

LIBERAL ENHANCEMENT

AND THE FUTURE OF SOCIETY

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Contents

Introduction	3
An Unfair Advantage	6
Genetic Wealth	8
Pharmacologically Induced Equality.....	9
Dignity and Discipline	12
Human Competition	18
A New Standard	20
Soma	22
Liberal Enhancement.....	23
An Economic Divide	25
The Impending Change	26
Therapy, Enhancement, and Identity	32
Merit and Society	33
Excellence	35
Works Cited.....	36

O Me! O Life! (Whitman)

*O me! O life!... of the questions of these recurring;
 Of the endless trains of the faithless – of cities fill'd with the foolish;
 Of myself forever reproaching myself, (for who more foolish than I, and who more faithless?)
 Of eyes that vainly crave the light – of the objects mean – of the struggle ever renew'd;
 Of the poor results of all – of the plodding and sordid crowds I see around me;
 Of the empty and useless years of the rest – with the rest me intertwined;
 The question, O me! So sad, recurring – What good amid these, O me, O life?*

Answer:

*That you are here – that life exists, and identity;
 That the powerful play goes on, and you will contribute a verse.*

Introduction

What if I offered you a drug, a chemical substance that you could consume for a dirt cheap price to enhance your skills every day? What if this drug made you a more productive person? Made you more aware and alert, a faster thinker, better focused, and even more coordinated. What if its effects were so noticeable, that your employer started offering it to you for free just so that you could be a better worker? What if this drug became so popular that people started taking it recreationally, out with friends, alone, or on a date? Now of course there would be side effects, including addictiveness, but this drug could be huge. It would give you capabilities beyond your normal bodily function; it could enhance you. Would you take it?

In fact, this drug exists today. And it has become so popular among users that they've even given it a friendly nickname. But instead of Mary Jane, or Lucy in the Sky, they call it: a cup of Joe.

Caffeine was first believed to be discovered as a naturally occurring stimulant in A.D. 800 by Kaldi, the now notorious Ethiopian goatherd. Legend has it that Kaldi observed his goats excitedly hustle to and from a particular cherry shrub. Curious, Kaldi devoured a few of the cherries himself (the bean is the oversized seed inside) and soon thereafter and forevermore, his hitch had a little extra giddyup (National Geographic Society). Today nearly 60% of Americans get their morning kick from this performance enhancing drug.

But caffeine from coffee is not nearly the only enhancement that humans have been benefiting from. Alcohol in its many forms is consumed to enhance social bonds. Cigarettes are smoked to ingest nicotine for its own stimulant effects. Vaccines are received to guard against future infection – an immune system enhancement. Anesthetics are used to contain the normal functioning of pain in the human body to facilitate surgery. LASIK can correct corneal shape to achieve beyond 20/20 vision. And oral contraception gives women the ability to choose if and when to initiate pregnancy. These enhancements have been available for decades, but they are merely the preface to a future capacity of human achievement.

For millennia, humans have widely distinguished themselves from the rest of the biological community by their ability to enhance their environments. While other creatures are surely capable of this on a small scale – like building a nest or forming a herd for protection – *Homo sapiens* change their environments like it's nobody's business. And their reasons are most obvious – changing one's environment serves to accommodate a better life. People wear clothes to stay warm, build houses for shelter, and construct roads for travel. They gather in schools to educate and in governments to enforce their conceptions of justice. Human ingenuity has changed the earth and the skies in countless, incredible, and sometimes unimaginable ways so that people may enhance the condition of their lives.

Today, in 2012 A.D., the human race is in an extraordinary position of control, especially within developed countries like the United States. Life expectancy and literacy rates are at an all time high. Human rights are emphatically enforced and wealth continues to increase. Most Americans own cars, phones, televisions and computers. And health-care – to those who have access – is growing in its ability to manage or cure even some of the worst ailments. It seems as if the possibilities for a better life are endless. But no matter how great life has become today, and no matter how great it can be in the future as people continue to modify their environments, there will always be unsolved problems. Some of these include the misfortunes of cruelty, illness, involuntary death, prejudice, and unnecessary suffering, but also missed opportunities such as diminished creativity, ignorance, inferior imagination, memory loss, and general unhappiness. These will always be inevitable obstacles if humanity sticks to a path of change on a purely external level. But these misfortunes are not necessarily inevitable. That is, they are not inevitable if the modifications people adopt go beyond changing their surroundings. The change must come from within. People must change themselves. Humans must be enhanced.

The benefits of enhancement could be tremendous: longer, healthier lives, Einstein-like intelligence, Earhart-like persistence, da Vinci-like inventiveness, Bolt-like athleticism, van Gogh-like artistic mastery, and Thatcher-like resolve for all; in short, the end of impotence and an era of inconceivable fertility. But even with the potential that enhancement offers, many critics are determined to hold back humanity and outlaw pharmacological, genetic, and all other interventions that could be potential paths for human enhancement. They claim that enhancements would fundamentally alter the identity of the user and in the process assault the dignity of human activity. By attempting to define enhancement as intervention beyond therapy critics prescribe a “normal” as what humanity should be, failing to understand what identity is

and overlooking the potential of enhancement to raise mankind to an inconceivable level of excellence, both as individuals and as a society.

An Unfair Advantage

In 2008 Oscar Pistorius, a South African paraplegic sprinter was ruled ineligible to compete in international sports by the International Association of Athletics Federation – not because he lost his legs at eleven months old, but because of the carbon fiber prosthetics that replaced them. The maker of prosthetic, Össur, describes its product as “a custom-built, high performance carbon fibre foot designed primarily for sporting activities” (Össur). In other words, Pistorius was disqualified because modern technology gained the ability to replace his biologically inefficient legs with a lighter and better performing abiotic model. His new Cheetah Flex-Foot legs had made him “too enabled” to compete in international sports. “With all due respect,” explained Elio Locatelli, member of the IAAF, “we cannot accept something that provides advantages. It affects the purity of sport. Next will be another device where people can fly with something on their backs” (Draper). Perhaps Locatelli misspoke when he suggested that allowing Pistorius to compete would lead to flying in a running competition, but his comment brings up a valid question: do carbon fiber legs give Pistorius an unfair advantage?

