

Light in the COVID Tunnel

By John Mauldin | August 28, 2020



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If you ever think you just can't win, I know how you feel. I'm labeled both a doomsayer and a Pollyanna—sometimes in reaction to the same letter.

In fact, I am neither. I used to be the “muddle-through” guy who acknowledged difficulty but expected eventual success. Recently I modified that to “stumble-through,” acknowledging today's more intense challenges. Earlier this month, I said we are entering a Depression-like period for much of the economy. But I still think we'll make it through.

Financial markets are strong in part due to confidence we will have effective COVID-19 treatments and/or vaccines soon. These, it is thought, will restore consumer confidence and enable swift economic recovery. I sincerely hope so, but results will take time—even if they work perfectly.

That's my outlook in a nutshell: We'll be okay, but we'll have problems first. Both can be true; the difference is in the timing. It's important to keep this straight in our minds. Extreme things can happen, for either good or bad, but they don't last forever. We have to maintain mental balance between the extremes.

Today I'll explain why this is important, then tell you about another technology which, unlike vaccines and treatments, may actually stop COVID-19 and other viruses from attacking us in the first place—colds, flus, even bacteriological super bugs. This could be a true game-changer if it works. It is this continued technological progress in so many areas that makes me optimistic about the future.

Traps and Catastrophes

Those who consider me a pessimist should read about Thomas Malthus, who basically said humanity is trapped between rising population and limited food supply. But lest my characterization be called unfair, let me just quote from the introduction to his Wikipedia bio.

Thomas Robert Malthus FRS (/ˈmæɪlθəs/; 13/14 February 1766–23 December 1834) was an English cleric, scholar, and influential economist in the fields of political economy and demography.

In his 1798 book, *An Essay on the Principle of Population*, Malthus observed that an increase in a nation's food production improved the well-being of the populace, but the improvement was temporary because it led to population growth, which in turn restored the original per capita production level. In other words, humans had a propensity to utilize abundance for population growth rather than for maintaining a high standard of living, a view that has become known as the "Malthusian trap" or the "Malthusian specter." Populations had a tendency to grow until the lower class suffered hardship, want, and greater susceptibility to famine and disease, a view that is sometimes referred to as a Malthusian catastrophe. Malthus wrote in opposition to the popular view in 18th-century Europe that saw society as improving and in principle as perfectible.

Malthus saw population growth as being inevitable whenever conditions improved, thereby precluding real progress towards a utopian society: "The power of population is indefinitely greater than the power in the earth to produce subsistence for man." As an Anglican cleric, he saw this situation as divinely imposed to teach virtuous behavior. Malthus wrote that, "The increase of population is necessarily limited by the means of subsistence"; "population does invariably increase when the means of subsistence increase"; and "the superior power of population is repressed by moral restraint, vice and misery."

When history attaches your name to terms like trap, specter, and catastrophe, it's fair to say you were not a sunny optimist. And while it mostly happened after his death, people smitten with Malthusian ideas committed some horrible atrocities in the name of population control. I consider Malthus the most dangerous economist to ever live, more so even than Karl Marx. Bluntly, it is a horse race between whether the ideas of Malthus or Marx killed more people.

Today we hear faint echoes of Malthusian thought in regard to COVID-19. Instead of insufficient food supply, the problem is inevitable viral infections. We can't stop it so we just have to accept people will die. There might even be a benefit (the thinking goes) since most of the deaths are older people. Removing them doesn't reduce the labor force and may reduce the dependency ratio.

Needless to say, I reject such thinking. It is as wrong as Malthus' original ideas. Human beings are not animals who will, given food, consume it all and then produce more humans. That was the case even before modern birth control emerged in the 1960s, and it is certainly so today. We've been simultaneously growing the economy and reducing population growth for several generations now.

Further, we made wide-ranging medical progress, reducing death rates and increasing lifespans. There are those who like Malthus say that we have achieved all the "easy" wins, like clean water and bacteria-killing drugs, and success will get harder from here. They think innovation will confront a Malthusian reality. Nonsense.

Malthus lived 200 years ago. But Stanford biologist Paul Ehrlich in his 1968 best-selling *The Population Bomb* predicted a worldwide famine that would kill hundreds of millions. (Ironically, in 2009, he took credit for that not happening because his book warns people of the danger. Sigh.) Like Malthus, Ehrlich sought to reduce population growth. He is one of many to predict catastrophe when in fact, the world is clearly improving on almost every front (noted exception: what we are doing to our oceans).

Horn of Plenty

Malthus misjudged history, technology, and human nature. We are the planet's dominant species because we are best at solving problems and overcoming barriers. Yes, we *create* problems and barriers, too. But the net result is still progress—or at least it always has been. I see no reason to think this has changed. The new coronavirus, while bad, is just one more we will overcome. The only question is how.

