
SOCIAL JUSTICE AND GENETIC ENGINEERING: WHAT PLATO MIGHT HAVE SAID

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Introduction

In this paper, I explore the concepts of self-realisation, health and justice as they specifically pertain to human genetic engineering. Genetic engineering is a fledgling, but rapidly developing set of technologies, whose application will have a dramatic impact upon man and his conception of himself. It is for this reason that I feel it is important that we decide whether its use will be a just or unjust practice within our society, before its envisaged applications are made available for our use on a large scale.

I believe that a return to Plato's ideas on justice could serve as a valuable guide in an investigation of this contemporary conundrum. I attempt to apply Plato's understanding of self-realisation, health and justice to the emerging technology of genetic engineering, and come to a conclusion about the just application of this advance within contemporary society.

What is Genetic Engineering?

In February 1997, Dr. Ian Wilmut and the team of researchers at the Roslin Institute in Scotland managed to create Dolly the sheep: 'a carbon copy, a laboratory counterfeit so exact that she is in essence her mother's identical twin' (Time, 10 March 1997:48).

The ability to clone adult mammals, in particular, opens up myriad exciting possibilities, from propagating endangered animal species to producing replacement organs for transplant patients. Apocalyptic scenarios have, however, proliferated in the press, with journalists writing about the possibility of resurrecting the dead and women giving birth to themselves.

Dolly was created by taking a nucleus from a cell culture that had been established using cells taken from an adult sheep, and placing this nucleus into an egg, from which its own nucleus had been removed. The egg was then transplanted into a mother sheep and developed into Dolly. The concept of cloning is not new. What is new is that sheep are mammals like us, and so immediately the question arises: If sheep, why not humans?

The main justification for cloning research is that it opens up new pathways for therapeutic medicine. The development of cell culture technologies may also allow the modification of human cells to permit the growth of human organs/tissues in the laboratory. In 1997, for example, a research group at the John Hopkins University, USA, reported that they were able to isolate cells from an aborted eight-week-old foetus. These cells grow easily in the laboratory and have the potential to differentiate into many different tissues (New Scientist, 19 July 1997).

Dolly's birth was greeted by the world with an almost universal fear of genetic engineering. Yet, the creation of a clone involves reproductive, rather than genetic engineering, even though genetic engineering was the driving force behind the research. So what is genetic engineering then? Genetic engineering can be defined as procedures that allow the experimental alteration of genetic information. Genetic information is information contained in the structure of molecules, that is passed on from mother cell to daughter cells at cell division, and from parents to offspring.

The first person to attempt to explain why children are like their parents was Hippocrates (Russo & Cove 1998:134). He believed that semen somehow contained the properties of the body from which it came. Aristotle argued that this could not be possible, because often children of crippled or deformed parents did not inherit these characteristics. Instead, Aristotle put forward a very modern idea; that semen contained information and 'instructed' a mother how to make a child. This idea was forgotten by the generations that followed.

In 1660, Marcello Malpighi proposed that an egg contained a preformed human being; a 'homunculus' which a mother had received from her mother, all the way back to Eve! This idea was retained until, in 1677, Leeuwenhoek discovered that semen contained sperm, and so the homunculus was replaced by sperm.

The first true experiments which led to the laws of inheritance were performed by the Augustinian monk, Gregor Mendel, who published his theory in 1865. Mendel's work lay in 120 libraries throughout the world for 35 years, without anyone appreciating its significance. It was not until 1900 that three different people discovered Mendel's Laws independently; de Vries, Correns and Tschermak. Soon after, British scientist William Bateson suggested that the study of heredity deserved its own name and proposed 'genetics' (from the Greek *gen* = born, produced).

On February 28, 1953, Francis Crick walked into the Eagle pub in Cambridge, England, and as James Watson later recalled, announced that 'we had found the secret of life' (Time, March 29, 1999:100). Watson and Crick had in fact done just this - they had determined the structure of deoxyribonucleic acid, DNA. That structure, a double helix that can unzip to make copies of itself, confirmed suspicions that DNA carries an organism's hereditary information.

Studies of genetics flourished from then onwards. By the end of the 1960's, the way in which DNA coded for genetic information and was used to build proteins was well established. The interest of the medical world in genetics has been increasing rapidly, and today, we stand at the threshold of what may be called the genetic revolution. Almost every month, there is news of the identification of some new gene which is claimed to influence or determine some aspect of behaviour.

