

ETHICAL FRONTIERS

RESURRECTING A WOOLY MAMMOTH?

In the November issue of *Nature* magazine a pair of scientists, Stephan C. Schuster and Webb Miller, speculated that it is now feasible to resurrect extinct species (60,000 years and fewer years ago) through genetic engineering. All that is needed is DNA extracted from hair, horn, hooves, fur or feathers of the extinct animal, some sophisticated new technology, twelve million dollars or so, and a lot of patience and pains-taking gene altering.

The first resurrected animal could be the Woolly Mammoth, an animal extinct for some ten thousand years. Remains abound, including entire animals frozen in the far North where they once roamed. Soon the Mammoth genome, at a cost of two million dollars, will be mapped from clumps of Mammoth hair frozen for millennia in sub-arctic regions. Next a skin cell converted into an embryonic state from a contemporary Africa elephant could be altered (painstakingly) on some 400,000 differing genetic sites, one at a time, until it resembled the Woolly Mammoth genome. The altered cell could then be implanted in an elephant's womb until term. *Voila!* A resurrected Mammoth. (This process would cost ten million dollars.)

This laborious process is the simplest and most reliable technology for now, though current research is seeking ways that 50,000 genetic sites can be altered at one time. This would open up the process for the resurrection of untold extinct species.

Amazing, eh? But how does it sit with you, these amazing advancements in biological technology that can resurrect an extinct species? Do they make you uneasy about Science generally?

This week NYTimes Science Times section offered a lead article, "Elevating Science, Elevating Democracy," by Dennis Overbye that noted:

SCIENCE AND ETHICS

The knock on science from its cultural and religious critics is that it is arrogant and materialistic. It tells us wondrous things about nature and how to manipulate it, but not what we should do with this knowledge and power. The Big Bang doesn't tell us how to live, or whether God loves us, or whether there is any God at all. It provides scant counsel on same-sex marriage or eating meat. It is silent on the desirability of mutual assured destruction as a strategy for deterring nuclear war.

Einstein seemed to echo this thought when he said, "I have never obtained any ethical values from my scientific work." Science teaches facts, not values, the story goes.

Worse, not only does it not provide any values of its own, say its detractors, it also undermines the ones we already have, devaluing anything it can't measure, reducing

sunsets to wavelengths and romance to jiggy hormones. It destroys myths and robs the universe of its magic and mystery.

So the story goes.

RESURRECTING A NEANDERTHAL?

In the same Nature magazine article that speculated on the imminent resurrection of the Woolly Mammoth, the scientist authors spoke of possibilities that bring us to the brink of the human condition and related ethical considerations.

The Neanderthal genome will soon be mapped. And in a way similar to how a Woolly Mammoth might be genetically engineered from an elephant cell, a human cell could be altered on differing sites to result in a resurrected Neanderthal. Now this strikes secular as well as religious ethicists as unthinkable, something of an abomination against nature. (Awakened here, it seems to me, is the so-called “yuck” factor that relates to the Purity aspect of our innate moral sense.)

However, would it be as *unethical* or *unethical at all* to take a Chimpanzee cell and alter it so as to produce that same resurrected Neanderthal? For some, this seems less odious or more justifiable. For some this seems less “yucky” or not “yucky” at all.

In my estimation this ethical quandary--from chimpanzee to Neanderthal or from human to Neanderthal--is an exquisite ethical conundrum to tease out what is possible versus what is right and good.

I cringe at resurrecting a Neanderthal from either a chimpanzee or from a human. But I'm fascinated by the possibility of a Mammoth or group of Mammoths once again walking the earth.

Right now we have a window to speculate, to ponder in depth the meaning of Nature and Human Nature. What resources do we have to resurrect a Mammoth or a Neanderthal? And having those resources for what reasons do we proceed. And ultimately whose decision is it?

Whenever I think of ethical frontiers, such puzzling choices with broad and profound impact, on human meaning I remember a poem by the great American moralist, the poet Robert Frost, “There Are Roughly Zones.” (The poem always makes me think of the colored bands on the back of seed packets.)

THERE ARE ROUGHLY ZONES

*We sit indoors and talk of the cold outside.
And every gust that gathers strength and heaves
Is a threat to the house. But the house has long been tried.
We think of the tree. If it never again has leaves,*

*We'll know, we say, that this was the night it died.
It is very far north, we admit, to have brought the peach.
What comes over a man, is it soul or mind---
That to no limits and bounds he can stay confined?
You would say his ambition was to extend the reach
Clear to the Arctic of every living kind.
Why is his nature forever so hard to teach
That though there is no fixed line between wrong and right,
There are roughly zones whose laws must be obeyed?
There is nothing much we can do for the tree tonight,
But we can't help feeling more than a little betrayed
That the northwest wind should rise to such a height
Just when the cold went down so many below.
The tree has no leaves and may never have them again.
We must wait till some months hence in the spring to know.
But if it is destined never again to grow,
It can blame this limitless trait in the hearts of men.*

I repeat a few salient lines: “What comes over a man, is it soul or mind---/That to no limits and bounds he can stay confined?”/// “That though there is no fixed line between wrong and right,/There are roughly zones whose laws must be obeyed?”/// “It can blame this limitless trait in the hearts of men.”

I have two other consider ethical conundrums to help frame the enormity of what faces us as embedded in human civilization, our nation, and our world.

TRIAGE ETHICS

First we look at Triage Ethics:

We have catastrophe on the mind--a society wide disaster that will severely tax resources, including medical care. Such a catastrophe might be pandemic flu or a terrorist attack.

