[Denial]

THE SPLENDID SPLINTERED

From an October 7 press release by the Alcor Life Extension Foundation, a nonprofit organization in Scottsdale, Arizona, that cryonically preserves members' heads or bodies "with the intent of restoring good health when technology becomes available to do so." On October 6, ABC's Nightline *investigated claims by former Alcor employee Larry Johnson about the company's mishandling of the remains of baseball player Ted Williams. The claims appeared in Johnson's book* Frozen: My Journey into Cryonics, Deception and Death, *which was published that month.*

Mr. Johnson claims he witnessed Alcor staff striking Ted Williams's head with a wrench. Multiple documented witnesses state without hesitation that Mr. Johnson's claims are pure fabrication.

Johnson's statements about tissue debris, tuna, and cats are fictionalized accounts crafted for maximum tabloid shock value, as is nearly the entirety of his book.

Johnson alleged that Williams's head was stored in an unsafe, malfunctioning freezer. In some instances, Alcor neuropatients have been stored for as long as one year in a Cryostar freezer at temperatures near –130° C. This is done for purposes of relaxing thermal stress prior to final descent to –196° C. The process is very expensive, so it has been done only in cases where patients requested and paid for it or on the recommendation of scientific advisers. Any statements that the Cryostar was unsafe are either misinformed or assume the freezer was not equipped with thermal-buffering or backup systems.

As to references to "cracking," Johnson knows full well that fracturing is expected in every cryopreservation and is an unavoidable result of cooling large volumes of tissue toward liquid-nitrogen temperature. Mr. Johnson's representations of fracturing as the result of mishandling is deliberately misleading.

The sensationalized reference to the use of a "hammer and chisel" in a cryopreservation demonstrates either Mr. Johnson's ignorance or an effort to hoodwink the public. In a surgical context, those instruments are called a "mallet and osteotome" and are commonly used by orthopedists.

Nightline asked in the lead-in to the segment, "Is this self-styled whistle-blower just out to make money?" The answer is a resounding yes.

spokesperson would be a "pregnant young mother who would be willing to speak around the country about the benefits of BPA."

Members noted that the industry needs research on how perceptions of BPA are translating into consumer behavior. Are they translating into most moms not buying canned products or just a minority of moms? Attendees hope to form messages relevant to how people live their lives: What does not having BPA mean to your daily lifestyle? Focusing on the impact of BPA bans on minorities (Hispanics and African Americans) and the poor is also important.

Attendees noted that it does not matter what the next material is—there will be issues with it, and the committee wants to work to make people feel more comfortable with BPA and "BPA2," or whatever chemical comes next.

[Preview]

MUTATIONS OF IMMORTALITY

From an interview with Christian Bök, by Jonathan Ball, in the June issue of The Believer. *"Within Rigid Limits," an excerpt from Bök's book* Eunoia, *appeared in the June 2006 issue of* Harper's Magazine.

Could you describe your next project?

The Xenotext Experiment is responding to the millennial science of genetics. I'm trying to write a book of poetry in which I translate a single poem, through a process of encipherment, into a sequence of genetic nucleotides, and then, with the assistance of scientists, I plan to build this genetic sequence in a laboratory so that I can implant the gene into a bacterium, replacing a portion of its genome with my text. The bacterium would, in effect, *be* the poem. I've selected an organism that is widely regarded to be the most unkillable bacterium on the planet, an organism called *Deinococcus radiodurans*. Its name means "strange berry that withstands radiation." The organism was discovered, I believe, in the 1950s, when scientists were conducting experiments with radiation on foodstuff, primarily meat, in order to see whether or not they could prolong the shelf life of tinned food. The irradiated meat, however, still rotted, despite having received a dosage sufficient to kill

COURTESY THE ARTIST, MUSEUM OF CONTEMPORARY PHOTOGRAPHY, CHICAGO, AND GALLERY LUISOTTI, SANTA MONICA, CALIFORNIA

"Long exposure with insects: Correr es mi destino from Arizona/Mexico," a photograph by Simon Norfolk, will be on display next September at Breda Photo 2010, in Breda, Holland.

all known pathogens, and, consequently, the scientists discovered that one pathogen had survived this experiment: the bacterium now called *Deinococcus radiodurans*. A few scientists have speculated that the organism may have evolved in outer space, just because the microbe is so resistant to extremes of heat and cold; it can survive in a vacuum, and it can survive a thousand times the dosage of gamma radiation that would instantly kill a human being. The microbe could probably survive a nuclear holocaust, and because it repairs its own DNA very quickly, it remains relatively resistant to evolutionary drift. The microbe is so durable that, if I were to store a poem in the matrix of this organism, I would effectively be creating a literary artifact that (except perhaps for the *Pioneer* probes and the *Voyager* probes) would be one of the few objects so far created by humans to outlast terrestrial civilization itself. I am hoping, in effect, to write a book that would still be on the planet Earth when the sun explodes. I guess this project is a kind of ambitious attempt to think about art, quite literally, as an eternal endeavor.

