Introduction

Selection strategies or decisions aimed at affecting, in manners which are considered to be positive, the genetic heritage of a child, a community or humanity in general have always represented a challenge to human beings from an ethical perspective. That challenge was the inspiration of many popular works of science fiction, such as Aldous Huxley's book *Brave New World*,[1] written in 1932, in which an organized society is deliberately created with different groupings of people designed to fulfil different roles. Another, more recent, example is the 1997 film *Gattaca* in which a utopian society openly discriminates against those who are born invalid (in a natural birth without selecting out biological limitations).

Since the Second World War, however, the word 'eugenics' which describes these selection strategies or decisions has aroused strong emotions, though a clear definition of the term has remained elusive. At the outset of this book, therefore, it is particularly important to clarify what is meant by the expression. The word 'eugenics' derives from two Greek roots, 'eu' (good) and 'genesis' (birth) and denotes the practice of producing human life that is good at birth. This means that eugenics includes selection on the basis of genetic characteristics and stems from the belief that human beings or humanity can be improved by encouraging people with desirable traits to have children and by encouraging people with undesirable traits not to procreate. This belief is itself based on the historical success of selectively breeding in agriculture since scientists realized that human beings, like plants and animals, inherit many physical and behavioural characteristics.[2] The successful selection and elimination of inherited characteristics in plants and animals implied the possibility that similar practices could occur with human beings. The Englishman Francis Galton (1822–1911) coined the term 'eugenics' in 1883 to characterize such a proposal.

On the other side of the Atlantic, similar suggestions were presented at about the same time, with the Harvard biologist Charles Davenport urging the American Academy of Medicine, in 1909, to accept eugenics. Again, the impetus for human

eugenics derived from a success with animals, in this case with the elimination of a pernicious virus from selectively bred horses. Drawing the connection even more obviously, in 1917, the American tycoon W.E.D. Stokes penned a book entitled *The Right to Be Well Born, or Horse Breeding and Its Relation to Eugenics.*

These early developments of eugenics reflected the belief that the scientifically directed good birth of plants and animals could have a direct influence on the equivalent practice in human beings.[3] However, in spite of the benefits that eugenics seemed to promise humanity, it did not win universal support as a serious scientific discipline,[4,5] largely because nonscientific and subjective elements characterized much of eugenic practice. The most disputed aspect of eugenics was the diverse understandings of the terms. For example, defining the concepts of 'disorder' and 'benefit' was difficult in the context of an accurate overall assessment of the 'improvement' of the human genetic heritage. Moreover, even though eugenicists were concerned with the elimination of certain inheritable disorders, there were several problems with labelling certain ailments as 'genetic disorders' without any definition of what constituted such disorders.

The highly subjective criteria governing the practice of eugenics also gave rise to expressions that could be considered scientific racism, as seen most insidiously in the atrocities of Nazi Germany in the first half of the twentieth century, including the systematic elimination of people with mental disorders.[6] In light of these crimes, after the Second World War, many eugenic policies were condemned as coercive, restrictive, or genocidal with a number of countries even ultimately banning these practices. For many years the concept of eugenics was then relegated to the outer rim of polite discussions.

Yet as recently as the early 1970s, serious scientists have revisited the possibility of using the convergence of genetic engineering and reproductive technologies to forge a new path in human development. At the same time, the opportunity to improve the human race and its individual members has increasingly been reconsidered amongst some bioethicists as a possible step in the right direction.[7] The old eugenic dream, temporarily discredited by Nazi pursuits of a 'superior race', has been resurrected. Many new procedures that may contribute to a eugenic transformation of humanity are now being considered or predicted. Already, children may be born with improved genetic endowments as a result of the careful screening and selection of embryos carrying desirable genes or to directed genetic change in gametes or embryos.[8] Extrapolating from these developments, some scientists have even predicted that, in the near future, parents may be able to exert precise genetic control over a large number of specific characteristics in their offspring.