This optimistic view—essentially the opposite of Malthus—is sometimes called "Cornucopian." It has a Wikipedia definition, too.

A **cornucopian** is a futurist who believes that continued progress and provision of material items for mankind can be met by similarly continued advances in technology. Fundamentally, they believe that there is enough matter and energy on the Earth to provide for the population of the world.

Looking further into the future, they posit that the abundance of matter and energy in space would appear to give humanity almost unlimited room for growth.

The term comes from the cornucopia, the "horn of plenty" of Greek mythology, which magically supplied its owners with endless food and drink. Cornucopians are sometimes known as "boomsters," and their philosophic opponents—Malthus and his school—are called "doomsters" or "doomers."

I include myself in this cornucopian category. I think we have plenty of resources to supply all our needs, even if population keeps growing. The problem is resource distribution, not supply. The food, energy, and everything else isn't naturally located where it is needed, and man-made barriers sometimes impede its movement. But we can overcome those barriers, and eventually do.

I am not sure about some cornucopians who could be called “Singularitarians,” like my friends Ray Kurzweil and Peter Diamandis. I doubt we will reach a technology “singularity” in which artificial intelligence surpasses human intelligence, with a scientific Cambrian explosion of new technologies and an even more uncertain but abundant future. However, even if I am skeptical about self-aware AI within the next 25 years, I do expect an abundant future, as do Ray, Peter, and others. And I also recommend their books. I believe their views are far more correct than the negative doomsayers that are everywhere. I also expect technology to solve many previously difficult problems—like COVID-19.

The pandemic is obviously a big problem. We certainly could have handled it better. The lockdowns were a near-mortal economic blow and they still didn’t stop the spread, at least in the US. Consequently, people are still cautious, which means consumer spending is still down and jobs still lost.

Better initial decisions on testing and isolation might have avoided this situation. That is, unfortunately, not something we can go back and change. We have to move forward. Vaccines and better treatments will be great but not necessarily sufficient. They have costs and risks.

Furthermore, this won’t be the last deadly virus we encounter. Our globalized world and indoor lifestyles make us more vulnerable now. In one sense, we are lucky that a super contagious virus like COVID-19 has nowhere near the mortality of something like Ebola. We need more comprehensive and sustainable solutions. Fortunately, one may be coming.

Virus Killer

The good news about COVID-19 is everyone wants to help. That’s also bad news, since it isn’t always the right kind of help. And like other natural disasters, some actual fraud is happening, too. So we have to be careful what we believe.

On the other hand, when the situation is serious enough, it’s not unreasonable to take more risk than you otherwise might. Desperate times may call for desperate measures. But here again, you want to be smart about it and not just roll the dice.

We need multiple strategies to defeat this virus and revive the economy. Right now, face coverings and social distancing are the best we have (as Dr. Mike Roizen and I [wrote](#) on June 5.) Hopefully soon, we will have vaccines that protect the most vulnerable people from infection. Meanwhile, physicians are trying all kinds of treatments, with varying results, and they’re learning what works.

But before we can return to anything like the previous normal, people must feel reasonably confident they can circulate in public places without risking their health. We need ways not just to protect ourselves from the virus, or treat the damage if we get it, but to actually *kill the virus*.

Malthusian thinking would say this is unlikely or even impossible. Viruses are natural, just like population growth. They will spread for the same reason children are conceived: humans following their instincts.

Not being a Malthus fan, I'm not bound by that thinking. And I see a real chance to neutralize the virus in not only public places, but our homes as well.