Could you describe the physical process of transforming this poem into a biological organism?
The process of translation is pretty straightforward. I'd write a poem, and then I would arbitrarily assign to each letter of the alphabet a "triplet" of genetic nucleotides. There are four nucleotides in DNA: adenine, cytosine, guanine, and thymine, and they are represented typically by the letters *A*, *C*, *G*, *T*, respectively. I could, for example, say that the triplet of letters *ACT* might represent the letter *A*, while the triplet of letters *AGT* might represent the letter *B*, etc. By assigning, say, a triplet of such letters to each letter of the alphabet, I would construct a cipher that could be embodied in the genetic sequence of this or-

ganism. I'm trying to design the code in such a way that the gene sequence I implant in the bacterium would actually cause it to produce a protein in response. A protein that, according to my original chemical cipher, would itself be yet another poem. The protein would be produced as a set of amino acids, and every amino acid could be correlated to a triplet of three genetic nucleotides as well, so that's how it would transfer. I would not only be storing my poem in the organism, in its genetic matrix, but I would also be hijacking the organism and turning it into a machine for writing a poem in response. Because these two poems are chemically correlated, they are actually biochemically constrained by each other. It's tantamount to writing two poems that mutually encipher each other—that are correlated in a very rigorous way. In the Sunday newspaper there are often cryptograms—puzzles that consist of a couple of sentences of what looks like gibberish, but by analyzing both the letter frequency and the letter patterns in such gibberish, you can begin to decipher what the message might say. I've always wondered why they have to be nonsensical gibberish. Why don't the puzzle designers create a meaningful sentence that could in turn be deciphered into yet another meaningful sentence? In effect, that's what I'm trying to do, to write such a puzzle—one that consists of a meaningful sentence that could be deciphered into yet another meaningful sentence. Imagine writing a poem by assigning to every letter of the alphabet some other letter, so that they are mutually assigned—so, for example, if I were to assign *E* to *A,* I'd have to assign *A* to *E;* if I were to assign *D* to *T,* I'd have to assign *T* to *D,* and so on. Imagine enciphering the alphabet according to such a rule. There are about 8 trillion different ways of enciphering the alphabet so that the letters are mutually encoded. Pick one of those 8 trillion ciphers. Now write a poem that is beautiful, that makes sense, in such a way that if you were to swap out every single letter of that poem and replace it with its counterpart from the mutual cipher, you'd produce a new poem that still remains just as beautiful and that still makes sense. So I'm trying to write two such poems. One of these poems is the one that I implant in the bacterium. The other poem is the one that the organism writes in response. It's a very challenging task. I've learned, for example, that if I want my poem to include the word *language* there are only a limited number of words that the organism could write in response. You would think that an eight-letter word like *language* would probably have many counterparts. Out of the tens of thousands of eight-letter words in the English language, surely there would be several that would match according to one of those 8 trillion ciphers. But as it turns out, there are only three: *foxtrots, toxicoid,* and *copyboys*—each of which has its own set of unique ciphers. What does this fact mean? Well, if I write a poem that contains the word *language,* the organism will have to write a poem in response that contains one of those three words, depending upon the cipher used. If I wanted, for example, to use the word *language* and the word *virus* in the poem at the same time, then I couldn't use either the word *foxtrots* or the word *toxicoid* in place of the word *language,* because there is no correlated word for the word *virus* in any of these other ciphers. In fact, the only word I could use for *language* is the word *copyboys,* and then the word *virus* would encipher to the word *tribe.* I haven't committed myself yet to any fixed list of words. I've tried writing poems using a wide variety of ciphers to see what it might be possible to say under such constraints, and the results are, so far, discouraging. But I foresee that I will be able to write two poems—I just don't know yet whether or not they might merit preservation in an organism for the next 6 billion years.

[Letter]

SITTING IN DARKNESS

From a November 26, 1902, letter by Mark Twain to Carl Thalbitzer, a Danish writer, who, after reading the short story "The Man That Corrupted Hadleyburg," had asked Twain if he had plans to write about "the advantages and drawbacks of civilization." The story appeared in the December 1899 issue of Harper's Magazine. *In 1906, two years after the death of his wife, Olivia Langdon, Twain published the manuscript mentioned below as* What Is Man? *The previously unpublished letter, part of the University of California Press's microfilm editions of the Mark Twain Papers, is quoted in Michael Shelden's* Mark Twain, Man in White: The Grand Adventure of His Final Years, *out in January from Random House.*

Dear Sir,

You have read me between the lines. What I have tried to do, and what I still try to do, is to allow only a little to leak out between the