Life's Expectancies

"Now understand me well. Out of every fruition of success, no matter what, comes forth something to make a new effort necessary." – Walt Whitman

* * *

When legendary cellist Paulo Casals was well into his 90's, a friend asked him, "Why do you still practice three hours each day?" He replied, "Well, I'm beginning to notice some improvement."

A friend of mine recently shared this story of Paulo Casals on Facebook, drawing me immediately into its web of possibilities. Such a mentality hardly exists amongst our kind, and I had to ask myself "why?" To see each day as a new beginning for all of those days that will follow is counter-intuitive to conventional thinking. Instead, as we grow older and reportedly wiser, we count the second hand on our clocks and watches, waiting for our inevitable deaths.

We find ourselves unable to afford the seemingly apathetic view of time that the young so proudly wear as a badge of honor. To make matters worse, there even exists an anticipated *T minus* countdown prescribed by statistics that tell us when we might want to ensure our affairs are in order. We refer to this countdown clock as our "life expectancy". In the United States this means that we are "normal" if we die at age 76 as men, and at age 81 as women. Based on this data alone, it is understandable why so many give up on their dreams shortly after crossing the half-century mark.

This is where I sit today, a happy and healthy 55 years under my belt. But based on today's life expectancies, should I say instead T minus 21? If this was my perspective it would daunting, at best, to consider trolling fresh waters for new ideas on living, dreaming, and scheming. Take on a new career? Really? Go back to school and get a Masters or Ph.D.? Are you kidding me? Yet we all possess unbridled admiration for those who do just that – running a marathon at 80, starting a new business at 75 – never considering our own capacities to do the same.

With "countdown clocks" moving more rapidly as each day passes, I can't help but wonder about those who've wasted so many years of inactivity as they've watched and waited for that unstoppable zero hour. Once the expected time has come and gone, becoming T plus 1, how might they feel? I'm guessing they just feel lucky. What about at T plus 10 – very lucky? Let's not forget about those handful who now reside at T plus 20 (or 96 male, 101 female) – I'm tempted to guess that many of them might possess a touch of regret had they wasted all of those years waiting for death's recall. But what if they had known or only just suspected that at the time they turned 50, they still had another 45 years to live? What decisions would they have made differently?

And still we count down.

Tick… tick… tick…

In today's world we need to ask ourselves a different question. What if we no longer need to count down our lives? What if, instead, we developed an understanding that there is a great uncertainty of what our life expectancies might be when we finally arrive? Already we know that the statistics of today are not likely to be the statistic of tomorrow. Actually it is most likely that the average life expectancy, in the ***absence of any significant medical advances,*** will still grow beyond 100 years within the next few decades!

But "Moore's Law" hasn't yet released its grip on the progress of medical research and technology.

What is "Moore's Law"? It actually applies to the world of computer technology but can be easily translated into other industries. "Moore's Law" is the result of an observation made by Gordon Moore (co-founder of Intel) in 1965. He noticed that the number of transistors per square inch on integrated circuits had doubled every year since the integrated circuit was invented. Moore predicted that this trend would continue for the foreseeable future. His prediction was right and still applies today – 48 years later.

With computation capabilities doubling (actually every 18 months), the effects on almost every other industry has been similarly affected. Amongst those industries is the world of Medical Technologies, with amazing discoveries and cures surfacing in its wake and with dizzying regularity. It is in the advances of the Medical research, both today and the near future, that our perspectives might be influenced to change.

Let's review just a few of the remarkable leaps our world is making to lengthen that nagging "life expectancy".....advances that are speeding along even as I type this article.

* * *

On March 25th, 2013, Science News reported that a seven year old girl had been cured of an aggressive form of Leukemia using a newly developed approach called "T Cell Therapy." Simply put, researchers learned how to "reprogram" T cells so that they would rapidly multiply and destroy leukemia cells. To avoid misquotes, let me provide a paragraph from that Science News report:

T cells are the workhorses of the immune system, recognizing and attacking invading disease cells. However, cancer cells fly under the radar of immune surveillance, evading detection by T cells. The new approach custom-designs T cells to "see" and attack the cancer cells.

http://www.sciencedaily.com/releases/2013/03/130325124358.htm

While this is still an ongoing project requiring much refinement, there is a justifiable amount of optimism about the technology. If researchers can "reprogram" cells to perform duties outside of their biological directives in order to cure illness, then there is no limit to the potential effects on lifespan. But what if this proves to be a dead end? As unlikely as this might be, let's suppose that this is the end of the road for this particular research. Then let's fast forward into the near future and briefly discuss nanotechnology.