The possibility of safe, affordable human genetic engineering eliminates the assumption that natural abilities are randomly distributed among members of a society, and places these natural abilities within the grasp of societal control. Characteristics that were once seen as natural resources, such as health, intelligence or height, will come to be seen as manipulate, social resources. It seems likely that we will develop our ability to make changes in the human genome to such an extent that we could significantly alter the health, opportunities and life prospects of future generations for better or worse. And yet, according to Resnik (1997:427):

"Given what we know about human genetics and the complex interactions among genes, proteins, cellular reactions, development, and the environment, it is not realistic to think that we could shop for our

children in a genetic supermarket or that we could one day design human beings the way we design cars."

Authors like Resnik are sceptical with regards to the applications of human genetic engineering, insofar as it would allow us to completely 'redesign' human beings. Resnik does, however, concede that genetic engineering will have far-reaching applications and consequences for future generations.

What is Eugenics?

The word 'eugenic' was coined by Galton in 1883, and means 'well born'. Eugenics was supposed to be a science which aimed at improving the human race by giving more suitable races or strains of blood a better chance of prevailing over less suitable ones. Galton believed in the ideal of a race composed of eminent philosophers, writers, scientists and so on. He had noticed that many of these well-known men were blood relatives and so concluded that talent and character were governed by heredity. He did not consider the influence of environment at all.

It is important to distinguish between negative and positive eugenics: Negative eugenics involves the attempt to rid the human population of genetic diseases, while positive eugenics is the attempt to promote socially valued traits in human populations.

Many people find any policy that allows social control over human genetics deeply worrying, with such programs conjuring up images of Nazi Germany's eugenics programs and books like Aldous Huxley's *Brave New World*. The government regulation of human genetic engineering is also regarded by some as an intrusion into the private affairs of individuals. The consequences of not exerting governmental control over human genetics may be just as serious, since parents will naturally attempt to provide their children with genetic advantages, increasing existing social and economic inequalities and resulting in a genetic caste system.

This idea may be expanded to large scale inequality between nations - those who have access to the technologies and those who do not.

Human Genetic Engineering as a form of Health Care

Human genetic engineering can be used to treat or prevent disease, or radically affect human health. Healthy individuals function 'normally' and disease is an impairment of this normal functional organisation. Individuals with diseases have significantly less opportunities than those who do not. Our contemporary health care institutions can therefore be seen as attempting to prevent and treat diseases, in order to promote fair equality of opportunity. Should human genetic engineering technologies not, therefore, form part of the set of 'tools' available to health care practitioners in their task of treating or preventing disease?

Plato and Justice

To return to the thought of the ancient philosopher should not be seen as an attempt to substitute historical authority for solid philosophical argumentation. However, I feel that today's reader should not ignore the insights of the ancients, because we believe we know better, or believe that there is nothing to be gained from such ancient theories when dealing with contemporary concerns. Indeed, I aim to show that recourse to ancient Greek theory can shed some light on a problem as current as human genetic engineering.

What is Justice?

The term justice is as old as man. Today, there are so many varying notions of it that analysis and elucidation of this concept has become rather complex. I am not attempting to expound on the idea of justice as it develops through all of Plato's thought. I concentrate specifically on his conception of the Ideal state and then consider whether such a just state could support the use of human genetic engineering. According to Melling (1987:84):

'The Republic describes an ideal form of social organisation: the description both embodies the design of an ideal system and functions as an Ideal model to which existing states can be compared and their deficiencies thereby identified.'

The idea that a just state ensures that its citizens are able to pursue their own affairs, runs like a red thread through the entire and highly complex structure of the *Republic* (Bubner 1995:121). That one must be able to do one's own - therein lies the real secret of a political order. Where each citizen is able to do his or her own, the political order provides the basis for individuals to attain their concrete goals, and

thereby realise their interests in having a fulfilled life. Where each does his or her own, all individuals are acknowledged in their concrete, practical roles. At the same time, every individual is put in co-operation with other individuals who pursue, within the sphere of their own activities, their respective aims, without working at cross-purposes to one another and causing a mutual obstruction of aims.

Plato explains what makes a state just in terms of a model state that has three classes: artisans, guardians and rulers. Justice is said to be the performance by each class of its job and the noninterference in the functions of the other classes. He says:

'The meddling with one another of the three classes that there are, and exchange of work between them, is the greatest harm for the polis, and would be most correctly called the greatest evil-doing... Wouldn't you say that the greatest evil-doing against one's polis is injustice... So let's put it the other way around. The opposite is this -the money-making, guarding and ruling classes doing their own, each doing its own work in the polis - would be justice and would make the polis just.' (434 b9 - C10).