Not surprisingly, then, the future of this field remains uncertain. As scientists and futurists return to their investigations concerning new possibilities for humankind, the potential for change seems nearly limitless. At the same time, the ethical values and consequences of potential new developments remain unclear, and the scientific and ethical communities have greeted these predictions with both enthu-

siasm and alarm.[9] Representative of one such approach, the historical journalist Christine Rosen warns in 2003:

> The question is no longer whether we will practice eugenics. We already do. The question is: Which forms of eugenics will we tolerate and how much will we allow the practice of eugenics to expand? … Not all eugenic practices are equal, and often the same practices can have very different meanings when pursued in a different spirit or governed by a different moral purpose. Perhaps some forms of eugenics are sacred and some profane. But we ought never [to] allow good intentions (or claims of holiness) to blind us to moral realities.[10]

The present book will thus discuss not only the potential advantages but also the risks and consequences for society which may arise from these new technologies. It will thereby assist in the examination of most of the ethical concerns related to the development of what can be considered as the new eugenics.

Definitions

Before outlining and evaluating the history of eugenics, a clarification of key terms relating to the concept of eugenics will assist in eliminating ambiguities or misunderstandings. This is being provided even though a generally accepted definition of eugenics does not yet exist in English or on the international stage.[11] These clarifications are, therefore, only informed suggestions, although they will be useful in the discussion of the new eugenics by establishing a common vocabulary. The following list is by no means comprehensive but represents terms that often occur in debates relating to eugenics.

Different Kinds of Eugenics

Communal (societal) eugenics: eugenic strategies or decisions pursued by a concerned community.

Destructive eugenics: eugenic strategies or decisions that involve the destruction of a biological entity.

Dysgenics (cacogenics): the genetic deterioration of a population or the evolutionary weakening of an organism relative to its environment. Also, the study of degeneration. The opposite of eugenics.

Eugenics: strategies or decisions aimed at affecting, in a manner which is considered to be positive, the genetic heritage of a child, a community or humanity in general.[12]

Note: The desirable aims of eugenics may not always be the same for a child, a community or humanity in general. For example, what a community may consider desirable may not necessarily be the same as what parents consider desirable in their child.

Negative (or preventive) eugenics: strategies or decisions with the aim of *avoiding or reducing what is considered to be an undesired* genetic heritage in a child, a community or humanity in general.

Such strategies may include:

a) compulsory sterilization of undesirable persons capable of reproduction;
b) marriage restrictions whereby some people may not be allowed to get married;
c) selecting out undesirable embryos or foetuses because of specific disorders;
d) immigration control preventing certain kinds of people from entering a country;
e) segregation between desirable and undesirable persons; or
f) extermination of certain undesirable persons.

Note: the distinction between positive or negative eugenics is not clear-cut. As mentioned above, some procedures, such as genetic selection of embryos and certain forms of marriage counselling, allow participants to make choices based on genetic characteristics widely held as desirable or undesirable.

Positive (or progressive) eugenics: strategies or decisions aimed at *promoting what is considered to be a desired* genetic heritage in a child, a community or humanity in general.

Such strategies may include:

a) the selection of desirable sperm in a sperm bank;
b) certain forms of marriage counselling; or
c) promoting increased birth rates in couples who are deemed to be biologically desirable parents.

Personal eugenics: eugenic strategies or decisions pursued by concerned individuals. This includes parental eugenics.

Nonvoluntary eugenics: eugenic strategies or decisions that are taken without respecting the principle of informed consent.

Voluntary (or liberal) eugenics: eugenic strategies or decisions that are taken while respecting the principle of informed consent.

Others Terms Used in Eugenic Discussions

Many discussions of eugenic procedures note the difficulty in establishing clear borders between paired terms such as 'healing' and 'enhancement' or 'ability' and

'disability'.[13] However, it may be useful to try to characterize the different terms and the questions they raise in the context of eugenic debates in order to inform the discussion of eugenics in the twenty-first century and beyond. Though these cursory definitions seek to eliminate ambiguities, only universally accepted definitions will ultimately unify the different concepts. Since such unanimity is currently unavailable and unlikely for the foreseeable future, a regular refining of definitions based on common practice remains the only alternative. As in the previous section, the list of terms below is not comprehensive.

Enhancement (or augmentation): an activity (whether biological or not) through which an object is transformed to exceed what is normal to improve its natural state or function.[14] The term 'enhancement' reflects the idea of using technology and science to increase the human functioning of a healthy individual beyond the norm for that person and in the absence of any identified dysfunction.[15]

With respect to biotechnology, it can be defined as an activity designed 'to alter. . .the 'normal' workings of the human body and psyche, to augment or improve their capacities and performances.'[16]

Enhancement does not include the creation of capacities in new beings that have never previously existed (which may be considered under the concept of transhumanism). The aim of enhancement is to improve upon the norm but not to surpass a preexisting, human, natural state or capacity. This means that enhancement procedures are not geared to exceed the achievement potential of human beings who are at the upper end of the statistical distribution.

