Epsilon Theory

Body Count

February 10, 2020

Over time, continual bad news will discourage any civilian population, and Americans had the lowest tolerance on the planet for bad news.
-- Karl Marlantes, *Matterhorn* (2009)

Have you read *Matterhorn*, by Karl Marlantes? You should. It's not just the best novel I've ever read about the Vietnam War, but it's also one of my irreplaceable sources of inspiration for understanding The Maw – that unlimited gluttony of the violent State to chomp on our bones and suck out our minds … and the oddly not-so-rare instances of individual human bravery to persevere regardless.

I would bet my life that there are thousands of instances of individual human bravery persevering against The Maw happening *right now* … in Wuhan … in Wenzhou … in dozens of other quarantined cities throughout China.

And in Xinjiang, too.

What was my first experience with The Maw? It was as a seven-year-old boy watching the nightly news on our little black-and-white set, where every night … EVERY NIGHT … we were told *exactly* how many American and South Vietnamese and North Vietnamese soldiers had been killed that day.

The American numbers were accurate, I guess, and the South Vietnamese numbers were probably in the right ballpark. But the North Vietnamese numbers of wounded and killed? Pure fiction.

The daily body count of killed and wounded North Vietnamese soldiers was, in Epsilon Theory-speak, a ***cartoon*** – an abstraction of an abstraction in service to the creation of Common Knowledge.

Hey, everyone knows that everyone knows that we're winning the war in Vietnam. Didn't you see the body count numbers on CBS last night?

Once you start looking for cartoons, you will see them everywhere.

Inflation numbers? Cartoon.

Employment data? Cartoon.

Asset allocation? Electoral coverage? Financial journalism? Cartoon, cartoon, cartoon.

And yes, we write a lot about cartoons. You can read more **here**, **here**, **here**, **here**, here and **here**. For starters.

But this is the kicker.

Because it was so important to maintain the fiction that we were Winning the War ™, and that fiction required metrics like a body count of North Vietnamese that was always a multiple of the South Vietnamese casualties and always a factor of the American casualties, **American war-fighting policy was soon driven by the narrative requirement to find and count the "right number" of North Vietnamese casualties!**

These were the infamous search-and-destroy missions of the Vietnam War.

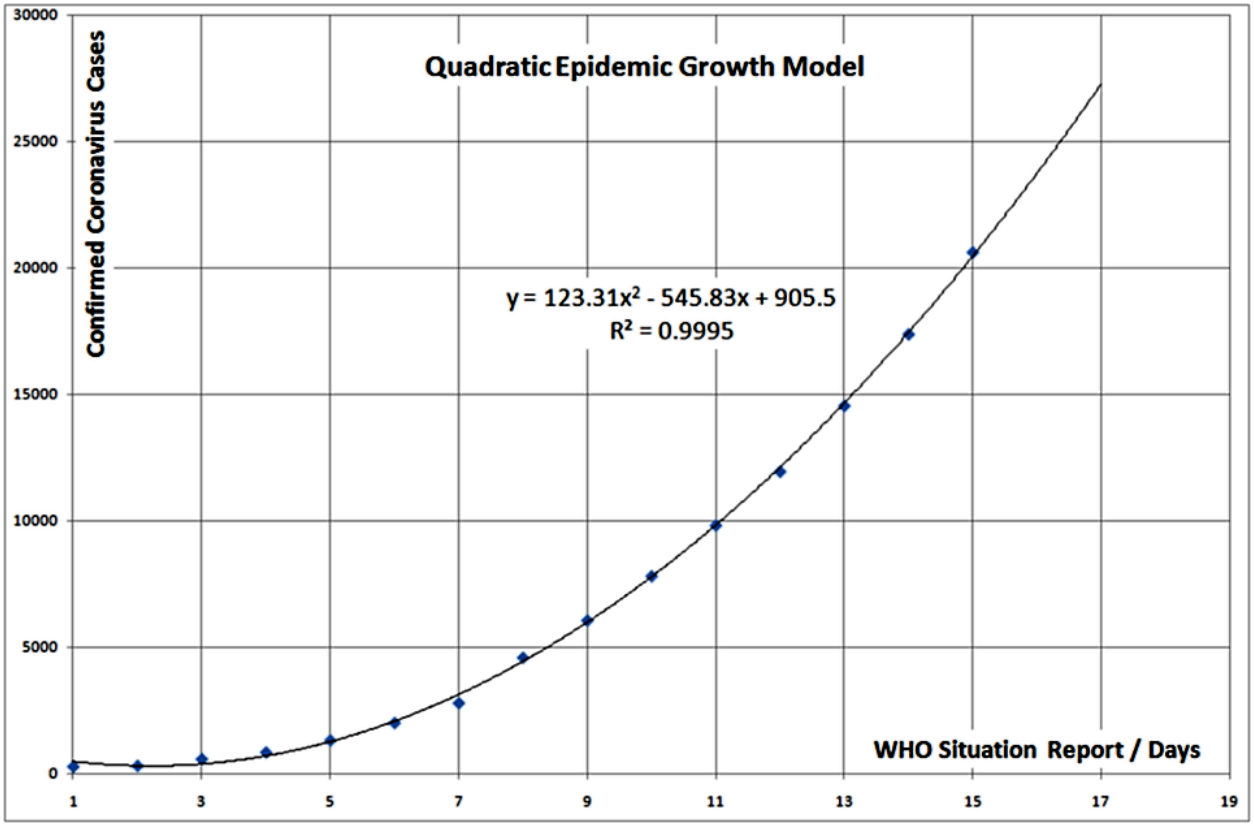
This is The Maw in action.