An answer to this question and others like it was offered by the President’s Council on Bioethics in 2003. Led by Dr. Leon Kass, the President’s Council on Bioethics was created by George W. Bush by means of executive order to examine the coming ethical challenges of biotechnology. In effect, it provided a presidential pulpit to voice conservative objections to enhancement in a public report titled *Beyond Therapy*. On the issue of performance with enhancements, Kass et al. posed a number of questions to be answered:

As we discover new and better ways to ‘improve’ our given bodies, minds, and performance, are we changing or compromising the dignity of human activity? Are we becoming too reliant on ‘expert chemists’ for our achievements? Do such potential enhancements alter the identity of the doer? Whose performance is it, and is it really better? Is the enhanced person still fully *me*, and are my *achievements* still fully mine? Have I been enhanced in ways that are in fact genuinely *better* and *humanly* better? (Kass 105).

In addressing these queries, Kass et al. offer their own narrative of human achievement to guide their answers. Namely, they describe a characteristically Calvinist narrative of human progress: the way to one’s salvation and prosperity is now and should always be by none other than one’s own sweat and toil. And to a large extent, this is the ideal of achievement adopted by many Americans, ever present in the rags to riches stories hashed and rehashed almost daily by our most prominent politicians. But, as many discover, the “pulling yourself up by your bootstraps” ideal doesn’t always work how it’s imagined.

In regards to the amputee runner, the problem is that not only does he not have bootstraps, he doesn’t even have legs! If the ethic of achievement proposed by Kass et al. is followed, then Pistorius’ achievement is not his own if he can’t compete in the body he was “given”.

A number of issues with this ethic seem evident. First, Pistorius wasn’t “given” no legs – they were amputated because of a birth defect. Second – even if Pistorius did have legs, what do *inherited* assets have to do with one’s own toil?

Genetic Wealth

Though Shaquille O'Neil surely worked hard for much of his life to become a basketball star, there's general consensus that Shaq wouldn't be in the NBA if he wasn't 7' 1'', or at least somewhere close to that height. After all he missed more than 5000 free throws during his career, one of only two players to break such a record. According to the measure of achievement assumed by Kass et al. however, Shaq's star status was surely an accomplishment of his own. Furthermore, this ethic implies that anyone who didn't reach Shaq's status fell short because they didn't work hard enough. If only they had missed more free throws...

Obviously Shaq's height gave him a major advantage over most other NBA players, but it's important to point out that it also gave him a major advantage over every boy who ever dreamed of playing basketball and didn't have that same advantage. The average NBA player is 6' 7'', and only 6 players have been shorter than 5' 10'' in the league's history (TopTenz). This fact alone disqualifies half of all men from ever competing in professional basketball, since 5' 10'' is also the average American male height. Even more, the fact that Shaq was born a male provided him a necessary convenience that every girl who has ever wanted to play in the NBA can never overcome. This introduces an uncomfortable truth for a capitalist society that aims at meritocracy: that people are often rewarded for success that results from gifts, and not of one's own doing.

Looking back at Shaq, maybe his stardom and wealth is a result of his own hard work, but only in comparison to other healthy 7' 1'' males who were surrounded by basketball as youths, not to mention any other inherited and environmental factors that may have played a role in his success. It is important to speak of this point, not to rob Shaquille of his accomplishments,

but to identify the problem that at least 75% of everyone who ever dreamed of playing in the NBA was robbed of that ambition just by mere coincidence. Their dreams were crushed simply because they didn't inherit the specs to put them on the same playing field. They could not become the person they dreamed of being simply because of an arbitrary beginning.

Why should this be so? How is justice served when we submit to biological inequality? What is the alternative?

One way to solve this problem might be to level the playing field by creating separate leagues for players of different heights and genders and force ESPN to air each league an equal amount. But one among the many problems with this solution is that the bar of achievement would be lowered for most players. Enhancement, on the other hand, has the potential to be a comprehensive alternative to this problem while simultaneously raising the bar for all players. To see how this may work, enter the realm of ADHD and college competition in the 21st century.

Pharmacologically Induced Equality

For students with attention deficit hyperactivity disorder (ADHD), a fair playing field has been actualized with the invention of Ritalin, Adderall, Concerta, and a host of other psychostimulant drugs. Almost 9% of American children met the medical definition of ADHD and about a third of those are receiving medication to combat the affliction (Reinberg). And while the President's Council on Bioethics mostly objects to pharmaceutical intervention to combat behavioral disorders in children, they do not deny the troubles of the disease and success of treatment by means of prescription medication:

These children frequently suffer greatly (as do their parents), especially as a result of failures in school, disruptions at home, and the negative responses their behavior generates from teachers, peers, and family members. Caring for them is often an ordeal, affecting everyone in the vicinity. Fortunately, the symptoms comprising ADHD respond well to prescription stimulants such as Ritalin (methylphenidate) or Adderall (amphetamine). For the worst cases, these drugs have proved a godsend, rescuing many a child from failure in school, trouble with authorities, and general shame and opprobrium. In the great majority of children diagnosed with ADHD, stimulant drugs (frequently used in combination with non-medical efforts to alter behavior) have apparently succeeded in enhancing focus and attention, calming disruptive behavior, and improving performance at school. Moreover, their use by children also appears to be safe, non-addictive, and free of major side effects (Kass 74).

Undoubtedly, the pharmacological solution aids students who suffer from ADHD. But lately a new trend on college campuses has motivated discourse on the distribution of psychostimulant drugs. Though actual statistics are hard to come by, anecdotal evidence abounds with stories of growing use of such drugs by college students, namely those who are not affected by ADHD. In particular, students at more competitive Ivy League schools report exploding usage of the drugs as “study buddies” at rates as high as 25%.