Healing: the restoration, preservation, or prevention of human dysfunctions. Equally, healing may be defined as the removal of individual disorders relative to recognized standards of an average healthy human being.[17]

In the past, medicine and biotechnology together have sought to eliminate pathology but have never sought to enhance normality. Though the distinction between the two is admittedly difficult to define, regulatory agencies are generally able to do so in practice.[18]

Health: the World Health Organization defines 'health' as 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity'.[19] Many national legislations in the health field do not explicitly define 'health'. Indeed, health is not always a matter of scientifically demonstrable fact and may be a matter of perception.

Normal: though the concept of what is normal can be interpreted in statistical terms as being 'typical', there is no universal distinction between what is classed as 'normal' versus 'abnormal' because the distinction hinges on societal perceptions of the condition in question.[20] See Health.

Therapy (or treatment): medical intervention that restores human functioning to species-typical norms or that gives abilities integral to the body which are considered to be normal. A therapy thus counteracts a known or an anticipated health deficit.[21] For example, kidney dialysis is a therapy that enables dysfunctional kidneys to filter impurities from the blood in a manner that approximates the properly functioning kidneys of a human being. However, an alteration of the brain that adds twenty IQ points would be considered an enhancement if performed on someone who already has a normal IQ.[22]

As previously noted, distinguishing 'therapy' from 'enhancement' is difficult and depends on the definitions of other terms as well as cultural norms and values.[23] If a society willingly seeks to enhance its members, then what would be considered normal for this community would eventually be altered. Previously normal traits could even be considered as dysfunctional if they no longer attain the new 'norm'. In such an event, these new dysfunctions could begin to be considered for treatment.

Using the Eugenics Term

The concept of eugenics, as already mentioned, does not have any fixed definition, and ever since Sir Francis Galton coined the term 'eugenics' in 1883, the word has had a number of interpretations.[24] Many meanings have been proposed, and even Galton continued to reformulate his own definition until just before his death. At the beginning of the twenty-first century this ambiguity remains and eugenics may mean very different things to different people.[25]

Galton's concept of eugenics also differed from what would later be known as Social Darwinism. While both claimed that traits, such as intelligence, were hereditary, eugenic ideology asserted that new policies were needed to actively change the status quo towards a more 'eugenic' state. Social Darwinists, on the other hand, argued that even if no such specific eugenic policies were established, a balance in society would eventually be obtained based on Darwinian evolution if no welfare policies supporting the disfavoured were put in place.[26] Social Darwinism proposed that the poor may have a greater number of children but would, at the same time, have higher mortality rates, making active eugenic programs unnecessary.[27]

Generally, however, the term eugenics is used when a specific intervention is considered which seeks to improve the genetic heritage of a child, a community or humanity in general. But, in this regard, many who study the ethics of genetic selection prefer to evade the term since they recognize that it was tarnished by the abuses that occurred in Nazi Germany. During this time, widespread, compulsory and state-regulated discrimination took place. Some commentators, such as ethicist Robert Sparrow, have also indicated that it may not only be the means used by past authoritarian eugenic programs that were seen as objectionable but also the goal. In

other words, for many people there may be something reprehensibly immoral and arrogant about being able to pass judgement on the quality of human lives.[28]

Thus, by using a new and more acceptable vocabulary there is a wish to avoid the negative connotations of selective decisions which took place in the past because there is concern that any procedure labelled 'eugenic' will garner immediate condemnation.[29] Alternative terminology such as 'human enhancement' or 'selection' is seen as being more appropriate, though the results may be similar and the changes may only be ones of vocabulary. Examples of such transformation of language took place when the *Annals of Eugenics* became the *Annals of Human Genetics* in 1954 and the journal *Eugenics Quarterly* was renamed as *Social Biology* in 1969. Frederick Osborn (1889–1981), a past leader of the American Eugenics Society also stated in 1974 that 'Birth control and abortion are turning out to be great eugenic advances of our time. If they had been advanced for eugenic reasons it would have retarded or stopped their acceptance'.[30] Osborn recognized, in this way, that society would more likely accept eugenic goals and practices if the word 'eugenic' was avoided or omitted.[31]