Do a little research on search-and-destroy. Read about My Lai and Son Thang. Read *Matterhorn*.

And then take a fresh look at the coronavirus stats coming out of China.

Here's the core post in a *reddit thread* that's Matterhorn-esque in its truth (and a heck of a lot shorter to read).

OC] Quadratic Coronavirus Epidemic Growth Model seems like the best fit



The point of this quadratic regression on Chinese infection and death numbers as reported by the World Health Organization from the first official announcement through February 4 was the publication of this projection.

Antimonic OC: 1 2.1k points · 5 days ago · *edited 4 days ago* 6 2 5

If I'm right, this near perfect "Chinese Propaganda" quadratic model will provide the world press and the WHO with the following numbers over the next few days:

- 05/02/2020 23435 cases 489 fatalities
- 06/02/2020 26885 cases 561 fatalities
- 07/02/2020 30576 cases 639 fatalities
- 08/02/2020 34506 cases 721 fatalities
- 09/02/2020 38675 cases 808 fatalities
- 10/02/2020 43084 cases 900 fatalities
- 11/02/2020 47733 cases 997 fatalities

Quite sad, considering all the commendations for transparency bestowed upon China by the WHO!

Sure enough, the WHO announcements since this prediction was published have been eerily close.

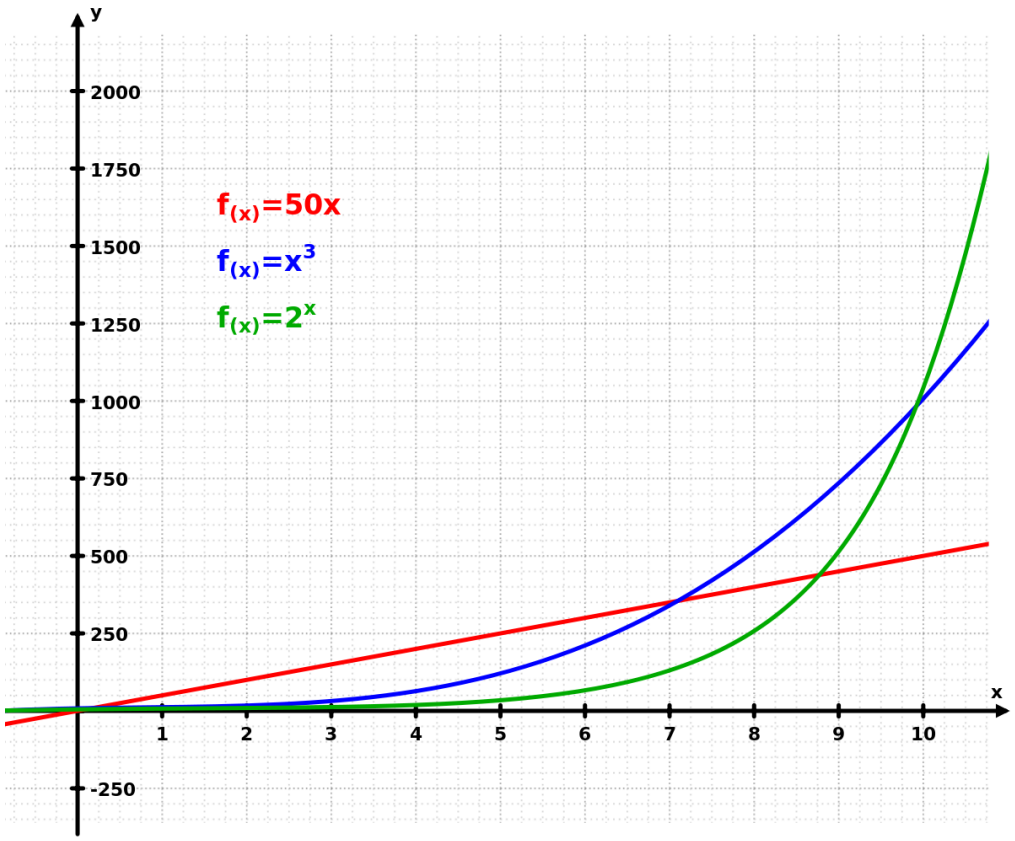
- 2/5 — 24,363 cases — 491 fatalities
- 2/6 — 28,060 cases — 564 fatalities
- 2/7 — 31,211 cases — 637 fatalities
- 2/8 — 34,598 cases — 723 fatalities
- 2/9 — 37,251 cases — 812 fatalities
- 2/10 — 40,171 cases — 908 fatalities

Crazy, right? The deaths being reported out of China are particularly accurate to the model, while the reported cases are leveling off (which is what you'd expect from a politically adjusted epidemic model over time … at some point you have to show a rate-of-change improvement from your epidemic control measures).

But wait, there's more.