One student – untroubled by ADHD – described to an NBC News reporter of her desire for stimulants: “When I’m on Adderall and I’m looking at the textbook I can forget about everything else around me. I figured if everyone else is doing it, why shouldn’t I get the advantage?” (Carroll). In other words, this student and millions more like her are taking these drugs because they can give anyone a boost. And as more and more students take the drug,

competition rises and, following this new pharmacologically induced norm, taking the drug becomes necessary to enhance cognitive ability to focus up to a certain base level.

Use of Adderall has increased so greatly, in fact, that a shortage of the main ingredient in 2011 prompted an executive order in December of that year to increase the allowed dispense figure by the DEA. But just three months later, by March 2012, the increased dispense figure proved a short-lived relief and a new shortage ensued that sent even prescription holders scrambling for access to the drug (Watkins).

Regardless of whether students actually need the drug – regardless even whether or not they have a prescription so that they may consume the drug legally – the result of this new widespread use on college campuses is a leveling of the playing field among users. While a student without ADHD who takes psychostimulants benefits from the drugs, she does not benefit merely as much as a student that takes the same drug but is diagnosed with ADHD. Furthermore, just because a student takes more of any of these drugs does not mean that she will always benefit from a higher dose. Just like coffee, every person has a maximum effective dose, and any amount over it will cause too much stimulation and in fact cause more problems than it can treat. The benefits then, have to be balanced against the costs. In other words, all students who take psychostimulants will level off on how much their body can use effectively and safely. Theoretically then, all users could be brought up to the same playing field in their ability to focus on their work.

So why shouldn't people be consuming these drugs like they consume caffeine as long as they are "safe, non-addictive, and free of major side effects"? After all, both caffeine and amphetamine are stimulants capable of increasing focus and improving work efficiency. The

questions and subsequent response offered by Kass et al. suggest a number of critiques on this matter. Most critically, they believe that enhancement compromises human dignity and overshadows the achievements of the doer.

Dignity and Discipline

Many voices stand with Kass et al. in opposition to enhancement on the basis that it masks identity and so diminishes human dignity. In 2002, George Annas, Lori Andrews, and Rosario Isasi published an article containing a mock treaty that they proposed should be adopted by the United Nations. They believe that a person's DNA is the most fundamental unit of his identity. They reject any effort to alter the genetic content of people, therefore, for fear that a change in the identity of individuals would correspondingly affect what it means to be that person. While a genetic alteration is different from pharmaceutical intervention, both groups stand to oppose enhancement because they claim that changes in populations of people would change what it means to be human:

[I]nheritable genetic alterations can be seen as crimes against humanity of a unique sort: they are techniques that can alter the essence of humanity itself (and thus threaten to change the foundation of human rights) by taking human evolution into our own hands and directing it toward the development of a new species, sometimes termed the 'posthuman'. (Annas, Andrews and Isasi 153)

They reject genetic alteration then, because they perceive it as a loss of dignity in humanity and for fear that it could destroy human rights. Their basis of reasoning is that people have "human" rights because they are human. This doesn't *seem* to be a farfetched conclusion since the only

people the human race has encountered are human, but the reasoning quickly falls apart with a couple of hypotheticals. Imagine a future date when people may populate more than one planet, and so be separated into two populations and eventually evolve into two distinct species. Would one of these species lose their “human” rights? Or perhaps imagine that a peaceful, intelligent race of aliens descended on our planet. Would they not be afforded the right to life? Or instead imagine if chimpanzees or dolphins eventually developed well functioning rationality and an ability to converse with us via our own language. Wouldn’t it thus be unjust to jail them in our zoos? Or, to venture back to enhancement, if a human being was so significantly altered that they were not able to procreate with other humans, would they still have “human” rights? The threat as Annas et al. see it, is in leaving human exceptionalism. Admittedly, it is quite hard to imagine a time when “humans” will no longer be the most intelligent species – the most excellent.

It is important to note that we call these rights “human” rights because we are the only species with cognitive faculties that exceed a certain minimum capacity. While Annas et al. predict that a “posthuman” would “likely view the old ‘normal’ humans as inferior, even savages, and fit for slavery or slaughter,” (Annas, Andrews and Isasi 162) their reasoning completely blunders this logic behind “human” rights. We afford “human” rights to all people regardless of cognitive function because they have, or could potentially have, a certain set of abilities and therefore deserve a certain level of respect and rights. Moreover, in the United States, citizens – with the exception of felons – have rights that go beyond basic human rights such as the right to free speech and expression, the right to bear arms, the right to privacy, and the right of habeas corpus because Americans believe that citizens should be free to make their own decisions in most private matters. Rights, then, are afforded regardless one’s ability to read or write or accomplish complex tasks. Because this is so, it is hard to imagine how human

beings, as they exist today, could ever be denied “human” rights, regardless of how they measure on a scale of intelligence in comparison to other individuals.

Furthermore, what Annas et al. fail to realize is that slavery and slaughter occurred in the past – and still do today in some places – because “human” nature is faulty. Human nature is being confused with human excellence. Human nature is composed of the attitudes and proclivities that are characteristic of *Homo sapiens* as a result of natural selection. In this way, human nature is distinct to a particular rational species. Human excellence, on the other hand, is composed of the qualities of humans that are cherished by society. However, while natural selection has laid the foundation for human excellence, it has also bound it within the limits of human nature. As such, excellence is universal and not necessarily specific to *Homo sapiens*, though it is often referred to as what makes a person “humane”.

To return to the argument by Annas et al., slavery and slaughter never have been and never will be justifiable actions and any occurrence of these godforsaken events was because *humans* were lacking rationality and full of barbarism in their decision making. While barbarism has sometimes been an unfortunate characteristic of some humans, it is not a “humane” quality. Rationality on the other hand, is undoubtedly a “humane” quality. If enhancement offers a way to eradicate barbarism and elevate rationality, then the result would in fact be the elimination of the barbaric proclivities that materialized in humans by coincidental means of natural selection and so “humanize” the enhanced. Though education already works towards this end today – bringing out the humanity in people – enhancement could do it better, faster, and indefinitely.