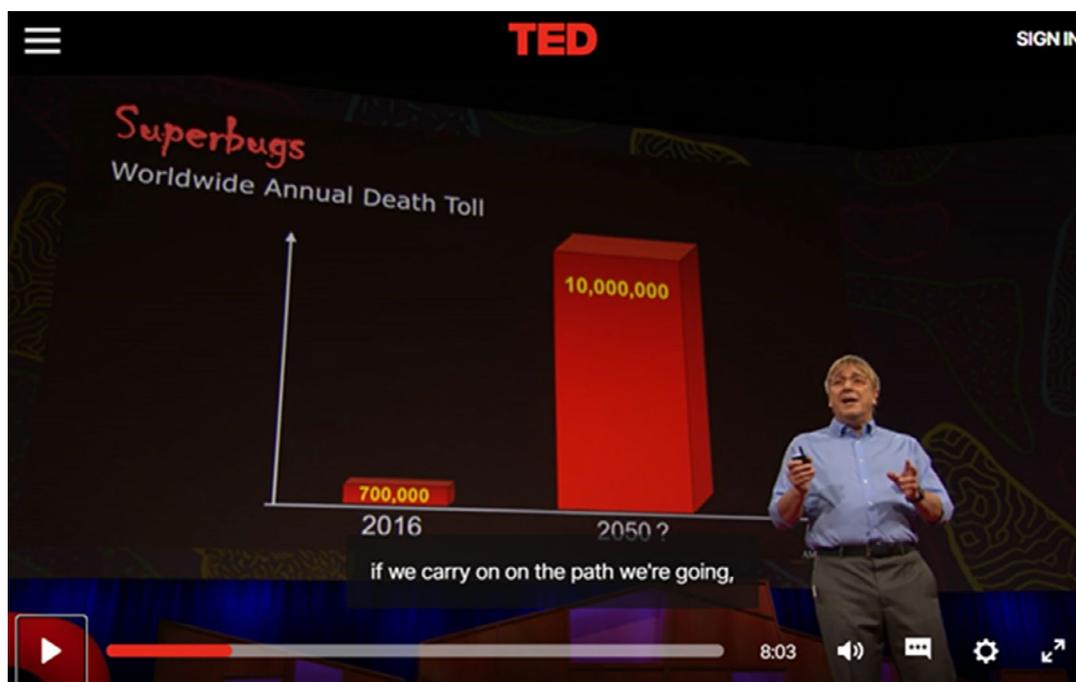
Light in the COVID Tunnel

Several months ago, Dr. Mike Roizen began to tell me about an innovative new technology called far-UVC being developed by a company called Healthe. He is on their scientific advisory board. Essentially, it uses a specific wavelength of ultraviolet light to kill microorganisms without hurting humans. I was skeptical because I have always been taught that exposure to ultraviolet light was bad for humans. And for good reason; the ultraviolet light that reaches the earth's surface is dangerous. But not all ultraviolet light reaches that far. And therein lies a story of innovation and perseverance.

[Dr. David Brenner](#), an Oxford-educated physicist at Columbia who applies quantum mechanics to radiation therapy, had a friend die from a superbug caught in the hospital. He became (my word) obsessed with preventing future superbugs from killing people. (The link to his name will bring you to an impressive list of his publications, lectures, and information.)

We have long known ultraviolet light kills viruses and bacteria. The subway trains in Manhattan are exposed to UVC light every night. Many hospital surgical rooms are also exposed to UVC light, of course while humans are not in them, making them very clean rooms for surgery.

In a 2017 [TED talk](#), Brenner explained why a particular wavelength in the ultraviolet light spectrum would not harm humans but still kill superbugs. In 2016, 700,000 people died from exposure to bacteriological superbugs. At the current path we are on, by 2050, the death toll will be 10 million.



In this talk, he shows why “far-UVC,” ultraviolet light in the spectrum of 222 nanometers (I am told that it is technically 205-222 nanometers) won’t penetrate human skin or eyes but can still kill bacteria and viruses—both on surfaces and in the air.

As it turns out, the sun also produces these particular wavelengths, but our atmosphere’s ozone layer stops them. But that doesn’t mean we can’t produce them here.

It is a pretty convincing talk. But I’m also told that Columbia University officials didn’t want to fund his research as they did not see much practicality or viability. When he was initially talking about it, it defied common knowledge—you know, what everyone knows to be true but sometimes isn’t.

So what does a man in a modern world do to fund his obsession? He starts crowdfunding. Seriously. But as it turns out, you can’t patent a wavelength of light, so now other companies are beginning to pick up on his research. COVID-19 made the need for new approaches readily apparent.

[Healthe Lighting](#) is already manufacturing devices that look like airport metal detectors. They kill any virus or bacteria on your body as you walk through. One of the main investors is Stephen Ross, a venture capital and private equity investor, who also has an ownership in the Miami Dolphins. They have installed a form of the technology that filters the air in their indoor training facilities. This is from a Miami Herald report.

“From my perspective, and a whole bunch of people I speak with regularly, this is the best tool we have today [to fight coronavirus],” said Fred Maxik, Healthe’s founder and chief technology officer. “We can go in and clean, we can go in and scrub, but at the end of the day, the first sick person that goes into that space, that space is contaminated again. The systems that we’re deploying are systems that are cleaning in real time and cleaning constantly. We reduce that [pathogen] load that’s in that space to the minimum we can.”

Healthe’s multi-level system is designed to inactivate the virus in the air, on players’ lockers, and even on their uniforms—and it’s all completely safe, researchers say.