Thus, there are those who support the benefits of selection and who argue that using the eugenic term is detrimental to recognizing scientific progress and its predictive capacity. As a result, they reject any use of the term if prospective parents undertake the selection decision voluntarily in order to make sure that their prospective child avoids serious suffering.[32] This stance also reflects the fact that concerns over the future genetic heritage of a nation have now generally been replaced by those for private families and how they consider their own selection decisions. Relatedly, in medicine, respect for patients' wishes and the perceived right to reproductive autonomy have become dominant values in contemporary society.[33]

One the other side, however, many see any selection decision as truly meriting the term 'eugenics'. Because of the stigma attached to the word, those who are opposed to the different genetic selection procedures already taking place in society sometimes deliberately make a point of describing such practices as eugenic in order to cast them negatively as being associated to former abuses.[34] They are concerned that the voluntary eugenic practices of parents are still far too similar to the negative selection procedures of the past. Critics are also worried of a sort of 'back-door' eugenics resulting in the collective impact of many voluntarily, autonomous and individual decisions in unregulated fertility clinics.[35,36] It is a eugenic resulting from a free and unrestrained market encouraged by consumer choice and desires as well as unavoidable social expectations.

That being said, there are those who are not afraid of still using the eugenic tem in a positive fashion. The ethicist Nicholas Agar disagrees with the manner in which those who support human enhancement as an individual choice deliberately camouflage or avoid the term of 'eugenics' in their discourse in order to distinguish themselves from Nazi policies. Agar argues that 'this smacks of Orwellian redefinition.'[37] He continues by defending the use of the term, even employing it in the

title of his book, *Liberal Eugenics,* in which he supports the freedom of parents to choose certain characteristics in their children.[38] Notably, many self-defined past eugenicists also believed that in conjunction with widespread education and accessibility, the establishment of a voluntary eugenic system was the ideal way to prevent the birth of people they considered degenerate.[39] Even Francis Galton, who coined the term eugenics, was very much opposed to any coercion in its implementation.[40] The UK House of Commons Science and Technology Committee also supported this perspective, as indicated by its 2005 report *Human Reproduction Technologies and the Law.* In discussing parental choice the committee stated, 'If ensuring that your child is less likely to face debilitating disease in the course of their life can be termed eugenics, we have no problem with its use'.[41] In short, it was agreed that eugenics is about the selection of human persons, regardless of the form this selection takes.

But there is another reason why the eugenic term is sometimes employed, which relates to its warning potential. Indeed, by deliberately avoiding the term and replacing it with new terminology, there is a danger that a cleansing procedure is simply being proposed. Prof. Didier Sicard, Past President of the French National Consultative Ethics Council, warns that the discarding of the word because it is seen as a diabolical term of the past may enable its realisation in all peace of mind[42] instead of it being used and considered as a warning to future generations.

As the bioscientist and physician David Galton indicates in his book entitled *Eugenics: The Future of Human Life in the 21st Century*:

> Call it what you will; but if your aim is to use scientific methods to make the best of the inherited component for the health and wellbeing of the children of the next generation, it is by definition eugenics. Sweeping the word under the carpet or sanitising it with another name merely conceals the appalling abuses that have occurred in the past and may well lull people into a false sense of security.[43]

It is indeed unfortunate that use of the word 'eugenics' elicits a defensive reaction from supporters of selection procedures. Rather than evaluating the legitimacy of the procedures, some supporters invariably articulate deep offence at being compared to Nazi policy sympathizers. But this tack disregards an astonishing but important historical fact that most supporters of such procedures in Nazi Germany were not monsters but normal people influenced by similar contemporary trends, just as people are today. They were not different from the population of any other European nation, and they did not stop the abuses that took place by their government. Thus, taking the moral high ground in suggesting that such unethical and abusive eugenic programs could never take place today indicates a profound lack of humility and sense of reality.