But were this solution to be adopted, a puzzle arises: if people are enhanced by receiving genetic treatment or by taking particular drugs, will they become too reliant on their

enhancements and lose out by avoiding the struggle that some face in countering their harmful proclivities? In other words, would enhanced people be worse off because of a lack of “moral education”? Kass et al. compound this criticism by pointing to the case of the previously mentioned psychostimulants:

By slowly learning to master his or her impulses, a child not only comes to behave well, but also learns to exercise genuine self-control and some degree of self-mastery. The child grows more mature. By treating the restlessness of youth as a medical, rather than a moral, challenge, those resorting to behavior-modifying drugs might not only deprive that child of an essential part of this education. They might also encourage him to change his self-understanding, by coming to look upon himself as governed largely by chemical impulses and not by moral decision grounded in some sense of what is right and appropriate (Kass 92).

These critics believe, therefore, that 1) enhancements change a child’s understanding of themselves as being controlled by something apart from their own rationality and 2) enhancement would create a certain hazard regarding discipline.

A detailed response to the criticism by Kass et al. on the dangers of children looking on themselves as “governed largely by chemical impulses” will be offered following the discussion of performance and sport. But a preliminary criticism is offered as question that must be asked in return: What pubescent teen doesn’t *already* view him or herself as governed by chemical impulses?

Because the enhanced would dodge the hassle that some problems create, Kass et al. fear that they might miss out on learning how to control their own bodies. To best demonstrate why

this is a non-issue, a hypothetical will help clarify what Kass et al. are claiming and how they miss the issue of what is really being deprived from such children. Imagine three people that as adults have the same degree of focus, though were born with varying degrees of ability to focus. The first, Albert, was born with most or all of the focus he ever needed. The second, Bob, was born with little focus and struggled greatly throughout his childhood and beyond to acquire the degree of focus that Albert has. The third, Charlie, was also born with little focus but has taken Adderall since childhood to reach the same degree of focus as Albert. Now according to Kass et al., as long as the three have the same degree of focus in the end then the “most successful” of these three is Bob because he received a more complete moral education. Furthermore, they might even assert that Albert and Charlie are now at a disadvantage because they didn’t have that experience. Upon deeper examination, however, it becomes clear why it is in fact the other way around.

By including Albert to compare against Bob in the example is to demonstrate a situation of inherited genetic wealth. It’s hard to see how Albert is at a disadvantage in comparison to Bob just because he was born with a certain capacity that Bob was not. There are three important reasons for this: First, just because Albert did not receive a moral education in the same way Bob did does not mean that Albert did not receive a moral education. There plenty of other qualities that are generally considered to be ruled by self-control and require a certain discipline in order to mature. These include control of focus, emotions, and desires. While Albert may not have experienced his moral education by struggling with focus, he may just as well have learned discipline in his struggle with emotional control. There is no difference between the disciplines that result. Second, while Bob was struggling to overcome an inherited problem, Albert was freer to accomplish the goals he wanted for himself. A child – even an adult – that truly struggles

with focusing, not only loses much valuable time in trying become more disciplined to achieve the level of focus that Albert has, but he/she is also likely to make innumerable mistakes during their struggle that impede other learning that really does count. Bob then, is at a loss because he was hampered by a coincidence not of his own fault. Finally, imagine a similar situation in which there is a fourth individual, David, who has an incredible capacity to focus his attention. If Albert and Bob are in competition with David, Albert may at least stand a chance to compete at the same level as David. Bob on the other hand, may never stand a chance to succeed in David's shadow. And again, this would be by no fault of Bob.

Enter Charlie, an individual who inherited the same degree of focus as Bob but chose to combat the problem with his doctor and a prescription of Adderall. Under the watchful eye of his doctor, Charlie safely benefited from a drug that almost immediately brought him the same focus as Albert. Charlie then, experienced the same moral education that Albert did, except that Charlie likely had to learn how to combat any minor side-effects that may have accompanied the drug – a moral education of his own. Charlie, like Albert was freer to accomplish the goals he chose for himself by avoiding a prolonged struggle with disciplining his focus. And if Charlie (or Albert for that matter) desires to compete with David, he is only a doctor's visit away from leveling the playing field. This way, it can be seen that pharmacological intervention to address self-control is no different ethically than a person's inherited self-control. Enhancements therefore, are not in danger of destroying discipline and ruining a moral education. Instead they offer an escape from the unnecessary struggle of arbitrary, coincidental, inherited symptoms.

Human Competition

This suggestion however, begs the question: if Charlie then goes on to find great success in life, is his success a result of his own doing or is it a result of the drugs he took? A useful tool for investigating this question is sport. As IAAF member Elio Locatelli explained about the decision not to let the enhanced amputee compete in athletic competitions, it would have been against the “spirit of the sport”. But what is this spirit?

When humans train animals for competitions, the bar of excellence is clear. Competitions involving animals purely test biological potential. Horse racing breeds the fittest horses; the training is aided by their human masters, but the competition mostly comes down to the inherited physical fitness of the animal. With human competition in sport however, it’s a whole different story. The most successful athletes are rational persons within fit bodies. They make their own decisions on dietary and time management matters. The performance of athletes is therefore determined not just by inherited fitness but also wisdom in shaping their own biology. They are the products of their choices because they may choose what kind of athlete they want to be. In an article titled “Why We Should Allow Performance Enhancing Drugs in Sport” for the *British Journal of Sports Medicine*, philosophers Julian Savulescu et al. explain this distinction between human and animal sport:

Human sport is different from animal sport because it is creative. Far from being against the spirit of sport, biological manipulation embodies the human spirit – the capacity to improve ourselves on the basis of reason and judgment. When we exercise our reason, we do what humans do (Savulescu, Foddy and Clayton 667).

Sport is not simply a physical competition. The winner of competitions is generally the individual with the strongest combination of genetic potential, training, psychology, diet, and judgment. With these considerations, it becomes clear that winning requires the most acute management of one's biology. So how would enhancements ruin the spirit of the sport?

