

Reflections On Mortality

Bill Broderick

In his wonderful 1998 book *Unweaving The Rainbow*, Richard Dawkins tells us: “We are going to die, and that makes us the lucky ones. Most people are never going to die because they are never going to be born. The potential people who could have been here in my place but who will in fact never see the light of day outnumber the sand grains of Arabia. Certainly those unborn ghosts include greater poets than Keats, scientists greater than Newton. We know this because the set of possible people allowed by our DNA so massively exceeds the set of actual people. In the teeth of these stupefying odds it is you and I, in our ordinariness that are here.”

What Dawkins was referring to, of course, was the sheer unlikelihood of a particular individual – such as you, Gentle Reader – ever coming into existence. To begin with, if you’re human, the particular sperm and the particular egg that ended up as you had, at the very least, only one chance in a whole lot of billions of ever doing so.

Consider that, during an act of human procreation, there must first of all be an egg in a reasonably good position to be fertilized sometime in the next day or three following ovulation. Secondly, there are upward of half-a-billion individual sperm involved in this granddaddy of all egg hunts.



Catrimas from *Día de los Muertos*, a Mexican festival [Wikimedia Commons]

However, as many as 85 or 90 percent of these sperm, even in the case of strong, healthy men, may be malformed, mobility-impaired, or otherwise defective. Only the fittest in the best Darwinian sense have a ghost of a chance of making the grade as they wriggle and squirm on their mad dash in search of the “holy grail.” If there does happen to be an egg present or soon to be present, about half of the fittest, whatever that small number is, will go on the ultimate wild-goose chase, barking and howling up the wrong Fallopian tube and never get near an egg.

Only a small number of sperm will be so lucky as to actually find themselves in proximity to an egg. Only a smaller few will break through the egg-shell. And only one will penetrate the egg itself and combine its genetic material with that of the egg to produce the basis for a new human being.

Both eggs and sperm carry the full complement of 46 chromosomes during development, but only the eggs carry the XX chromosomes, which denotes female. A few hours before maturation, the number of chromosomes is reduced by half, leaving only one X chromosome. Sperm, on the other hand, carry both X and Y chromosomes during development. Similarly, before maturation, the sperm’s chromosomes

are reduced by half leaving either an X or Y chromosome. When egg and sperm unite the combined chromosome count returns to 46. If the successful sperm happened to carry the X chromosome, the resulting baby, assuming there are no complications, will be XX and female. If it carried the Y chromosome, the baby will XY and male.

Much of what we've said about sperm also applies to the egg, although quality control is much more effective in the case of eggs. First of all, women are born with all the eggs they will ever have, upward of one or two million of them (about half in each ovary). Generally, ovulation begins at puberty and continues for the next 30 or 40 years until she reaches menopause. During her child-bearing

years a woman will produce one egg (sometimes more) per month for a total of around 400 (more or less), although following childbirth and during lactation, she will not produce any eggs at all. Also, during this period, excess eggs are regularly eliminated so that by the time she reaches menopause, there are none left.

As with sperm, if a mature egg is defective in some way, even its successful fertilization may not succeed in producing a viable zygote or conceptus.

Thus, there are many reasons why every single sexual encounter between a man and woman does not result in pregnancy, not the least being the wrong time of the month. For some couples these reasons turn into formidable barriers to pregnancy which may require some kind of medical intervention, such as artificial insemination, or even in vitro fertilization.

Suffice it to say at this point that many pregnancies never make it to term. Miscarriages are common. Often the woman never knows she is pregnant. In other cases, miscarriage occurs later in the pregnancy when the woman knows she is pregnant and is actively anticipating having the baby.

Another term for miscarriage is spontaneous abortion. To my knowledge, nobody ever raises a fuss about spontaneous abortion, not the way they do about induced abortions. I've often wondered why. Don't these aborted zygotes, embryos and fetuses deserve a chance to live, too?

