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The risky business of bovine belches



J.D.
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FROM THE HEADWATERS
OF DRY CREEK

In this installment of our monthly word drool, we shall investigate the ways in which a thousand-pound steer pawing through the snow to gain access to April grass on the banks of the Umatilla River could possibly influence the Queen of England's choice of outer garments, as in "Jeeves, fetch the ermine stole. It appears to be a wee bit chilly in the castle."

It is estimated that there are 1.3 billion domestic cattle on our planet, with roughly 100 million of them in the United States. The precise number is not available because of daily fluctuations in hamburger consumption and because cows have trouble holding a pencil to fill out census forms.

Cattle are ruminants, meaning that they possess multi-chambered digestive tracts that allow them to convert organic matter into animal protein, grass into milk and salad into steak. The first chamber beyond the mouth, as viewed from the front of the animal, is the rumen.

The rumen contains large populations of microbes (little bitty critters) whose jobs are to assist Bossy in breaking down difficult-to-digest cellulose into a form that her body can use. Bossy helps this process by chewing her food several times, crushing the fibers. It is this wad of predigested vegetable matter that we know and love as a cow's cud. The microbes, in order to perform their magic, must do so in a relatively oxygen-free atmosphere, which is the case in the rumen.

The chemical breakdown in the rumen is essentially a fermentation process, akin to our own manufacture of pale ale, and the byproduct of the rumen's brewery is a build-up of gasses, primarily CH₄ (methane) and CO₂ (carbon dioxide). Ninety-five percent of these gasses are expelled by the cow through eructation, or burping, which occurs every forty seconds or so. The remainder of the gas exits the cow elsewhere.

Methane and carbon dioxide tend to trap solar radiation as it is reflected from the earth's surface and the gasses are implicated in what has come to be known as the "greenhouse effect." A molecule of methane is about 20 times more absor-

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bent than one of carbon dioxide. Both compounds are blamed for an overall rise in the temperature of the planet, once known as "global warming" but presently couched in the term "climate change."

The largest source of atmospheric pollution is, by far, the burning of fossil fuels. In my not-so-humble opinion, until we get a better handle on the multifold uses of oil, it really doesn't matter how many pork and bean cans or Cheerio boxes we recycle, the problem of climate change will persist. Meanwhile, I am pretty sure that the manufacture of one brand new electric car sucks more energy and creates more

pollution than I will by continuing to drive my petroleum-burning used automobile.

(A moment of Zen. If crude oil contains dinosaur remains and if plastic is made from oil, does this mean that plastic dinosaurs are made from real dinosaurs?)

Scientists are pointing a pinky finger at rice cultivation (swamp gas) and bovine eructation (burping) for up to twenty percent of atmospheric methane. I personally have trouble believing this data but let us assume that cattle do burp loads of methane and that the burping has planetary effects. How does methane production lead to the cooling of the Queen? Enter a German scientist named Dr.

When the hyper-saline water reaches far enough north (or south) and begins to cool, it is much heavier than the water below it. It falls to the ocean floor, like a giant waterfall, where it flows along the ocean trenches, back to the tropics, to be warmed, and rise again. We are talking large quantities of water. The North Atlantic current, for instance, contains twenty times the flow of all the rivers on the planet combined.

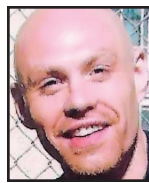
Broeker's model predicts that, unless drastic measures are taken to reverse human-caused global warming, within 35 years there will be enough of a rise in atmospheric temperatures (just a couple or three degrees Fahrenheit) that the polar ice caps will begin to discharge very large doses of fresh water and big ice cubes into the oceans. The effect of this melting will be that the warm equatorial ocean currents will run into colder, fresher water closer to the equator, and the paths of the great loops of warm water will shorten, cutting off supplies of warm, moist air to northern and southern latitudes.

This interruption of the ocean currents will both dry out and refrigerate great land masses away from the equator, causing agricultural lands to become unproductive. Famine and serious food fights are likely to occur in the temperate zones. Well-armed industrial societies will invade and eradicate social structures in the warm equatorial regions. The conifer forests of the planet will die of thirst.

