Noyes (Fernald 5). The community emphasized perfectionism and "complex marriage" with the goal of creating offspring with the best qualities. "Negative eugenics," however, more typically characterize the eugenics movement. Aspects of Nazi Germany, specifically genocide and "ethnic cleansing", were based upon previously existing US programs (Kelves 4). In 1907, the first eugenics based compulsory sterilization law in the world was passed in Indiana, which stated that the "feebleminded" or mentally ill could be forcibly sterilized to prevent them from passing on their defective genetic traits (4). Many minority women were also sterilized against their will, often without their knowledge while they were in the hospital for other reasons (Davis 1). State laws prohibiting marriage and forced sterilization of the mentally ill were even upheld in Supreme Court.

In *Buck v. Bell* (1927), Justice Oliver Wendell Holmes ruled in favor of the forced sterilization concluding with his infamous line, “Three generations of imbeciles are enough” (Justia 1).

The eugenics movement can also be seen in Stanford’s past. David Starr Jordan, Stanford’s first president, was an avid ichthyologist and eugencist. In his book, *The Blood of the Nation* (1902), Jordan suggests that “a race of men or a herd of cattle are governed by the same laws of selection” and proposes that when the fit, brave, and strong are sent to battle to die, the weak and “unfit” remain home and reproduce. It is the offspring of these individuals who, in turn, compose the future character of the nation (Engs 2). Also notable was Lewis Terman, head of the psychology department at Stanford in 1915 and the creator of the Stanford-Binet IQ test (Fernald 4). Not only a member of the Human Betterment Foundation, a eugenics group promoted and enforced compulsory sterilization laws in California, Terman also wrote avidly on the heritability of intelligence.

Given the shady history and negative connotation associated with eugenics, many have been hesitant to entertain the capabilities of new technologies. Yet, we are already implementing measures that allow us to alter the composition of the human gene pool. The most prevalent example is sex determination, which is either done one of two ways—pre-implantation genetic diagnosis (PGD) or “sperm sorting”. PGD consists of fertilizing eggs in vitro and testing the eight-cell zygote for sex as well as a variety of debilitating genetic diagnoses. While few couples undergo the trouble and expense of PGD, which runs anywhere from 15K to 20K, it is still a highly reliable mode of determining sex, boasting near 100% reliability (“What is PGD”). A much cheaper, but less reliable option is “sperm sorting”, a method originally developed for the artificial selection of cattle. “The Genetics & IVF Institute, a for-profit infertility clinic in Fairfax, Virginia, offers a sperm-sorting technique that makes it possible to choose the sex of one's child before it is

conceived. X-bearing sperm carry more DNA than Y-bearing sperm, and a device called a flow cytometer can separate them” (Sandel 3).

The ability to select for a particular sex has raised some objections. A few hierarchical and male dominated countries have substantially upset the sex ratio in some regions by aborting “undesirable” female fetuses. In China, there are approximately 120 boys for 100 girls; and in parts of northern India, there are 140 boys to 100 girls (Krasny). Some believe that the lack of female influence in these skewed sex ratios could lead to less stable, more violent societies. Due to these worries, the Genetics and IVF Institute has implemented a safeguard against gender favoritism called “family balancing” meaning that the procedure will only be done for those who already have one or more children of one gender and want a child of the opposite gender (Talbot). Yet, regardless of these minor defenses against a skewed sex ratio, being able to choose something as critical as the gender of one’s child opens a Pandora’s box of ethical issues. A family may want a demure little girl and request a girl through sex selection therapies; yet, if they end up with a spitfire tomboy, they may end up having a bit of buyers’ remorse. Being able to choose gender is only the first step in being able to choose characteristics. Soon, it is expected that parents will be able to choose height, hair and eye color, and the likelihood for higher intelligence and athletic ability.

Sex selection, however, was originally intended to be a way to screen for sex-linked diseases. However, overtime sex selection has been implemented for a variety of nonmedical reasons. One of the most recent controversies in 2002 involved a deaf lesbian couple that opted to conceive a deaf child through sperm selection (as opposed to true genetic engineering) in order to better fit in with their lifestyle (Savulescu). The incident led people to ask first, is deafness a disability or rather a source of community, language, and identity? For that matter, what defines a disability and at what point in severity do we get to choose to select against the trait? Assuming it

became possible to select for traits beyond sex, would it be morally reprehensible for a dwarf with achondroplasia to want a child of short stature? Depression and ADHD are recognized as mental conditions with clear biological underpinnings yet both have varying degrees of severity. At what point in that spectrum does it become acceptable to select against these traits? Secondly, what rights do parents have when it comes to the genetic fate of the child? More than just arguing about what criteria constitutes a disability, wanting to choose certain characteristics has led to a debate if genetic engineering falls under the very American concept of freedom of choice. The individual's right to choose to reproduce is already protected under US law in *Roe v. Wade* (1973), but within certain limits. Perhaps rather than asking if we should be genetically engineering at all, we should be asking what limits should be imposed to ensure the society is kept in tact and the child is protected.