Religious people invoke the right of God to decide who lives and who dies. After all, that is God's prerogative, isn't it? To my mind, no.

God, if he exists, is omnipotent. He could use his power to fix whatever is wrong with these sperm, eggs, zygotes, embryos and fetuses. The fact that he doesn't makes him complicit in their deaths. But then, the fact that he doesn't do a lot of things that would make life decidedly more pleasant for

millions and billions of living human beings, not to mention the myriad other creatures that also inhabit this planet, makes God the biggest party-poopster, or worse, that the world has ever known. As Einstein once pointed out, only his non-existence excuses him.

Of course, surviving the rigours of conception, gestation and birth are not all that living things have to contend with. Getting through life is the next big problem. In the animal world, a lot of creatures end up in their very babyhood providing food for other animals. Birds are very good at this. If something doesn't rob the nest before the eggs hatch, they do it afterwards. One way or another, many mamma and pappa birds involuntarily provide predators with a number of Happy Meals. Fish and lots of other things do, too.

Sometimes the predator is something more sinister, such as a wasp. As noted by Charles Darwin to his horror, a wasp finds a suitable caterpillar and deposits her fertilized eggs in it. When they hatch, the wasp progeny get a fine start in life by dining on caterpillar from the inside out for a few days. Probably not a fun way to go.

The point of all this gruesomeness, of course,

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is simply to highlight the uncertainty of life, not only in its early stages but at every stage. For lots of living things, life can be going swimmingly at one moment, as in the case of the passenger on the Titanic who happened to write a postcard to tell someone how grand everything was going, only to have circumstances change very much for the worse soon after. If everything is going swimmingly today, be thankful. Just understand that what happens today does not guarantee anything about tomorrow.

Life and existence is basically a lottery, largely ruled by chance. One can help chance along by being in the right place at the right time and by not being in the wrong place at any time. If we are lucky enough to be born with all our arms and legs in the right places and our senses and intellects reasonably intact, we can at some point set about maximizing our future chances in life by developing our minds and bodies.

It used to be, not so very long ago, that science considered the universe to be like a great machine. The idea was bandied about with reckless abandon that if one could know the position, velocity and direction of motion of every particle in the universe at a given moment, it would be possible to forecast the situation of the universe at any future time. That notion had to be abandoned fairly early in the twentieth century when other ideas came along, like Heisenberg's uncertainty principle, quantum mechanics, special and general relativity, and chaos theory. Today we understand that we can tell a lot from statistics (things like life expectancy, the behaviour of gases, and how long it will take a given sample of a radioactive substance to decay completely into something else, like uranium into lead). But most of the time we can have no idea what an individual particle or even an individual human being is going to do.

In spite of the foregoing, there are still those

who think that there is some kind of Divine Plan or purpose to life and existence. Not a leaf nor a sparrow can fall, they think, but God does not know about it. If perchance they happen to be involved in some kind of disaster and manage to survive it, it is because God has some purpose or reason for keeping them alive. As for those who didn't survive, it's obvious that it was their time to be "called home."

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Religious speculations and beliefs aside, the scientific fact on the ground is that life is ruled by sheer blind chance. Who we are and what we are and even how we turn out in life is determined to a great extent by chance. We can weight the dice in our favour, so to speak, by going to school and getting an education, studying for a particular kind of career, keeping out of trouble, eating the recommended

amounts of fruits and veggies, getting the proper amount of exercise and sleep, cultivating wholesome friendships, not drinking and driving, etc., and we just might succeed in making a great life for ourselves. But we must always be mindful that "The best-laid schemes o' mice and men," in the immortal words of Robbie Burns, "Gang aft a-gley, / And lea'e us nought but grief and pain / For promised joy."