Who can say what the just order for the state should be? He who understands what each for his own is. This answer is aimed at the *philosopher king*. In Book Five of the *Republic*, Socrates tells us that it is by nature 'fitting' for philosophers both to engage in philosophy and to lead a city, and for the rest of the citizens not to engage in philosophy and to follow the leader.

According to Socrates, the philosophers are fit to rule for the following reasons: they would best be able to guard, as well as to give, the laws of the city because they are superior intellectually (due to their alone being able to comprehend the *ideas*); they are not lacking in experience nor inferior in the rest of virtue, and they are not concerned with the pleasures of the body, but rather with those of the soul.

The philosophers are fit to rule precisely because they believe that ruling is not some great good. According to this argument, if the philosophers ever come to regard ruling as a positive good, as do all others who engage in politics, then they would no longer be considered fit to rule.

In the ideal state, only the philosopher king has the intellectual ability and education to completely understand the idea of the good

and the form of justice as doing one's own. He shoulders the responsibility for what the individual can never know and adequately oversee. The three classes in Plato's ideal state thus each have a type of justice appropriate to them. The artisans possess a feeble conception of justice and so know that they should tell the truth and pay their debts. The guardians must protect the city and so a broader conception of justice is demanded of them. Finally, the philosopher king synthesises the justice of all the classes.

Plato insists that only the wise are up to the political task of determining the appropriate field of activity for each member of the *polis*. This is because only the wise have true insight into the structure of the whole. It is against the backdrop of the whole that members of a political community find their respective places.

The task of steering individuals to exactly where they will find the centre of their interests cannot, however, be left to the individuals themselves. The role of education, which Plato gives much attention to, should be to monitor and direct the gradual process of cultural development. After completing their education and cultural development, individual persons carry the responsibility for making something of their lives.

In my opinion, the figure of the philosopher king should be interpreted as the symbol of the fundamental problem of political order. As political actors, people have no choice but to entrust the difficult task of balancing a consideration for multiplicity with the demand for unity to a representative. Individuals cannot perform this task themselves, because they are enmeshed within their own affairs and so remain focused on their own particular interests.

In the *Republic*, justice is defined as each part of the city or part of the soul performing its task for the good of the whole, which is the condition for the whole city being as happy as possible. In general then, justice is the condition of each part acting in such a way that the whole is as good as it can be, whether the whole is the soul or the city.

A vital function of justice is to protect the good (healthy) life. As an extension of our individual selves and as a means to protect our individual vulnerability, society will be healthy to the extent that its customs and institutions promote human health. The good citizen realises the symbiotic relationship between personal health and the health of society.

On the basis of brief remarks in Book 3 of the *Republic*, about the kind of medicine available in the *polis*, Plato has been taken to advocate the view that medical treatment is something to be distributed solely on the basis of social productivity. I agree with authors like Reeve (1988:214.), when he says that for Plato, the goal of medical treatment must be to restore an ill person to a life worth living, not to just keep him alive, for then he is of no profit to himself or the *polis*. Genetic engineering is one new way of ensuring that people who previously had few prospects for leading a fulfilling life, may contribute fully to the health of the *polis*.

For Plato, equality means taking account of inequality. Treating everyone equally would be unfair in the extreme. Justice is not realised by a secondary levelling out of relevant differences, but rather in abstaining from interfering at all in fundamental differences (Bubner 1995:123). Not every inequality is due to external circumstances.

There are indeed inequalities which can be said to inhere in a substantial sense in individuals. Traditionally, these differences were regarded as being a result of the 'natural lottery' that randomly distributes natural abilities among members of society (Resnik 1997:427).

The idea of safe, effective human genetic engineering changes this assumption by placing the natural lottery within the grasp of societal control. On the one hand, genetic engineering could either be used to eliminate differences between people over which they previously had no control, for example in the eradication of genetically based diseases. On the other hand, genetic engineering could offer man the means of creating radical differences between people on the genetic level, for example by manipulating characteristics such as intelligence.

For present day thinking, I think that the meaning of Plato's concept of justice is best conveyed in the form of an appeal to *pluralism*. Conformism forces everyone to be measured by the same yardstick. To apply the same standards to everyone is to ask people to be other than what they are, perhaps other than what they want to be, or would like to remain. The exorbitant demands imposed by conformism arise from a fundamental disregard for the particularity of the individual and lead to profound injustices.