Two other main American values that strongly advocate genetic engineering are competition and consumerism. In *The Over-Scheduled Child: Avoiding the Hyper-Parenting trap*, psychiatrist Dr. Alvin Rosenfield argues that the intense pressure placed on children to succeed is characteristic of parenting today, and that competition to succeed later in life is engrained early. This competition goes hand in hand with consumerism in America. In cyclical patterns, we compete fiercely to be able to consume, presumably to consume better-quality commodities than our peers. However, we also need to consume things that give us an advantage in competing; examples include SAT preparation courses, athletic lessons, and private education. The ethics of choice and consumerism are so deeply engrained in the American psyche and politics that any view that challenges this underlying ethic is considered a threat to our civil liberties, and therefore a target. By opting for "designer babies," parents are simply conforming to selection pressures for the traits marked out by our society. This consumer mentality of choosing desirable traits would commoditize children. If

parents are able to choose what kind of characteristics their children will be predisposed to, then parents will be choosing the traits of their child as they would choose features in a car (Miller). Accepting one's child for who they are, regardless of their gender or flaws, is what makes the bond between a parent and child so strong (Krasny). By choosing aspects before the child is born, parents begin to commoditize their children and choose to reject the flaws in their children even before life begins. As PGD runs well into the range of \$20,000, the issue of accessibility must be considered. If only the wealthy are able to choose "desirable" qualities for their children, then the disparity between the rich and the poor will only continue to grow. Genetics will simply become another advantage wealthy children have over their less fortunate peers. It is no secret that society is kinder to those who are intelligent, good looking, and athletic. As time progresses, and the number of enhanced children increases, Michael Sandel suggests in "The Case Against Perfection" that the two classes may further evolve into "the enhanced and the merely natural" creating an entirely new form of discrimination.

All of the potential dangers inherent in genetic engineering suggest that scientists should be wearier of the unknown consequences. Yet, in some respects, parents are already selecting for nonmedical traits like race, height, weight, and intelligence through sperm banks. In the 1980s, tycoon Robert K. Graham founded the Repository for Germinal Choice, a sperm bank for Nobel Prize winners, with the goal of creating more geniuses to populate the world (Krasny). Though it was not very successful, it provides a good example of modern eugenicist theory in practice. The urge to continue exploration is the result of the driving American forces already mentioned as well as the lingering question, "how much better could our lives be if we took evolution into our hands and focused it?" As human beings, we want to conquer nature and manipulate it for the betterment of the species. However, we do not have the wisdom to direct the course of evolution. By selecting

for intelligence we may also be selecting for sociopathy; the underlying mechanisms behind intelligence and behavior are not understood well enough for scientists to start playing God. In addition, selecting for traits that seem desirable in a highly efficient manner would inevitably reduce the amount of genetic diversity. This could be detrimental to the entire species if genetic engineering was adopted on a widespread scale. For example, sickle cell anemia, though it can be detrimental, is a key defense in malaria-stricken areas. If the mutation was not present in the gene pool, then hundreds of thousands more people would die of malaria. Therefore, we should embark carefully on this human variation of artificial selection.

This age of new eugenics and genetic engineering makes humanity vulnerable to hubris. On one hand, genetic engineering offers the greatly reduced occurrence of genetic disorders, the chance to better the species as a whole, and avoids the negative connotations associated with old coercive eugenics that characterized the 1920s. It is a natural human tendency to strive for control over the unknown. However, it seems that until we have reliable data that can predict the potential consequences of genetic selection, we should not be playing god by selecting for “desirable” traits. It is often said that ethics simply cannot keep up with scientific advancements. The potential good genetic engineering could bring supports continued research; however, the topic should be approached carefully and with future possibilities in mind. Privatized, free-market eugenics have the potential to erode norms and ideals; and parents should strive to accept their children as they come. The use of genetic technologies for health purposes as opposed to aesthetics and competitive edge should be implemented to better the lives of the children. Our own selfish desires to see our child succeed and brag about them with peers should not be the main motivator. While choice has its merit and its place in American society, there are laws to ensure that the well being of the citizens is paramount. Personally, I approached this topic with a very supportive stance on the

development of genetic engineering, but upon the completion of this discussion, I now favor a more conservative approach. This topic will only continue to grow more complicated as new developments arise, and as each issue is approached, I hope that ethics rather than scientific ambition are emphasized.

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