Even in body builder competitions with little to no drug testing, success relies not on how many drugs one takes, but on how one incorporates drugs into their training. While the individuals in these competitions surely gain an advantage over any unenhanced athlete with the use of steroids and other performance enhancing drugs, they must still seek ways to gain an advantage over *each other*; they compete against other enhanced individuals. While it is undeniable that many of the drugs these body builders take are often unsafe or damaging to their health, the drugs level the playing field in terms of biological potential and so diminish the role that genetic inheritance plays in determining excellence. In this way, unrestricted body-building is arguably the fairest sport of all – because only there does the competition come down to each individual's own toil.

There are quite a few current movements seeking to allow athletes to use certain drugs, provided they are safe, in international competitions because they believe that it would make sports fairer. Athletes, with the help of performance enhancers, could gain more control over their own bodies and therefore more able to align with their own desires. In fact, classical musicians already commonly follow this revolutionary ethic – that enhancements can better help individuals become the people they want to be.

Beta blockers, such as Paxil, are commonly used to treat disorders such as depression and anxiety. Like most people, musicians experience anxiety when they are faced with performing in

front of large crowds. As a result, many professional musicians obtain prescriptions for Paxil that they take before major performances. “Although elite classical music is arguably as competitive as elite sport, and the rewards are similar, there is no stigma attached to the use of these drugs. We do not think less of the violinist or pianist who uses them. If the audience judges the performance to be improved with drugs, then the drugs are enabling the musician to better express him or herself more effectively” (Savulescu, Foddy and Clayton 667). Paxil helps musicians avoid errors that are associated with social anxiety. It gives performers the chance to be the performer that they wish to be and sets the stage for true individualistic expression.

No one could argue that an athlete’s consumption Gatorade blurs the lines of achievement for competitors. Nor should anyone argue that Tiger Woods’ receiving laser eye surgery to obtain above average vision is a violation of the “spirit of the sport”. Consuming Gatorade and undergoing LASIK absolutely enhance the performance of athletes, but they don’t give anyone an unfair advantage because every athlete is free to do the same. So why should we hold back using other, better enhancements as long they are safe and everyone has access?

A New Standard

The objection by the President’s Council on Bioethics to this question is simple and certainly worth addressing: “Along with the freedoms bequeathed by the new technologies comes a certain danger of social coercion and tyranny of public opinion” (Kass 56). Kass et al. imagine a world where freedom to enhance oneself will, by extension, compel everyone to enhance themselves in order conform to shifting social standards.

There is, of course, no denying this fact. Especially in a capitalistic society with strong competition for positions in schools and jobs, there is always shifting in norms that must be followed in order for people to keep up. For instance, the explosive rise in college attendance is sparked by this very fact. A college degree is considered necessary for an increasing number of jobs in America today, not necessarily because the extra education is required but because other people applying for the job also have a degree. There is even a stigma towards recent high school graduates who don't follow a collegiate path. In this way, social and economic pressures essentially mandate a college education whether an individual needs it or not.

While social and economic pressures have come to coerce individuals to make decisions throughout human history – such as going to school or keeping a certain level of cleanliness – it has never applied to pharmaceutical (or genetic) intervention. The reason was mostly because there were no drugs available that could give anyone enough of an edge so as to be able to compete on a whole different level. For example, though most coffee drinkers swear that they couldn't even get through the day – not to mention get a day's worth of work done – without their morning cup of Joe, those who don't drink coffee hardly encounter trouble competing with them. The caffeine enhancement effect is so minimal that the playing field is only slightly changed, if at all. The same has held true for all enhancements, at least, that is, until the rise of psychostimulants. Many college students, like the aforementioned girl interviewed by NBC, are beginning to feel the pressure to take such drugs just so they can compete. And because more and more adopt this trend every year, many non-users are becoming more aware of their limitations unlike their non-coffee-drinking counterparts. As science and technology advance, the number of enhancements available for use will soon explode and their pull will be undeniable. This is where the world stands today: on the cusp of a biological transformation

where everyone will soon be facing such decisions. *Will you take the red pill or the blue pill? Or will you take no pill at all?*

Soma

Aldous Huxley's *Brave New World* paints a picture of enhancement that begets a homogenized, tyrannical, communist-like dystopia. But the future of enhancement is so radically different from this scenario that it's almost not worth rebutting. However, Huxley's dystopia is important to examine precisely because it is at once so right and so wrong. One of the centerpieces of the dystopia that embodies this contention is the fictional drug known as soma.

Soma is universally and persistently consumed in *Brave New World*, inducing a state of complete complacency – a false sense of happiness. What results is a reliance on the drug to keep people happy and an obstruction of aspirations. Superficial pleasures abound in Huxley's dystopia, because he fears a world in which they might dominate. Philosopher Nick Bostrom, an unapologetic proponent of enhancement, responds to predictions of such a loss of dignity by pointing out the apparent hypocrisy:

Critics of enhancement are wont to dwell on how it could erode dignity. They often omit to point out how enhancement could help raise our dignity. But let us pause and ask ourselves just how much [dignity] a person has who spends four or five hours every day watching television? Whose passions are limited to a subset of eating, drinking, shopping, gratifying their sexual needs, watching sport, and sleeping? Who has never had an original idea, never willingly deviated from the path of least resistance, and never devoted himself seriously to any pursuit or occupation that was not handed to him on the

platter of cultural expectations? Perhaps, with regard to [dignity], there is more distance to rise than to fall (Bostrom, Dignity and Enhancement 19).

The intent of Huxley's novel is, in fact, to show the misfortunes that a drug like soma might create and in the process bring attention to the noble wonders of humanity that are so often overlooked: individualism, agency, freedom, rationality, culture, free-thinking, vigor, emotion, competition, work, and contribution, to name a few. These are many of the characteristics that Huxley illustrated as lacking in the enhanced world but essential to living a "good life". But it is for this very reason – that people know the importance of and enjoy the more noble wonders – that enhancement will lead to their cultivation rather than their destruction.