The medical community is drawing up emergency plans to meet such catastrophes, using the battlefield principles of *triage*. Triage divides the injured into three groups: 1) those for whom immediate care will save lives, 2) those who can wait for care and will probably survive, and 3) those with the severest injuries, whose survival is least likely. The third group also includes individuals who fall into undervalued categories, such as the most aged. Medical care is not first come first served, but in the order of group 1, group 2, and finally group 3. In extreme circumstances group 3 may never get care.

Ethicists justify triage on the grounds of maximizing the survivors, while best using limited resources. In May 2008 the American College of Chest Physicians issued a report in their magazine "Chest" that declared, "If a mass casualty critical care event were to occur tomorrow, many people with clinical conditions that are survivable under usual

health care system conditions may have to forgo life-sustaining interventions owing to deficiencies in supply or staffing."

Among those in the triage bottom third are people older than 85; those with severe trauma, which could include critical injuries from car crashes and shootings; severely burned patients older than 60; those with severe mental impairment, which could include advanced Alzheimer's disease; and those with a severe chronic disease, such as advanced heart failure, lung disease or poorly controlled diabetes.

In my estimation this and the many similar reports (including a recent 1900 page California document) has had insufficient attention rather. Triage causes us to consider both the essential and the contextual value of life. For example, relative youth trumps advanced age.

A thoughtful conversation about triage ethics might make us all more compassionate and understanding of what really matters when it comes to the human condition, as we exist in the reality of our society.

WATER BOARDING

And finally let's consider a form of interrogation or torture (the designation is a matter of perspective) that's called *water boarding*.

Here's a rather matter of fact account of the practice, taken from a website called waterboarding.com.

*Restrain the interrogation subject on a board. Incline the board about 15-20 degrees so that the feet are above the head. Optionally, put a damp cloth over the face to keep the water clinging to the face (Khmer Rouge technique), or put plastic wrap over the mouth but not the eyes or nose to prevent water from escaping the throat and sinuses (CIA technique). Pour water onto the inclined face so that the water runs into the upturned mouth and nose. The water stays in the head, filling the throat, mouth, and sinuses with water. The lungs don't fill up with water so your prisoner doesn't asphyxiate, but they *do* feel their entire upper respiratory system from sinuses to trachea filled with water, "simulating drowning". You're drowning your subject from the inside, filling their head and neck. The lungs stay out of the water, keeping oxygen in the blood and prolonging the glubbing. "His sufferings must be that of a man who is drowning, but cannot drown."*

Key points:

- *Keep the chest elevated above the head and neck to keep the lungs "above the waterline".*
- *Incline the head, both to keep the throat open and to present the nostrils for easier filling.*
- *Force the mouth open so that water can be poured into both the nose and mouth.*

Saran wrap, damp cloth, or any facial covering is not essential, but sometimes used as a bonus multiplier. If someone coughs to try to blow the water out of their throat or mouth the plastic catches the water and keeps it in. The cloth or plastic also acts as a one-way valve, opening to let more air out and then closing again to prevent inhalation. Eventually you end up with collapsed, empty lungs, no ability to inhale more air, a throat, mouth, and nose that's still full of water, and no capacity to get the water out since you're already fully exhaled. "CIA officers who subjected themselves to the water boarding technique lasted an average of 14 seconds before caving in." (In practice, "14 seconds" is roughly the amount of time one can exhale slowly through the upturned nose. This keep the water out, temporarily. When your breath runs out the water starts flowing in.) There are a lot of variables to play with: the angle of the board, the volume of the water, the pressure of the plastic wrap, how much inhalation to allow, and where to keep your prisoner on the line between "waterlogged wheezing" and "deep gurgling".

Waterboarding has been used in recent years by our government, at least the CIA, in interrogating high level terrorists at the detainee compound at Guantanamo Bay. One detainee was cited as being able to withstand the technique for a remarkable two and a half minutes.

There's considerable agreement across the International Community that waterboarding is a form of torture. In this country those who sanctioned it as a professional interrogation technique justify using it as a necessity in fighting an insidious war on terror, waged by non-traditional combatants.

On January 15, Attorney General nominee Erik Holder, Jr. declared in his hearings that waterboarding was a form of torture. On January 22 the CIA Director nominee Retired Adm. Dennis Blair obfuscated whether water boarding was a form of torture saying, "There will be no waterboarding on my watch. There will be no torture on my watch." Also On January 22 President Obama effectively banned its use with an Executive Decree, requiring that the Army field manual be used as the guide for terror interrogations.

What do you think? Is waterboarding a form of torture? If yes, is its use ever justified?

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Regarding such monumental ethical issues, our liberal religious way has an important role to play for a number of reasons: We are rational and reasonable. Though committed to progress, we are nonetheless keepers of tradition. (In the scheme of religion/churches we are the most liberal of this conservative tradition.) We are expansive in outlook, a measure of our tolerance, acceptance, and respect for varied outlooks. We have long been focused on an ethical religion, so when it comes to ethics we own a big piece of the franchise. (Indeed, 120 years ago our own congregation was founded in what is known as "the ethical basis" school of religion.) Such attributes recommend us as a place/people where/for whom exploration and discussion of monumental ethical conundrums can and should take place.

My simple admonition this morning is, let's find the ways and means to do so for the great ethical puzzles of our age, because in the scheme of society this church is a special and apt place to do so.