Eight hundred years of ice age will happen to that steer along Umatilla, and the Queen will be a wee bit more chilly. Cheery stuff. Makes me want to drive to Hal's for a double bacon cheeseburger.

J.D. Smith is an accomplished writer and jack-of-all-trades. He lives in Athena.

Getting to where I am took growth, help



ERIC
BURNHAM

OTHER VIEWS

For more than 20 years now, I have been inmate No. 12729124, but my name is Eric. I am serving a 25 year-to-life sentence for second-degree murder.

On Sept. 5, 2001 I took a man's life during a fight I started while drunk, creating a ripple effect of pain and suffering that damaged countless lives. I take full responsibility for how my violence harmed others, and early in my prison sentence I made the decision to do something about it, although back then I didn't know what.

When I was arrested, I was 21 years old, staggeringly narcissistic, addicted to alcohol, marijuana and methamphetamines, lost behind the mask I used to hide my shortcomings, and profoundly undereducated. I didn't even have a GED. I acted out in ways I thought would effectively conceal my insecurities, and I pretended to be someone I am not. I was broken, and wounded people tend to hurt others. Once I honestly took responsibility for my self-

ishness and violence, however, I regained the power to determine my impact on the world. I may have ended up in prison, but prison is not the end of my story.

My first few years of incarceration were chaotic as I adjusted to my new reality and the fact that deep down I knew I deserved to be in prison, but I knew I didn't want to be a man who belonged here. A few life-changing experiences led to some deep personal growth, and I learned how to make better decisions. While it took time to gain momentum, I was able to overcome the swamp of inner turmoil and the darkness of my environment.

In 2003, I earned my GED, and I began working as a tutor in the Education Department in early 2008. I began taking college courses and earned an associate of arts degree in 2013. I went on to earn a Bachelor of Arts degree in 2015, graduating summa cum laude with a 3.98 GPA. In 2017 I completed my master's of counseling degree, and on Dec. 10, 2021, I graduated with a Ph.D. in psychology and counseling from Liberty University, the culmination of a long and demanding journey of self-discovery, personal growth, and educational achievement.

I could not have done it alone.

I am so grateful for the financial assis-

tance of my mother who completely paid for my education — every penny from the first course in my associate degree program to the final practicum of my doctoral program. Her investment in me and in my future was not only a vehicle for my transformation; it very likely saved my life. I also must extend my gratitude to the Blue Mountain Community College instructors who staff the education department at Eastern Oregon Correctional Institution, Pendleton. I will never forget them, for they are real world life-changers.

Prison can be deeply toxic and ruthlessly oppressive, filled with hidden exploitation, normalized dehumanization, arbitrary rules with inconsistent enforcement and an inflexible power structure that often folds resentment and rage into the personality of the incarcerated. Adversity does not adequately describe the pursuit of a college education while incarcerated; resisting the temptation to become callous in an effort to remain physically and emotionally safe has literally changed my life. When I arrived at EOIC, I was empty and without purpose, and in my spirit I knew I offered nothing good to the world. I only consumed, never contributing much of substance or worth. I did not know how to be anything other than what I had always been, and within a few years of being here, I reached a point

where I did not want to live anymore.

Yet, through my studies in psychology and philosophy, I have found not only understanding, meaning in my mistakes, and purpose in my pain, but also the insight and skills needed to use my experiences to help others. Many steps along the way have seemed insignificant and very difficult, but looking back on how far I have come, I can see how each one mattered. Today I no longer need to hide behind a mask or find refuge in a pretense of violence or in the numbness of intoxication. I can be my authentic self, allowing empathy and compassion for others to take root within my personality.

I have made so many mistakes, but through my faith in God and my education I have found the strength to keep moving forward. I can never regret all that I have taken, but I am committed to spending the rest of my life giving all I can to make the world even just a little better. My future may be shaped by my past, but it will not be defined by it.

Eric Burnham is an adult in custody at Eastern Oregon Correctional Institution, Pendleton, and has earned a doctorate degree in psychology and counseling while serving his sentence of 25 years to life.