Liberal Enhancement

The imminence of such dystopia hinges on the control of enhancement by a tyrannical governance. The creation of castes, for instance, is not by individual decision but rather by an other with omnipotent domination. But if enhancement were to be embraced by a liberal society, the decision of whether or not to enhance or how to enhance would not be left to the government, but rather to the people as individuals. The distribution of enhancements, therefore, would be done according to liberal theory, rather than a central command. Just like consumers in a capitalist society choose what they do or don't want to buy, individuals in a world with enhancement would be free to determine which enhancements they wish to adopt. This is how Americans avoid homogenization today and it is exactly how it should be done in the future. The term "should" is used rather than "will" because a future civilization would be just as free to form a command economy at their desire as America is today, but the rationality of upholding liberal theory will remain unchanged.

Rather than homogenization, enhancement would instead lead to a greater variety of human existence because of its profound capabilities to unleash individual choice. Imagine, for instance, how the needs and desires of a student differ from that of a stay-at-home parent. If a student had the capability to change their body they might ask for enhanced focus from psychostimulants but also increased memory capacity, better vision, mood stability, and quicker hands in order to write or type. Even among types of students, the desires would be different. A medical student might wish for faster brain processing in order to read and remember faster, while a creative writing student might wish for greater aesthetic faculties. A stay-at-home parent, on the other hand, might ask for more vigor and energy to deal with children or enhanced proclivity for empathy in order to better understand their children. These differences will lead individuals to seek their own sets of enhancements rather than homogenizing the population.

The power of enhancement is that it enables individuals to pursue their own conceptions of the “good life”. The pressure of “social coercion and tyranny of public opinion” is therefore called into question, because it implies enhancing towards “a best”. But one of the reasons why capitalism and democracy are embraced so enduringly is because of their flexibility and tolerance for pluralism. Citizens of liberal democratic governments are free to develop and live by their own conceptions of what a good life is. Though both the Dalai Lama and Michelle Bachman are well known and successful individuals, their ideas of a good life are almost completely divergent and irreconcilable. Regardless, they are both citizens of liberal democracies and therefore are free to govern their own lives. Just the same would be true in an enhanced world.

An Economic Divide

Other popular media that caution against a future of enhancement include *Gattaca* and *The Island*. More specifically, these films portray a world in which a great inequality precipitates between those individuals who are enhanced and those that cannot afford it. Understandably, this criticism comes from the proverb, “the rich get richer”. They deduce that those who can afford enhancements in the beginning will be compounded in their enhanced skill and money-making ability so that they will be the only ones able to afford the next round of enhancements. This proverb, however, is a criticism of the social structure of a capitalistic society and *not* of technology. Technology, in fact, works the other way around.

Most people have heard of Moore’s Law, the trend in which computational ability both doubles in capacity and halves in cost every eighteen months. What many don’t realize, however, is that this rule applies to almost all technologies *individually* – with different periods of affectivity – and moreover to technology *as a whole*. The invention of each new technology can help in the development of the next technologies – a law of accelerating returns. Moreover, the result of these accelerating returns is decelerating prices for all technologies. In this way, the time delay between when the individuals with the highest income can afford new technologies to when the lower income individuals can afford them gets increasingly smaller.

Alphabetic writing emerged around 5000 B.C., and for most of history since then, written information was almost entirely a luxury of the upper and priestly classes. It wasn’t until 1450 A.D. that Johannes Gutenberg’s printing press made books available to those at the bottom of the income scale – a 6500 year gap. Similarly, while the telephone was invented in 1875, most of the developing world had no access to the technology until quite recently – a 100+ year gap.

Televisions were invented almost 50 years after the telephone, in 1929, but their use in the developing world is just now coming into play – a 70 year or so gap. Personal computers, on the other hand, were only invented in 1977, but now even some of the poorest communities are gaining access – a 30 year gap. The first commercially available cell phone came out in 1983, but by the mid 2000's cell phones overtook landlines as the most common form of communication in dozens of developing nations – a 20 year gap. The most explosive technology so far, perhaps, is the smartphone. In 2010, just under one-fourth of Americans owned a smartphone. By early 2012 however, smartphones comprised nearly 48% of the mobile market – a doubling in only 2 years (Siwicki).

Genetic technologies have followed this same trend. The first sequencing of a human genome cost \$2.7 billion and took thirteen years (National Human Genome Research Institute), but by 2011 it could be done in a few weeks and cost about \$5000 (Markhoff). Projecting this trend out means that the cost of sequencing a persons' genes will be affordable for the vast majority of the Earth's population within the next ten or so years. This trend is in fact consistent across all technologies so that they become exponentially cheaper over time. And in this way, technology has become a vehicle for bridging the economic divide, rather than widening it.

The Impending Change

Though the technologies at the forefront of prophecies for this coming revolution are predictable themselves, imagining their use and effects on society is mind-boggling. The future worlds that many scientists and philosophers have painted are often both so spectacular and divergent in terms of the world today that they might even seem unlikely. Nevertheless, these changes are imminent and should be reflected on today while piecing together their

consequences can be done thoughtfully instead of waiting until these technologies start unfolding without any consideration of how they ought to be used. This exercise is, in fact, the job of an organization spearheading some of the most extravagant change to come: DARPA.