Nanotechnology is not really a "future technology". It really exists. But the efforts conducted with this new science are mind boggling. Keeping true to the article, let me discuss its implications to the Medical community.

Imagine, if you can, a tiny computer so small that not even a microscope can see it. This tiny speck of computer wizardry is called a "nanobot". With millions of nanobots programmed to do various biological functions, they could in fact replicate the functions of reprogrammed T cells and attack Leukemia cells. But don't stop there.....these are basically robots that can be programmed to do any number of functions – limited only by our imaginations. They can monitor biorhythms, anticipate illness and stop it before we feel our first symptoms, and eliminate diseases without a single visit to the doctor's office. This is a very real concept with highly optimistic scientists working around the clock to unlock their secrets.

One of the most difficult issues with our helpful nanobots is not (as one might guess) with program development. One of the major challenges resides in the problem of how to make them mobile once they've been introduced into our blood stream. It isn't enough to have a nanobot know what to do, but it also needs to know where to patrol and how to get there. But even this information is useless if our nanobots have no way of propelling themselves so that they can accomplish their task(s). So far there are many chalk board ideas on how to propel a nanobot through our anatomy, such as cell sized "Bucky Ball" cars or to piggy back on other cells, but none have created that revolutionary "Aha!" moment.

The following link is an example of where we are today with this technology, keeping in mind that there is still a long, long way to go:

http://scienceray.com/technology/medical-nanobots-tiny-robots-performing-miracles/

Is all of this a little too mind blowing? Maybe nanobots are too far distant in the future to insist on our serious consideration. So let's come back down to Earth for awhile, although you might not think me in the same solar system once you've read through my next few examples.

What would you think about a mechanical heart that requires no pulse or heartbeat to keep its host alive? As a matter of fact, if someone possessing this heart were connected to an EKG, they would be "flatlined". Doctors Billy Cohn and Bud Frazier from the Texas Heart Institute have designed such a device! Tested mostly on calves (and one human), this remarkable technology boasts it can produce more efficient results than our

own God-given hearts! Quite a claim! I've provided a link for this new development below.

http://www.mnn.com/health/fitness-well-being/stories/new-artificial-heart-keeps-you-alive-without-a-pulse

And what if you don't want any non-biological devices installed in your body to keep you afloat in this world? Would you have any options? Well, for that we need to go back to the future. But again… not THAT far into the future.

In Frankenstein-like fashion, scientists are learning how to grow organs from cells. What? Sure, I'll type that again. ***In Frankenstein-like fashion, scientists are learning how to grow organs from cells.*** How is it done? Let's say that you have a damaged liver from drinking too many Gin and Tonics. If the damage you've done is irreparable and you find yourself in need of a liver transplant, in the not-too-distant future all that your physician will need are some of your liver cells and a Petri dish. After about seven weeks, voila – a new liver!!! Of course the procedure isn't quite that simple, but you get the gist of it.

To date, scientists have found amazing success at growing a variety of organs and body parts (fingers) from cells provided by the host. The subsequent transplants have, so far, shown very favorable results. Since the organ comes from the person needing the procedure, there is no concern that the grown organ will be rejected by the host body.

If you want more information, there is plenty of information on the web. Here are a few links covering this amazing topic.

http://www.stemcellsfreak.com/2013/02/growing-organs-from-stem-cells.html

http://singularityhub.com/2009/06/08/growing-organs-in-the-lab/

http://www.newsobserver.com/2011/11/28/1675171/growing-organs-cell-at-a-time.html

The truth is, I've barely scratched the surface of modern medicine's rapid advances. There is so much happening in the world of health and medicine that it would take a book's worth of writing to relay it all to you. But I think I've made my point, and so let's evaluate what this could mean to us all – more properly stated, what this means to "me".

