

The Odds Against Your Life
by Donne Hayden

October 14, 2007

Good morning. I begin this morning's message with a poem by W. S. Merwin, "To Luck"

In the cards and at the bend in the road
we never saw you
in the womb and in the crossfire
in the numbers
whatever you had your hand in
which was everything
we were told never to put
our faith in you
to bow to you humbly after all
because in the end there was nothing
else we could do
but not to believe in you

still we might coax you with pebbles
kept warm in the hand
or coins or the relics
of vanished animals
observances rituals
not binding upon you
who make no promises
we might do such things only
not to neglect you
and risk your disfavor
oh you who are never the same
who are secret as the day when it comes
you whom we explain
as often as we can

without understanding

We'll come back to this a bit later, but right now, let's consider the odds against your being here this morning, which are stunningly incalculable. For instance, there was at least a 50-50 chance that you would decide to stay home and read the newspaper instead of coming to this gathering.

Leaving aside, for the moment, self-determination, free will, and the many choices that brought you to be sitting where you are this morning, go back to the very beginning and consider the likelihood of your physical presence on the planet. First, *all* life exists on earth against inconceivable odds. Listen to Richard Dawkins at his most poetic:

We live on a planet that is all but perfect for our kind of life: not too warm and not too cold, basking in kindly sunshine, softly watered; a gently spinning, green and gold harvest festival of a planet. Yes, and alas, there are deserts and slums; there is starvation and racking misery to be found. But take a look at the competition. Compared with most planets this is paradise, and parts of earth are still paradise by any standards. What are the odds that a planet picked at random would have these complaisant properties? Even the most optimistic calculation would put it at less than one in a million.

To those one-in-a-million odds against a planet friendly to carbon-based life forms, add the odds against the existence of every individual plant, bacterium, reptile, mammal. Every *living thing* around you is there at the long list of incalculable odds against its particular existence. The odds against intelligent, conscious life (like you) are

even more overwhelmingly improbable. Science writer Stephen J. Gould puts it this way: humanity, he writes, is “a *tiny* twig on an *improbable* branch of a *contingent* limb on a *fortunate* tree.” Using another metaphor, Gould says that humanity is “a small bud that would almost surely not appear a second time if we could replant the bush from seed and let it grow again.” (“The Evolution of Life On Earth,” *Scientific American*, 1994, 271 (4): 91.).

Acknowledging the incredible luck that made life and the evolution of intelligent life possible on earth, let’s examine the odds against you personally being here. Richard Dawkins writes: “the instant at which a particular spermatozoon penetrated a particular egg was, in your private hindsight, a moment of dizzying singularity. It was then that the odds against your becoming a person dropped from astronomical to single figures.”

To understand the astronomical odds against your conception, here are some statistics (from the book *Sperm Wars* by Robin Baker) that will give you a further sense of how unlikely a creature you are.

Between puberty and age 50, on the average, a man produces from 300 million to 230 million sperm *per day*, and each sperm has a unique set of DNA. On the average, in a man’s lifetime, 2 to 3 sperm will result in the fertilization of eggs resulting in 2 or 3 reproducing individuals—the rest of the sperm are doomed. On the other side of the reproductive equation, each woman has from two to four million ova, or eggs, present in her body from birth. From puberty to menopause, only about 400 to 500 will be

capable of being fertilized. So somehow, one of the millions of your father's sperm reached one of the millions of your mother's eggs, and it just happened to be a viable sperm and a viable egg. The sheer physical improbability against your being born is beyond imagining.

In an article titled "The Chances of You Existing," Canadian humanist Orland Hooze comments on the odds against the sperm that fertilized the egg that produced you. "Right now you do exist," he says, "so the actual chance is 100%, but the predicted likelihood in the past of you being born would be essentially zero." Calculating the likelihood of your birth using only the figures on numbers of sperm produced over a period of time, he says,

tend[s] to overestimate your chances of being. [Such calculations] only include numbers based on your father's contribution, his father's contribution, his father's contribution, and so on. In other words the calculations are based only on the direct male line. They do NOT include the following factors that would make the chances of your existence even less:

- your mother's contribution
- ...
- children that died before reaching the age of reproduction.
- fetuses and fertilized eggs that died and were naturally aborted

or - the men and women who died without or with fewer offspring; [in some generations, those who died in war, or from famine or disease accounted for 50% of humanity].

You are the result of many generations of survivors. One of the people that died prematurely could have been your Dad or your Dad's Dad and so on. Somehow, none of your forefathers died before passing on his genes to the next

man in your lineage. Because of the deaths mentioned most human lineages died out, while luckily yours survived.

Your very existence, as well as the existence of every creature, plant and stone, is nothing short of miraculous.

Unfortunately, we are “anesthetized” to the miraculous by our familiarity with it. Some of us recognize the incredibility of ordinary life, however, like the poet Walt Whitman (1819-1892). Listen to his poem called “Miracles.”

Why, who makes much of a miracle?
 As to me I know of nothing else but miracles,
 Whether I walk the streets of Manhattan,
 Or dart my sight over the roofs of houses toward the sky,
 Or wade with naked feet along the beach just in the edge of the water,
 Or stand under trees in the woods,
 Or talk by day with any one I love, or sleep in the bed at night
 with any one I love,
 Or sit at table at dinner with the rest,
 Or look at strangers opposite me riding in the car,
 Or watch honey-bees busy around the hive of a summer forenoon,
 Or animals feeding in the fields,
 Or birds, or the wonderfulness of insects in the air,
 Or the wonderfulness of the sundown, or of stars shining so quiet
 and bright,
 Or the exquisite delicate thin curve of the new moon in spring;
 These with the rest, one and all, are to me miracles,
 The whole referring, yet each distinct and in its place.