DARPA is an arm of the Department of Defense known as the Defense Advanced Research Projects Agency. While much of the US Military's creations and innovations are headed directly by the individual branches of the Armed Forces, DARPA is responsible for the type of radical innovation that people generally consider outlandish but which, from time to time, pans out to revolutionize the way the military and the world works. The organization was created in response to the launch of Sputnik in order to rapidly enhance military technology. Some of their most notable creations include nuclear test detection, stealth materials for aircraft, and the internet. Projects that are partially declassified and active today include the creation of a human exoskeleton, a thought controlled prosthetic arm, and an armored vehicle designed as a hybrid flyable/drivable four-person transport. Though most of DARPA's projects are external complements for the military, one program in particular known as the "metabolically dominant soldier" aims to alter the internal workings of humans in order to give American soldiers a battlefield edge. Such a soldier could, for instance, go for a week without sleep and yet still have optimal decision making capabilities, have access to pain vaccines to block pain and inflammation for a month, and even be able to sprint at top speed for fifteen minutes on just one breath of air. In order to even imagine such enhancements, researchers must reflect in a whole new way on what is holding back soldiers. For instance, in order to imagine the one-breath, fifteen minute sprint, a researcher must come up with the question: Why *can't* soldiers run for fifteen minutes on one breath? Unconventional questions like these are the types of questions DARPA scientists have to ask before they even know how to develop the technology. And it is

this type of thinking that one must put him/herself into in order to conceptualize a future of enhancement.

These questions are hard to come by because some problems are either too big or too familiar to be noticed, such as running short on breath while sprinting. People have grown accustomed to them because they are assumed to be inevitable. Needless to say, DARPA does not make such assumptions.

Even after these questions have been asked, the science that could address the problem has to be thought up in a similar, unorthodox way – by breaking the frame of assumptions humans have always lived by. The one-breath fifteen-minute sprint, for instance, is made possible by hypothetical nanomachines dubbed “respirocytes” that could replace red blood cells – erythrocytes. Respirocytes would replicated the main function of red blood cells – carrying oxygen and carbon dioxide through the body – but do it much more efficiently by holding oxygen in a 0.24 micron^3 tank inside them at 1000 atm. And while there are 28.5 trillion red blood cells in the average male body, the maximum safe dose of respirocytes in the blood is around 954 trillion devices (Freitas). These numbers make human biology seem ridiculously inefficient, but only because, well, it is. Though natural selection has shaped exquisite beings, the leap that nanotechnology brings to revolutionizing the body would be impossible via the slow, cruel forces of natural selection and only made accessible by rational faculties.

Alternative applications for such respirocytes expose even more of the inefficiencies of the human body as it stands today. Respirocytes could be used as a universally transferrable blood substitute by avoiding difficulties with blood types; they could treat virtually all forms of anemia; be used as preventative treatment for sudden infant death syndrome; serve to preserve

living tissue for long periods for preservation; reduce the use of tracheotomies; or treat asphyxia caused by drowning, strangling, electric shock, paralytic agents, carbon monoxide poisoning, smoke inhalation, anesthetic overdose, tight confinement, or obstruction of breathing. Even more, they could allow divers to remain underwater in excess of three hours without the help of SCUBA equipment, all while avoiding decompression sickness, or permit new sports feats by delivering maximum amounts of oxygen to tissues for extended periods of time (Freitas).

The edge that this type of enhancement could give to American soldiers on the battlefield is substantial, which is exactly why DARPA is pushing for this breakthrough.

The significance of DARPA trying to improve human beings, however, is that few if any institutions in the world are so intentionally devoted to high-risk, high-return, explicitly world-changing research. The cast at DARPA does not have kind words for incremental research. DARPA's '*only* charter is radical innovation,' its strategic plan says (Garreau).

But while projects like these have for some time been exclusively in the hands of DARPA, they are quickly diffusing to the commercial medical community because their realization is an impending change, soon to be fueled by the colossal inflows of capital markets. Once these enhancements become available to ordinary citizens with a simple doctor visit, the market will explode.

Suppose that the respirocyte was produced, and after a few years of exclusive use by the military, it opened up to the wider public. What athlete wouldn't want to take it to improve performance? If the IAAF and every professional and college sports organization continues to stick to its guns by banning enhancements, it would still be available to any high school athlete that wanted to overcome his/her rival. High schools do initiate bans, but their ability to enforce

them is minimal, especially if every athlete has access to the drug. Suddenly, feats never thought possible would be executed by high school athletes, and Olympic athletes would be routinely outperformed by ordinary teens. Maybe then, the IAAF might reconsider its stance.

This is the likely fate of most enhancements – enabling ordinary people to act in ways that even the most extraordinary humans today cannot. The world will discover performance enhancement like it's never seen before, but enhancements will not stop at physical performance. Like the Adderall on college campuses today, enhancements will improve mental capacities, emotional states, and even the length of healthy living. Philosopher Nick Bostrom has compiled a list five dimensions of individuals that may be improved by enhancement: Health-span, modalities and special faculties, bodily function and morphology, intellectual capacity, affective self-control, and finding the great values that might hide in higher modes of being (Bostrom, Nick Bostrom on our biggest problems).

“Health-span” is included rather than “life-span” because health span means that one's length of healthy living will be extended. Enhancements won't just enable people to live through old age by keeping them from dying; they will function by slowing, or even stopping, the aging process. The most radical vision for changing the human health-span is that science will get to a point where reverse-aging will be possible and humans could then theoretically live forever. Bostrom breaks down “modalities and special faculties” into music, humor, eroticism, spirituality, aesthetics, nurturing and caring, and gossip/narration. Each of these modalities functions in different ways, and so requires different enhancements. Even more, the values that individuals place on each of these modalities are different and so any individual could choose to enhance one or many of these modalities over the others. “Bodily functionality and morphology” includes the hypothetical respirocyte and steroids available today, but one could imagine

enhancements that enable people to achieve the body type they see as “best” with little to no need to visit the gym. “Intellectual capacity” is subcategorized into memory, concentration, mental energy, intelligence, and empathy. Again, individuals could choose between the capacities they valued. “Affective self-control” is divided into greater subjective well-being, better ability to switch between relaxation/activity, easier to achieve a “flow” state, conscientiousness and sympathy, and ability to choose one’s emotions. Finally, Bostrom speaks “finding the great values that might hide in higher modes of being”. He explains that it is a result of natural selection that humans are able to understand modalities like music, and it’s possible that other intelligent beings might not have that same ability. If such beings were to heard music, they might be simply confused an annoyed by the repetitive sounds. In the same way, it’s possible, and in fact very likely, that there are modalities of living which humans do not yet comprehend or could even imagine but which may be possible with enhancements.