But claiming the moral high ground is not the only strategy for banishing the word 'eugenics' from contemporary discourse. Another option is to tether it immovably to the past. This is unfortunate since in examining the different selection

procedures that are presently being considered, it is impossible not to recognize that some kind of eugenic return has taken place which can be considered as a new eugenics. Copious research and painstaking analysis has led the American political scientist Diane Paul to observe in 1998, 'Only a few years ago, it seemed that eugenics had been wholly discredited by its association with race and class prejudice, and in particular with the crimes of the Third Reich. The movement appeared to be dead'. Then, with rhetorical finesse she asks, 'Or was it just sleeping?'[44] Paul's question begs an affirmation that, yes, the old eugenics has slept only to stir and awaken with vigour at the end of the twentieth century. Now, the twenty-first century faces a renewed eugenics that eschews the heinous, outright coercion of an earlier era but nonetheless operates with the undergirding principle that people may (should?) be ethically improved by technological advancements.

By carefully taking into account the lessons that can be learnt from history, it is possible instead to evaluate cautiously all the different procedures which can be characterized as eugenic. This alternative starting point opens the possibility of suggesting that not all procedures are unethical. For example, a woman's decision to choose a certain kind of husband may be unconsciously influenced by considerations such as age and reproductive capability. Strictly speaking, this would be a decision that has a eugenic component, though most worldviews would not consider such a choice as being unethical. Thus, not all forms of decisions which may have an indirect eugenic element need to be considered as inherently unethical. Stephen Wilkinson writes 'if there really are sound eugenics arguments in play then we need these to be clearly and unambiguously articulated. Only then will we know which technologies to ban or restrictively regulate, and understand properly the reasons for doing so'.[45]

In summary, this book allows that all strategies aimed at affecting or deciding the genetic heritage of a child, a community or humanity in general are eugenic procedures. This approach to the term 'eugenic' is broader than a number of past definitions that only addressed the consequences for a whole population.[46] But the approach here is sound, since the principle of eugenic selection is consistent regardless of the subject, whether for a nation, a family or an individual. Still another reason why the term 'eugenic' cannot characterize only programs taking place on the scale of a nation or large community concerns the nature of corporate entities. The accumulation of many single voluntary decisions by parents will eventually have a significant, though unintended, impact on the whole of a population. For example, a majority of parents may choose to avoid disability, and an accumulation of such decisions could have a eugenic impact on a societal group.[47] As the ethicist Cynthia Cohen puts it, 'Individual decisions taken collectively, if promoted and supported as a matter of public policy, could amount to a new form of eugenics'.[48] Indeed, policy options may reflect social propensities.[49]

The practice of eugenics, however, is also related to the broad ethical theory known as consequentialism which is at risk of becoming the highest priority in

terms of seeking to increase happiness or wellbeing while trying to reduce suffering in a child, a community or society in general. There are many versions of consequentialism, and different nuances provide slightly different ethical results when applied to the question of the new eugenics.[50] But the underlying maxim of the theory is 'Always do whatever produces the greatest good'.[51] Eugenics is driven by this impulse to maximize what is good, as seen in the relentless quest for health and the avoidance of suffering.[52] So common is the assumption that pursuit of the greatest good equals the ethical good that one industry analyst writes: 'Biotech advocates deploy the priority of good health to deflect concerns about the power of these technologies to reinforce race, gender and other social inequities. They portray health as the unassailable aim of human biotechnologies and insist that it takes precedence over political and social interests'.[53]

The Oxford ethicist Julian Savulescu has been an outspoken advocate for this kind of consequentialist approach to health, arguing that parents are obliged to seek to create the best possible children.[54] At the same time, he recognizes that the fabric of liberal society prevents him from legislating too firmly against the rights of parents. He states that 'we should allow couples to make their own decisions about which child to have' even if that means selecting children with disabilities.[55] In spite of this caveat, though, Savulescu contends that medical technologies should be used to dispense with disability and disease. To put it mildly, this is a common opinion in discussions of selection procedures and human enhancement.[56]

Another prominent ethicist, John Harris offers a particularly lucid and challenging version of this perspective in his 2007 book *Enhancing Evolution.* From the outset, Harris laces polished prose with an overt agenda to convince his reader that abolishing disability and disease is not only desirable but ethically mandatory. 'We ought to want this', Harris writes, referring to the educational utopia he describes in which children are healthier and more intelligent than any previous human beings.[57] As the book continues, though, Harris shows that this hypothetical educational scenario is actually a metaphor for the sweeping technological developments that he envisions will transform humanity. In discussing the ethics of selection procedures, Harris concludes that parents 'have to do their best'.[58]