Here is an [ABC News video](#) of an installation at the iconic Magnolia Bakery in Manhattan (I highly recommend their cupcakes). The Air Force is beginning to test and install far-UVC equipment. Seattle’s [Space Needle](#) is using it to market their reopening plan. The company already has over \$100 million in backlog orders.

Like any new innovation, there are problems and solutions. Let’s deal with the problems first. Right now, installations are relatively expensive, and production is backlogged. But there is a solution which doesn’t require more research. Within a few months, the company says it will be able to produce simple LEDs that emit the proper wavelength. They will likely be expensive at first, but like anything involving technology and chips, costs will fall quickly, enabling wider use. (Today it would take \$20,000 to equip a 2,000 square foot bar. The LEDs will drop that price dramatically.)

COVID-19 is devastating restaurants and bars because people are in such close proximity. But these LEDs will be easy to put on the walls and ceiling, or even in regular light-emitting lamps on each table. When somebody coughs or shouts and unknowingly spreads a virus, the far-UVC light will kill it. Will it be perfect? No, if you are kissing someone with COVID-19 or another virus, you may still catch the bug. The light doesn't go past your skin or eyes.

Can you attach a small strip on every seat in a stadium? Of course. Plus lighting in airports, trains, planes, hotels, in fact, just about everywhere people congregate.

Yes, if you gather at a big outdoor event with no far-UVC lighting, there would be no protection. But (and this is a big but) infection potential should be lower after enough of the virus has been killed.

And we are not talking just about COVID-19. We are talking about all viruses, including new ones. David Brenner's vision of killing superbugs in hospitals (which caused 49,000 people to die last year last year in just the US) is in reach.

This is simply amazing. It will usher in a new area of health, saving lives, and significantly improving economic productivity. I know other companies are exploring the same prospect. That's great; nothing like competition to spur innovation. It's wonderful news for mankind.

I could write a book (and in fact I am) on all the amazing technological developments that will arrive on our doorsteps in the next 20 years. You can't believe what agriculture will look like by the end of this decade. Super plants, taught to evolve rather than being GMO, will be a reality. Food will be far more nutritious, and farmers will have more productivity per acre, with less pesticide and fungicide and all the other nasty things we don't want. Solar energy is getting cheaper every day. AI is growing by leaps and bounds. Life extension is closer than you think.

I could go on and on, but you get the idea. I have reasons to be optimistic. Wildly optimistic, in fact. Yes, I recognize the problems all around us and especially in government. I have long maintained that I want my investment strategies, not to mention my life, to be long humanity and short government.

Here are some links to additional far-UVC research.

- [Nature.com: Far-UVC light \(222 nm\) efficiently and safely inactivates airborne human coronaviruses](#)
- [NIH: Germicidal Efficacy and Mammalian Skin Safety](#)
- [David Brenner interview](#)
- [Long-term effect off 222-nm lamps](#)
- [Japanese university study](#)

Puerto Rico, Cyberpunk and Post-Apocalyptic Science Fiction

Shane and I are back in Puerto Rico after a too-brief vacation in Montana. The island is in pretty serious lockdown and I still can't get into my gym, which I wish had far-UVC lighting.

Now, here's where I have to confess to being a tad bit, just slightly, only a little hypocritical. Long time readers know that I like science fiction. There are many subgenres. If you want to imagine a world of abundance with information being at your fingertips, where virtual reality impinges on true reality, I recommend *The Culture* series by Iain Banks, a Scottish author who unfortunately passed away a few years ago. Peter Hamilton is also a master of creating tension along with imagining a new utopian world.

One of my guilty pleasures is what is known as cyberpunk and post-apocalyptic science fiction. For those who remember the first *Blade Runner* movie in 1982, it is probably the best graphic description of cyberpunk: a world where those at the top of society, especially corporations, live in magnificent abundance and the rest eke by as best they can. William Gibson wrote the first true cyberpunk novel, *Necromancer*, about that same time. Their influences were remarkably similar. When Gibson writes a book, I try to have it read within a few days.

There is a great deal of post-apocalyptic literature. Think of *Mad Max* in the movies. Or *The Postman*, written by my friend and Hall of Fame science fiction writer David Brin and turned into a movie of the same name. (It goes without saying, the book is better than the movie.)

I will admit a small niggling worry in my mind is if William Gibson turns out to be right. A lot of people today think he is. That's why it is incumbent upon us as humanity to celebrate (and fund) the innovators and scientists. And that means keeping government in its proper sphere and not being the prison guards of the past, but gatekeepers, building highways to the future.

It's time to hit the send button. Have a great week!

Your wanting the far-UVC companies to go faster analyst,



John Mauldin

subscribers@mauldineconomics.com

<http://www.mauldineconomics.com/members>

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