The most apparent consequence of technologies with this degree of power is quite obvious: it will permit individuals to be just like the heroes they adore. Each enhanced person would have unimaginable capabilities that would unleash their true being. And while it may seem that the lines blur between a person’s authentic self and that person post-enhancement, it in fact only gets clearer. In the case of a student with ADHD who takes Adderall, for instance, there will be an obvious shift in his behavior as a result of the drug and some may view his new manifestation as inauthentic. But as he takes Adderall more consistently, he is more able to focus on his work in the manner he truly desires. While the pre-Adderall student is held back by an arbitrary coincidence that manifested in his body, the post-Adderall student is uninhibited by troubled focus and is in fact more-authentically himself than the aberration that was personified by ADHD.

That a student on Adderall will be more able to express himself than his unenhanced counterpart is an important realization. But many continue to question this realization, particularly when it is taken to the extreme of a completely transformed person sometimes dubbed the “posthuman”. President’s Council on Bioethics posed: “Is the enhanced person still fully *me*, and are my *achievements* still fully mine?” But a more fundamental question that every human has struggled to answer is underlying: *Who am I?*

Therapy, Enhancement, and Identity

The problem with the question by the President’s Council is that they have employed a definition of *enhancement* by contrasting it with *therapy*. Therapy is defined as remedial measures taken to address afflictions. Enhancement, they say, is any measure employed that goes beyond treating afflictions. So, for example, if a person with ADHD takes Adderall that is therapy. But their claim is that if a person who is obviously not suffering from ADHD takes Adderall, then that is enhancement. Kass et al. – and many other opponents, even some proponents – draw a line that describes *what is normal*. The line is drawn by comparison to others. They will admit that a person who suffers from ADHD is held back by the capacities they were born with. In other words, while this person undoubtedly “has” ADHD, they admit that having ADHD is not a part of who that person is. Where this conception of enhancement falls apart is in prescribing the construction of identity by comparison to a “normal”. Indeed, this is often the way identity is understood. However, it must be recognized that *everyone* is being held back by their body. Any person can enhance themselves by taking Adderall, and by doing so they will avoid being hindered by any inability to focus and can better express the person that they truly are. In this way, enhancement *is* therapy.

Just like the revolutionary scientists at DARPA that ask questions such as “Why can’t I run for fifteen minutes on one breath?”, the rest of humanity must begin to ask themselves similar questions that push the arbitrary faculties of inherited bodies – questions that can lead individuals to understand who they really are:

Why can’t I perform in front of thousands of people without getting social anxiety?

Why must I feel tired when I want to be aware and awake?

Why can’t focus on my work when I don’t want to be distracted?

Why can’t I live for a thousand years?

Why can’t I be as intelligent as Albert Einstein? As persistent as Amelia Earhart? As

Inventive as Leonardo da Vinci? As athletic as Usain Bolt? As artistic as van Gogh? As resolute as Margaret Thatcher?

These questions reveal that the true identity of a person is not what one can achieve in the body they were coincidentally born with. Instead, the identity of a person is what they choose to do with those abilities made available to them. So, while an answer to that nagging question - “Who am I?” – is always elusive, one might better understand the answer after asking the question: *If I lived in a world where enhancement gave me all the capabilities I could imagine, what would I do?*

Merit and Society

The Calvinist narrative of salvation by one’s own toil is afforded high acclaim as a legitimate work ethic because the reasoning behind its conception is so straightforward – that

people should be rewarded for their merit. However, its practice in reality has all too often proven to be a broken promise. Inheritance has perpetually tipped the balance of power in favor of those born with the best genes to the richest parents. And because so many political leaders have stuck to promoting this broken structure, a sentiment of distrust has emerged between the socioeconomic classes.

The Occupy Wall Street protesters blame the richest 1% for the poor state of unemployment – and employment – in America today. They protested by occupying Wall Street for weeks in an attempt to garner the attention of top-paid corporate executives. In response, failed presidential candidate Rudolph Giuliani offered a suggestion to their predicament: “How about you occupy a job? How about working. Oooh working. I know that's tough. Woodstock is more fun” (Collins). Both sides of this argument have become nearly cemented in their belief that the other is wrong. And at the center of this debate is the Calvinist work ethic.

But if enhancements work to bridge the valley of the biological and economic divide as has been suggested, the work ethic may finally function properly. Enhancements will level the playing field and contribute to fairness and justice by diminishing the effects of inheritance and inequality. This is a profoundly altered position for individuals to operate in with reference humanity as it stands today. People would be emancipated from the bound state of the body they were born with and the wealth, or lack thereof, they were born into. And if enhancements work to actualize this feat, the result would be a society that functions with an equality of opportunity that may ameliorate the broken fabric of society that has generated so much frustration and distrust.

Excellence

Opponents of enhancement cringe at the thought of altering the body in order to improve it. While their intentions are to uphold dignity, they fail to realize that the world to fear is the one the live in today.

Every year more than 500,000 people are murdered and more 300,000 women are raped. Countless more are tortured, abused, neglected, taken advantage of, etc. etc.. These acts are the result of characteristics that linger throughout humanity such as prejudice, greed, and loathing. These characteristics, however, are not part of what make people who they are. Any effort to rid the world of these horrific indignities must be embraced.

While Kass et al. fear a world devolved into complacency resulting from enhancement, they forget that they live in a country where the average citizen watches more than four hours of television per day. Enhancement, on the other hand, could “increase our zest for life, infuse us with energy and initiative, and heighten our capacity for love, desire, and ambition” (Bostrom, Dignity and Enhancement 17).

In fact, enhancements exist today that can help strip humanity of its detriments and fertilize the roots of human excellence. But the effects of these are nearly negligible compared to what is possible. The enhancements of tomorrow will give man the change to be all he wants to be. The foundations of excellence have been laid by natural selection, but natural selection has also imposed limits on excellence. Enhancements will act to raise mankind up to greatness as individuals, and to supremacy as a society.

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