To me every hour of the light and dark is a miracle,
 Every cubic inch of space is a miracle,
 Every square yard of the surface of the earth is spread with the same,
 Every foot of the interior swarms with the same.
 To me the sea is a continual miracle,
 The fishes that swim--the rocks--the motion of the waves--the
 ships with men in them,
 What stranger miracles are there?

“ . . . the ships with men in them . . . ” What stranger miracles are there, indeed? How would you come to be on a boat? To the physical odds against your miraculous existence, let’s add the factors of free will, self-determination, chance and choice. And not just your own, but those of every ancestor in your family tree. If your mother and father had made slightly different decisions, they may never have met, and there would have been no you. If they had changed plans the night or day you were conceived, there would be no you. As Richard Dawkins puts it, “The lottery starts before we are conceived. Your parents had to meet, and the conception of each was as improbable as your own. And so on back, through your four grandparents and eight great grandparents, back to where it doesn't bear thinking about.”

Your particular miraculous existence has been further complicated by your particular will, thoughts, feelings, and interactions with your environment and other people. We can barely conceive of the complexity these *interactions* add to the odds against our being who we are and where we are. For instance, trace back in your life events the decisions that brought you to this place this morning. If you had made *one choice* differently, you might be in, say, South Africa!

Before we leave our consideration of the odds against our lives and the course each has followed, let us explore rare occurrences that change our lives somehow (improbable events we might be tempted to call miracles), and the odds against them.

John Edensor Littlewood, a mathematician at Cambridge University, made a study of improbable events and the odds of their happening. He defined a miracle as “an event that has special significance when it occurs, but occurs with a probability of one in a million.”

Littlewood's Law of Miracles states that in the course of any normal person's life, miracles happen at a rate of roughly one per month. The proof of the law is simple. During the time that we are awake and actively engaged in living our lives, roughly for eight hours each day, we see and hear things happening at a rate of about one per second. So the total number of events that happen to us is about thirty thousand per day, or about a million per month. With few exceptions, these events are not miracles because they are insignificant. The chance of a miracle is about one per million events. Therefore we should expect about one miracle to happen, on the average, every month.

You may be surprised to know that in fact, according to an article in *Scientific American*, “The Law of Large Numbers guarantees that one-in-a-million miracles happen 295 times a day in America.” (*Scientific American*, 26 August, 2004).

Here is one example. Consider the odds. First, the odds against any of the following people existing in the first place, and then the odds against what happened to them.

When a Nebraska church exploded in 1950, no one was injured because every member of the choir was late arriving for practice that evening.

As unbelievable as this story is, it did happen. Despite the explosion's taking place five minutes after choir practice was scheduled to begin, not one of the fifteen people who should have been present had yet arrived when the building collapsed:

Choir practice at the West Side Baptist Church in Beatrice, Nebraska, always began at 7:20 on Wednesday evening. At 7:25 p.m. on Wednesday, March 1, 1950, an explosion demolished the church. The blast forced a nearby radio station off the air and shattered windows in surrounding homes.

But every one of the choir's fifteen members escaped injury, saved by a fortuitous coincidence: All were late for practice that night. Considering the sanctified site of the

explosion, it was not surprising that some attributed the near miss to divine intervention.

They supposed rightly that the odds of unanimous tardiness were slim indeed, especially when the reasons were examined. Car trouble delayed two women. The minister and his wife and daughter were delayed by a dress that needed ironing at the last minute. Others were late because they paused to complete homework, finish a letter, or hear the end of a favorite radio show. One awoke late from a nap. Some could think of no special reason; they were just late.

It is impossible to calculate precise odds for all these events occurring at once. But past performance indicated that each person would be late for practice one time in four - producing a one-in-a-million chance that the entire choir would be late that night.

...

Firemen thought the explosion had been caused by natural gas, which may have leaked into the church from a broken pipe outside and been ignited by the fire in the furnace. The Beatrice choir members had no particular theory about the fire's cause, but each of them began to reflect on the heretofore inconsequential details of his life, wondering at exactly what point it is that one can say, "This is an act of God."¹

Is our concept of God simply a way to name the infinite odds against our very existence and all the strange and wonderful—even miraculous—occurrences of our lives? To return to W. S. Merwin's poem, "To Luck," that I read earlier, I invite you to think about God, whatever you conceive God to be, as I read Merwin's words "To Luck."

In the cards and at the bend in the road / we never saw you / in the womb and in the crossfire / in the numbers /whatever you had your hand in / which was everything / we were told never to put /our faith in you / to bow to you humbly after all /because in the end there was nothing/ else we could do /but not to believe in you . . .

¹ Barbara Mikkelson, Snopes.com website <http://www.snopes.com/luck/choir.asp>. Urban Legends Reference Pages © 1995-2007. (Sources: Edeal, George. "Why the Choir Was Late." *Life*. 27 March 1950 (pp. 19-23) and *A World of Luck*. Library of Curious and Unusual Facts. Virginia: Time-Life Books, 1991. ISBN 0-8094-7711-4 (p. 59).

still we might coax you with pebbles / kept warm in the hand / or coins or the
relics / of vanished animals / observances rituals / not binding upon you / who make no
promises / we might do such things only / not to neglect you / and risk your disfavor /
oh you who are never the same / who are secret as the day when it comes / you whom
we explain / as often as we can / without understanding

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