* * *

When I was a young man in my twenties, I really believed that time was not an issue. There was just so much of it that my focus was skewed towards living in the moment, having a good time, and entertaining myself in this bright, adventurous, wonderful world. There was no need to worry about advancing my lot in life through education, work, or any other means that might add quality to my stay here on Earth. I had an eternity to worry about that stuff.

Thankfully this affliction only lasted until I turned 28, when I realized that I needed to move forward. Being married (a little over two years at that time) I came to understand that my decisions were affecting more than only me. There was this, and of course the fact that my mother had just barely survived a shooting in her Anchorage home.....my entire perspective of mortality encountered a dramatic shift to the rules of reality – there was a good chance that I would not live forever. Soon after, in July of 1986, I returned to finish my career in the Army. That is where I would remain until I retired in 2006, self actualized and rewarded with the Army's highest enlisted rank, Sergeant Major.

But my retirement in 2006 has come and gone with lightning speed. I've played around in the civilian sector long enough to know that I haven't yet found what I'm searching for. When I crossed that mid-century age boundary, I had only minimal stimulation of self worth in my new routines. I became a lost soul searching for more meaning than what was currently presented.

As I began to shift toward a passion in the sciences, several folks close to me advised that I might be chasing windmills. "You're too old to pursue such a complicated field." Or, "People have spent an entire lifetime just trying to understand ONE aspect of these things. What makes you think you can make a mark at your age?" *Do they mean "at T minus twenty one?"*

The truth is, I often wonder if they're right. This is my fourth submission to Mom's website, and I frankly don't know if anyone even reads my stuff, much less finds it interesting or informative. But I do know this much. An absence of effort equals zero, nada, nuthin'. We do not ever move forward without taking steps. And so I will continue to study and write.

But what of the warnings that I'm too late to make a difference in the fields of Philosophy and Science? With only 21 years left before my impending doom, I suspect that there is a lot of merit to this argument.

I say "To hell with life expectancies!" Instead I wish to ring in an era whose mantra sings to the "Expectancies of Life!" I prefer to think that regardless of what the future holds, one of the greatest mistakes I can make is to give up on my passions and my dreams based on my position within my personal timeline.

If you are amongst the many who believe that death is NOT the final solution, then that might be enough to persuade you to continue living life until the final chapter closes this life's book. You might be one of those who is certain that your self-awareness moves on and that all of your life's lessons are stored away for future reference. But holding on to these sorts of beliefs requires courage.....courage to never stop learning or to continue to move forward even when you hear the calling of your final days.

However, not everyone possesses such a courage. Of course many claim to think along these lines, but with an absence of empirical evidence knocking on our door it is very

easy to slide into bleaker thoughts on the subject of death and the life thereafter. So what can replace that void of trust in our own thoughts? Well, if the science of the present and the future can't do it, then fatalism is your diagnosis.

We can see the presence of a dynamic change happening before our eyes. We can touch the substance of reality and embrace the idea of longer life spans without jumping off of a metaphysical cliff. For the first time in the history of our species there is an actual uncertainty about how many years of living will be normal in the coming decade(s)!

"Over half the baby boomers here in America are going to see their hundredth birthday and beyond in excellent health," says Dr. Ronald Klatz, founder and President of the American Academy of Anti-Aging Medicine. "We're looking at life spans for the baby boomers and the generation after the baby boomers of 120 to 150 years of age." –

https://www.fightaging.org/archives/2003/01/this-wonderful-lengthening-of-lifespan.php

Based on the science ALONE, there is absolutely NO reason to think that our only choice is to sit and wait for that final heartbeat. There is NO excuse to remove ourselves from life's adventure. There is not a single reason to spend more time with the television remote than to pursue a task formerly reserved for the young! These attitudes have become attributes for the fearful and the lazy!

So ask me what I think about my critics' suggestions that my passions may be too little too late. While you're at it, go ahead and ask yourself what passions you've sidestepped as a result of accepting a rule that quite probably no longer applies.

What is your life expectancy? Regardless of your current age, this question needs to be restated.

You should be asking instead…

….What is your life's expectancies?

Sean Yeterian