This consequentialist manner of thinking and its associated choices in relation to the expected health and quality of life of the future child has, therefore, become a dominating emphasis in eugenics. As the legal ethicist Roberto Andorno notes, 'It is precisely when this "quality control" is applied to human procreation, and especially to the fruit of procreation, i.e. children, that it constitutes, by definition, a eugenic practice'.[59]

This book aims to accomplish two tasks. The first aim is to provide an introduction on the selection procedures that constitute the new eugenics. In doing so it will examine and evaluate these contemporary practices within their historical context and present a fresh contribution to the ongoing dialogue about how society can appropriate technological advancements in an ethical manner. A mark of

wise and measured progress will be a willingness to understand the present in light of the past. Accordingly, this book does not discard the unpleasant practices of the twentieth century, although it may not always be easy reading. The second aim is to stimulate and galvanize discussion in the public square—not merely in the ivory towers of academia—regarding where to draw a line between what is acceptable and what is not.[60]

The matters considered in this volume extend beyond the tidy books and articles of professionals and reach into the lives of all members of society. Consequently, men and women responsible for societal well-being will have to address these issues, and this book offers a convenient entry point for all interested parties, politician and layman alike. The philosopher Alasdair MacIntyre recognized the importance of public discussion and particularly the role of the politician: 'What we actually do will be determined by what those who hold social and political power more generally decide, for a variety of reasons, it is good to do'.[61] In no small measure the future of human society depends on how legislative bodies delineate between health and enhancement, treatment and eugenics. The editors of this volume, on behalf of the many other hands and minds that have contributed, present the following pages in conviction that questions relating to the new eugenics deserve a studied response.

