

Genetic engineering: Stop the race for perfection



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Many years from now, the world will be a better place to live. People will be happier, healthier, more intelligent and better-looking. They will lead more meaningful, more active, longer-lasting lives.

Aggressive traits will have been removed from the human species, resulting in lower crime rates and the abandonment of wars as a means of solving a conflict.

People will be programmed to be faithful and monogamous. There will be fewer divorces, fewer sex crimes and fewer instances of sexual harassment.

Most diseases, such as cancer, AIDS and multiple sclerosis, will have been cured, and no children will be born with brain damage or physical disabilities.

Everyone will be tolerant and open-minded. Racism, sexism and bigotry, some of the most destructive human characteristics in the past, will be unheard of in this Brand New World.

Sounds too good to be true?

Admittedly, this scenario does not seem plausible today. But with the rapid development in human genetics and genetic technology, the things that seemed an impossibility yesterday are a possibility today and will become a reality tomorrow.

Al Gore, chairman of the Congressional Committee on Science and Technology in 1985, wrote that "biotechnology has more potential to reshape the world ... than any other technology except nuclear power."

"Biology is destiny," Sigmund Freud once said. In the future, we will change our biology to take control of our destiny.

Today, we're using genetics to cure human diseases. Tomorrow, we might use it to cure the human condition.

With today's level of technology it's possible to alter the genetic material in a single cell or a group of cells. This technology, called gene therapy, has changed the face of modern medicine and opened up a world of previously inconceivable advances. Just recently, scientists have begun to use gene therapy to treat genetic diseases.

Changing the genes in the body cells is called somatic gene therapy. This technology is, in itself, generally accepted today. In many ways, it's just an extension of modern medicine. Many of today's worst killers, such as

AIDS and cancer, may be cured by gene therapy in the future.

Although most people think this technology is intrinsically acceptable, many think that some of its applications are not. For instance, it may not be easy to distinguish between genetic treatment and genetic enhancement. To understand this distinction, we must have a clear and precise definition of what a disease is.

But who can say exactly what a disease is? Attorney Jeremy Rifkin, one of the most vocal critics of genetic engineering, says, "Where do we draw the line? We'll want to eliminate Tay-Sachs disease, an early childhood killer. Heart disease can kill you at 20, emphysema at 60 and Alzheimer's at 70... How about acne? At what point do we move from trying to cure horrible genetic diseases to trying to enhance a genetic trait?"

Rifkin believes the ultimate goal of scientific pursuit is perfection and immortality. He thinks there is a fine line that separates modern genetic engineering from the eugenic movement of the past. Rifkin says the possible consequences of human gene therapy constitute "the most impressive social problem the human family has ever had to deal with, excepting the dropping of a nuclear bomb."

If the prospective of somatic gene therapy doesn't scare you, germ-line gene therapy will.

While somatic gene therapy changes the genetic compound of the body cells, germ-line gene therapy changes the sex cells. In other words, germ-line gene therapy means altering the human hereditary material.

That means, to put it simply, that germ-line gene therapy will allow scientists to cure diseases before their patients are born—even before they're conceived. By using germ-line gene therapy, we can make sure that all babies are born strong and healthy.

But if we can't define "disease" properly, "strong and healthy" is an ambiguous term. Perhaps we can agree that leukemia, cancer, AIDS, physical disabilities and brain damage are undesirable diseases that should be eradicated before birth. But where do we draw the line? How about inferior intelligence, an unattractive appearance, an unusually short or tall stature, a body with a high fat content?

If the technology becomes available, and it probably will, these are questions that we will have to deal with. In the future, it may be possible for us to create a Brand New World such as the one outlined above. The question is: Do we really want it? Do we really want to be perfect?

Ethics and science don't always go hand in hand. Knowledge is, I suppose, intrinsically neither good nor bad, but the application of knowledge can be

disastrous. Just think of nuclear technology. It's a great idea, but an abuse of this knowledge could have monstrous consequences.

In the case of nuclear technology, the development occurred so fast that nobody except the scientists knew what was happening. It was wartime, and people didn't have time to think of the ethical consequences of the development of a new technology. When the atom bombs were dropped over Hiroshima and Nagasaki in August 1945, many people didn't even know what an atom bomb was, and nobody—not even its creators—were aware of the full extent of its destructive power.

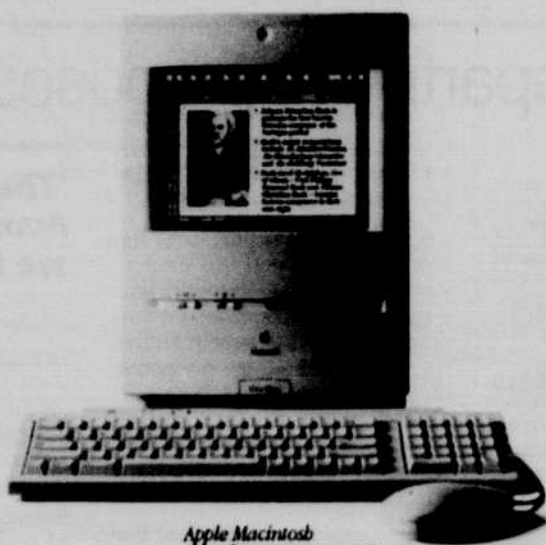
In the case of genetics, we have a chance to outline the ethical guidelines for this technology as it is being developed. Gene technology is still in an early stage of its development, and although some of its technical aspects are incomprehensible for laypeople, it's still possible to have a basic understanding of the field.

It's important that we don't let genetics become the sole property of scientists. Genetics is going to change our lives; in fact, it may change the meaning of being human. And everyone should be able to take part in the decisions that will shape human history in the years to come.

Marius Meland is a columnist for the Emerald.


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