Conformism works to destroy our personal identities whose integrity we can only hope to obtain through independent action and tolerance. In our century, the pressure to conform has reached excessive proportions, and so justice demands protection against thoughtless egalitarianism.¹

Plato would, I think, support human genetic engineering as a form of health care within a society. Promoting the health of individual citizens through the use of human genetic engineering is a practice that, in the end, will promote the health of the entire city.

Human populations which are not plagued by genetic disease will, in my opinion, function more efficiently. Gene therapies which eradicate the prevalence of genetically based diseases are desirable within a society, since they improve the health and life prospects of people for whom no amount of education and training will compensate.

What about the enhancement of attributes such as intelligence? I think that Plato would not support the prudent use of such genetic manipulation within a society, unless these practices would bring about positive consequences for the city as a whole. What exactly this contentious issue entails is something we still will have to work out. In Plato's description of the classes within the ideal state, it is clear that there must be a certain kind of inequality within the state, in order for the city to be a just city and for citizens to live 'good' lives.

The guardians, the rulers and the artisans cannot be 'equal' in attributes such as intelligence, if they are all to perform their fitting functions within the city and so contribute to its health. I think that these ideas on the structure of the ideal city can point us in the right direction when we attempt to decide which kinds of human genetic engineering would contribute to a just society.

I conclude that Plato would insist upon state control over a practice like human genetic engineering. I feel that we should not interpret Plato's idea that each person should be able to do his own as meaning that a technology like genetic engineering should be available to all in a society to use as they please. Rather, there should be control and regulation of the use of human genetic engineering within our society, so that it will benefit the society as a whole. If we allow parents unrestricted access to genetic engineering technologies, it is likely that their 'free' choices will result in unacceptable consequences, such as harm to future generations,

discrimination and the emergence of a genetic caste system. I feel that an all-out ban on human genetic engineering is unenforceable, because these services will then be bought on the black market. The most prudent course of action, then, is to allow human genetic engineering, but also to regulate and control it.

Concluding remarks

If some types of human genetic engineering are required in order to prevent or treat diseases, then I feel that we have good reason to provide them. If we prevent or treat non-genetic diseases in order to promote fair equality of opportunity, then surely we should prevent or treat genetic diseases in the same manner. Also, we should allow other types of human genetic engineering that are not used to treat diseases, only if these practices are to everyone's mutual advantage. The problem is: 'What amount of genetic variation is fair?' We need a concept of 'genetic normality' in order to develop a policy for allowing, but limiting these genetic differences. It is, however, very difficult to determine these genetic 'standards' and they will differ from society to society. It may not be easy to define an acceptable range of genetic variation, but this is certainly preferable to having no limits at all, or extremely restrictive limits.

There are many dangers in regulating human genetics and in defining a normal range of genetic variation, because these policies suggest that 'abnormal' people are inferior, and that 'supernormal' people are superior. Calling people genetically 'inferior' or 'superior' is exactly the kind of bias we find in Nazism, racism and sexism. We must ensure that these possible consequences of our attempt to control human genetic engineering are never realised.

My aim in this paper was to investigate whether Plato's ideas on the just society could in any way contribute to our making an informed decision on the use of human genetic engineering within contemporary society. I have concluded that Plato would support the controlled use of human genetic engineering as a means to promoting the continued health and good of a society. In an ideal state, genetic inequalities among individuals would be acceptable as long as those inequalities are to everyone's advantage. To be a just practice, human genetic engineering should not level out the difference between citizens and so tighten the grip which conformism has on our contemporary society. But, neither should it be such that it creates

massive inequalities of opportunity amongst its citizens, for such a state could never be a just state. There are, however, many problems inherent in the regulation of human genetics, especially when it comes to defining a 'normal' range of genetic variation. These problems are the ones that we urgently need to address in anticipation of the genetic revolution.

Notes

1. Plato problematised the dilemma which resulted from a universalism based on sameness, and a particularism resulting from the recognition of difference. He called this the problem of the 'one' and the 'many'. This problem is especially relevant to us today, especially in South Africa. For a detailed look at this issue, see: More, M.P. *Outlawing Racism in Philosophy: On Race and Philosophy* in *Philosophy from Africa* (Coetzee, P.H. & Roux, A.P.J., eds.). International Thomson Publishing. Southern Africa. 1998.

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