Notes

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6. W.E. Seidelman. 2002. 'Pathology of Memory: German Medical Science and the Crimes of the Third Reich', in F.R. Nicosia and J. Huener (eds), *Medicine and Medical Ethics in Nazi Germany: Origins, Practices and Legacies,* New York: Berghahn Books, 97.
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8. President's Council on Bioethics. 2003. *Beyond Therapy: Biotechnology and the Pursuit of Happiness. A Report of the President's Council on Bioethics* (Washington, DC), 30–31.
9. Ibid.
10. C. Rosen. 2003. 'Eugenics—Sacred and Profane', *The New Atlantis* 2, 89.
11. D. Wikler. 1999. 'Can We Learn From Eugenics?', *Journal of Medical Ethics* 25(2), 183–94.
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15. Harris, *Enhancing Evolution,* 9. Cf. British Medical Association. 2007. 'Boosting Your Brainpower: Ethical Aspects of Cognitive Enhancements', Retrieved 27 August 2010 from http://www.bma.org.uk/images/Boosting_brainpower_tcm41-147266.pdf.
16. President's Council, *Beyond Therapy,* 13.
17. Grunwald, 'Human Enhancement', 1–3.
18. For example, prescribing Ritalin for ADHD could be construed as either enhancement or therapy, but regulatory agencies somehow manage to make and generally enforce the distinction between permitting it for therapy and not for enhancement, F. Fukuyama. 2002. *Our Posthuman Future: Consequences of the Biotechnology Revolution,* New York: Farrar, Straus and Giroux, 210.
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21. British Medical Association, 'Boosting Your Brainpower', 5.
22. B. Mitchell. 2009. 'On Human Bioenhancements', *Ethics & Medicine* 25, 133.
23. For some, an intervention may be a therapy, but for others the same intervention may be a clear enhancement, leaving a gray area in between. Moreover, it can be unclear whether therapies, whose primary purpose is curing diseases but which have a secondary potential of improving performance, should be classed as enhancements or treatment.
24. The bioscience commentator David King remarks, "It may be impossible to produce a *definition* that everyone agrees with." In D. King. 1999. 'The Persistence of Eugenics', *Human Reproduction and Genetic Ethics,* 5(2), 32.
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29. S. Wilkinson. 2010. *Choosing Tomorrow's Children: The Ethics of Selective Reproduction,* Oxford: Oxford University Press, 158.
30. Quoted in Paul, *Controlling Human Heredity,* 125.
31. Paul, *Controlling Human Heredity,* 132.
32. Paul, *Controlling Human Heredity,* 3–4.
33. Paul, *Controlling Human Heredity,* 71.
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35. D.B. Paul. 2005. 'Genetic Engineering and Eugenics: The Uses of History', in H.W. Baillie and T.K. Casey (eds), *Is Human Nature Obsolete?,* Cambridge Massachusetts: The Massachusetts Institute of Technology Press, 2005, 124.
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37. N. Agar. 2004. *Liberal Eugenics, In Defence of Human Enhancement,* Oxford: Blackwell, 5.
38. Agar, *Liberal Eugenics,* vi.
39. Paul, *Controlling Human Heredity,* 135.
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43. D.J. Galton. 2002. *Eugenics: The Future of the Human Life in the 21st Century,* London: Abacus, xiii.
44. Paul, *Controlling Human Heredity,* 2.
45. Wilkinson, *Choosing Tomorrow's Children,* 150. For a discussion on the topic of the language of eugenics, see S. Wilkinson and E. Garrard. 2013. *Eugenics and the Ethics of Selective Reproduction,* Keele: Keele University.
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47. K. Chung. 1999. *Designer Myths: The Science, Law and Ethics of Preimplantation Genetic Diagnosis,* London: Progress Education Trust, 17.
48. C.B. Cohen. 2003. 'Designing Tomorrow's Children', in A.R. Chapman and M.S. Frankel (eds), *Designing Our Descendants,* Baltimore: John Hopkins University Press, 2003, 305.
49. Similarly the French Conseil d'État indicates that 'Eugenics can be defined as the set of methods and practices aimed at improving the genetic heritage of the human species. It may be the product of a deliberate policy taken by a State which is contrary to human dignity. It can also be the collective total result of convergent individual decisions made by prospective parents, in a society where the search for the 'perfect child', or at least free from many serious disorders, would prevail.' (Translated by Calum MacKellar) Conseil d'État. 2009. *Étude sur la révision des lois de bioéthique,* Paris : Conseil d'État, 30.
50. For example, 'rule consequentialism' mandates that people act according to an internalized code of behaviour. For a concise description, T. Mulgan. 2009. 'Rule Consequentialism and Non-identity' in M.A. Roberts and D.T. Wasserman (eds), *Harming Future Persons: Ethics, Genetics and the Non-identity Problem,* Dordrecht: Springer, 123–27. And, more comprehensively, T. Mulgan. 2006. *Future People: A Moderate Consequentialist Account of Our Obligations to Future Generations,* Oxford: Clarendon Press.
51. This, of course, is an oversimplified representation of consequentialism. The classic expression of the theory can be found in J.S. Mill's nineteenth-century treatise *Utilitarianism.* See H.R. West. 2004. *An Introduction to Mill's Utilitarian Ethics,* Cambridge: Cambridge University Press.
52. Admittedly, there is no unanimity about what counts as 'good', but there is widespread assumption that health is not bad.
53. D. Roberts. 2010. 'The Social Immorality of Health in the Gene Age: Race, Disability and Inequality', in J.M. Metzler and A. Kirkland (eds), *Against Health: How Health Became the New Morality,* New York: New York University Press, 61.
54. J. Savulescu. 2001. 'Procreative Beneficence: Why We Should Select the Best Children', *Bioethics* 15, 413–26. For a discussion about this principle, see R. Bennet. 2009. 'The fallacy of the principle of procreative beneficence', *Bioethics* 23, 265–73. See also Mills C. 2011. *Futures of Reproduction: Bioethics and Biopolitics,* Heildelberg: Springer, 58–71.
55. Savulescu, 'Procreative Beneficence', 425.
56. The prolific literature from this perspective prevents a thorough discussion. See e.g., Savulescu and Bostrom, *Human Enhancement,* and J. Savulescu, R. Ter Meulen, and G. Kahane (eds). 2011. *Enhancing Human Capacities,* Oxford: Wiley-Blackwell.
57. Harris, *Enhancing Evolution,* 1.
58. Harris, *Enhancing Evolution,* 142.

59. 'C'est précisément ce « contrôle qualité » qui, appliqué à la procréation humaine et surtout au fruit de la procréation, les enfants, constitue par définition une pratique eugénique'. R. Andorno. 2010. 'Fondements philosophiques et culturels de l'eugénisme sélectif', in J. Laffitte, I. Carrasco de Paula (eds), *La génétique, au risque de l'eugénisme?* Paris: Edifa-Mame, 129, (translated by Calum MacKellar).
60. J. Habermas. 2003. *The Future of Human Nature*: Cambridge: Polity, 21.
61. A. MacIntyre. 1979. 'Seven Traits for the Future', *The Hastings Center Report* 9(1), 5–7.