Still, Robbie Burns notwithstanding, there is statistically much benefit in trying to control the odds in our favour. Which is why some people try to figure out systems for winning horse races and lotteries and beating the stock market. We even hear of someone being successful on occasion. Of course, if we find evidence that somebody has loaded the dice or otherwise cheated in any game we are involved in, there is a strong inclination to teach the person a good lesson in what constitutes fair play. In other words, everyone is entitled to do the best they can for themselves, but not in a way that disadvantages other people.

The chanciness of life is something the reli-

gious find abhorrent. They want certainty. Never mind that certainty doesn't exist, they still want it. By believing or having faith in their particular doctrine, they give themselves the illusion of certainty. They also develop all kinds of myths to reinforce their belief, such as the myth that believers are happier than non-believers, that they are more charitable, more moral, more upright and just better citizens than us nasty unbelievers.

They hold out to us Pascal's wager as a way for us to overcome our unbelief. The French philosopher Blaise Pascal put it like this: "God either exists or He does not. Although there is no proof either way, it does not hurt to bet on the proposition that He does, and in fact we should do so. We have nothing to lose if He doesn't exist, we will die anyway. But if He does, we have everything to gain, including eternal life and happiness in Heaven."

For billions of people around the world, both religious faith and Pascal's wager makes enormous sense. The promise of eternal life is tremendously attractive for the simple reason that almost nobody wants to die. If we have loved, the prospect of being reunited must be most compelling. In his tribute to his brother the nineteenth century freethinker Robert Green Ingersoll said: "Life is a narrow vale between the cold and barren peaks of two eternities. We strive in vain to look beyond the heights. We cry aloud, and the only answer is the echo of our wailing cry. From the voiceless lips of the unreplying dead there comes no word: but in the night of death hope sees a star and listening love can hear the rustle of a wing."

And that brings us back to where we started, with conception, birth and the end of one eternity. When we are conceived, the DNA of our parents combines to create a brand new life. The individual who is born nine months later has never existed on this earth before and it is certain that when that individual dies, he or she will never exist on this earth again. Nevertheless, the differences that exist between human beings are not all that significant. Even chimpanzees share 98 percent of our genes with gorillas and orangutans not far behind. As Shakespeare might have said, we are much of a likeness. So

are fish, sponges, corals, diatoms, flies, mosquitoes, alligators, trees, blades of grass and lots of other things. In order to tell two things apart, you almost have to be a member of the species.

Nature and life are prolific. Life is a struggle for existence, no matter what we happen to be. The great majority of living things never get to really participate in it before they get eaten. Few reach maturity. And regardless of how anything dies, it ends up being food for something else most of the time, anyway, even if that something else is just bacteria.

Religion and philosophy may believe and hope and even wish that we humans have a noble destiny. If we do, it is not one that is foreordained. Probably, our destiny is to muddle onward the best we can so long as we exist. Some of us like to think that we will grow in science and technology and someday expand out into the Solar System and even eventually go to the stars. Maybe we will. But it could happen that a killer asteroid slams into Planet Earth next year or next century and we humans follow the dinosaurs into extinction and oblivion with hardly a trace remaining a million years from now to show that we were ever here.

Still, to me, life is worth living. I hope it is for you. Life may be "a narrow vale between the cold and barren peaks of two eternities," as Ingersoll put it. But as *Desiderata* proclaims, "With all its sham, drudgery and broken dreams, it is still a beautiful world." And damn it all, it is. A world full of life, opportunity, beauty, room for fulfillment and love. This world and life are what all of us who are alive are privileged to have. It's all we will ever have. Let's enjoy it and make the most of it, for we will not pass this way again.

Bill Broderick retired from the federal public service in 1990 after a career spanning about 30 years. He came to both Humanism and Skepticism in 2002 after reading such publications as *The Humanist* and *Skeptical Inquirer*. He joined both the *Ontario Skeptics in Toronto* and the *HAC* about the same time and was elected to the *HAC* board of directors in 2004. He was editor of *Canadian Humanist News* from 2005 to 2008. His hobbies include writing, astronomy and nature.