

to say that we are trying to find, and in many cases we are finding, the bases of these human traits, and that these bases, it turns out, just happen to be genetic (Han, 2002). If we focus on the genetic influences for traits such as intelligence, sensibility, memory, sympathy, or talent, we will quite likely find them. Of course, this means neither that these are the only influences in the development of such traits nor that they are the most relevant influences (Chakravarti and Little, 2003).

3 Why is this Important?

Failing to achieve a balance between interests in the theoretical possibilities related to genetic enhancement and a responsibility to evaluate the feasibility of those promises is problematic for several reasons. First, it does nothing to promote an informed public dialogue. We are presenting as realities what might be wishful thinking: from immortal beings, to intellects that can read books in seconds, to creatures that can communicate through brain-to-brain interactions, to entities whose moral equality is at stake. It is essential in democratic societies that people be informed about scientific advances. The public should know what current biomedical research can accomplish as well as what is improbable. Overconfidence in the power of science prevents a correct evaluation of the ethical and social implications of biomedical research. It helps nobody, certainly it does not help democratic participation, to have the public and policymakers believing that the genetic enhancement of human beings is a simple endeavor ready to be used in the creation of a new species of post-humans.

Second, discussing the dangers or benefits of a new species of post-humans as if such an event was scientifically and technologically unproblematic might contribute to a possible loss of trust in scientists and the scientific enterprise. Such trust can be threatened when the public perceives that scientists are trying to accomplish what many might see as unjustifiable goals from creating immortals, to building cyborgs, to directing human evolution towards the so-called post-human. And such distrust could in turn encourage the implementation of public policies that might endanger legitimate research programs. Yet trust in science can also be jeopardized by rising expectations that are unlikely to be attained. If people are led to believe that genetic research is the new panacea, they will not take it kindly when failures occur and hopes are shattered. For example, the very negative public reaction to NASA space research after the accident of the Challenger shuttle might be related to the agency's presentation of space travel as perfectly normal, rather than as an ongoing risky experiment (Dunar and Waring, 1999).

Third, the emphasis on genetic manipulation, whether as a solution to human vulnerabilities or as a threat to human dignity, exaggerates the role of genes in the development of human traits and characteristics and neglects the role of social and environmental influences. Obviously this does not mean that genes are not important; they are, however, not the only important things influencing human beings.

Fourth, because many discussions about the genetic enhancement of human beings are grounded on an incorrect understanding of the role of genes in human biology they help promote genetic determinism. This in turn might contribute to public policies that incorrectly emphasize genetic interventions rather than preventive measures, life style modifications, or transformation of social structures. An erroneous view of the role of genes in human biology might also result in people seeing information about their genetic make up as fate (Senior et al., 1999; Wright et al., 2003). Thus, although life style and institutional changes could improve peoples' well-being, the motivation to do so might be lacking. Moreover, by presenting human traits and behaviors as if they were the result of the exclusive play of our genes, and as completely independent of our social life, we can also miss the opportunity to improve the aspects of our social, political, and legal systems that need to be improved. For example, often the desire to enhance particular traits results from the fact that such an enhanced trait will confer a competitive advantage in our society. Take, for instance, a desire to enhance human height, or, something that is now technologically possible, the desire to choose the sex of a child. The value of these traits is however dependent on our particular social arrangements and not on the fact that height or a particular sex are traits that will increase our well-being in any kind of society that humans can create. Thus, our social arrangements result in presumably unjustifiable disadvantages for people who are short or are female and advantages for people who are tall or are males. It is in this context that we think enhancing this trait or choosing our children's sex would be a good. But if we change our social institutions to address the discrimination against people, then we will have little reason to desire the manipulation of such traits.

If the arguments I have present here are correct, worries or hopes of a post-human future appear to be misplaced. Furthermore, the debate about the risks and benefits of using genetic enhancement to create a new species of post-humans is unlikely to contribute to an informed discussion of these issues or to help further human well-being.

4 Concluding Remarks

The reflection on the theoretical consequences of genetic enhancement has come to be presented as a discussion of whether it is wise for us to proceed with, or whether we have the luxury to prevent, the creation of the post-human. That the post-human – a being whose capacities so greatly exceed current human ones that we cannot recognize it as human anymore – is achievable is not a matter of debate. Scant evidence exists, however, in support of this belief. One of the many difficulties with debates about the creation of post-humans using genetic enhancement is that we are not exactly sure what a post-human would look like. It is obvious that any argument defending or rejecting the creation of these new entities has to presuppose a particular conception of human nature. Those who see human nature as somehow deficient will tend to embrace technologies that can “improve” it. However, those who see