The really damning part of Antimonic's modeling of the reported data with a quadratic formula is that this should be impossible. This is not how epidemics work.

All epidemics take the form of an exponential function, not a quadratic function.



All epidemics – before they are brought under control – take the form of a green line, an exponential function of some sort. It is *impossible* for them to take the form of a blue line, a quadratic formula of some sort. This is what the *R*-0 metric of basic reproduction rate *means*, and if – as the WHO has been telling us from the outset – the nCov2019 *R*-0 is >2, then the propagation rate must be described by a pretty steep exponential curve. As the kids would say, it's just math.

Now I don't want to get into the weeds as to whether it's possible to model this specific data set with an exponential function (it probably is), and we'll never have access to the detail of data we'd need to be certain about all this. And to be clear, at some point the original exponential spread of a disease becomes "sub-exponential" as containment and treatment measures kick in.

But I'll say this … it's pretty suspicious that a quadratic expression fits the reported data so very, very closely. In fact, I simply can't imagine any real-world exponentially-propagating virus combined with real-world containment and treatment regimes that would fit a simple quadratic expression so beautifully.

I believe that the Chinese government is *massively* under-reporting infection data in the pandemic regions of Hubei and Zhejiang provinces.

Just like the American government massively *over-reported* North Vietnamese casualty data in the Vietnam War.

It's not only that I believe the numbers coming out of China are largely made up.

More importantly, I also believe that Chinese epidemic-fighting policy – *just like American war-fighting policy in the Vietnam War* – is now being driven by the narrative requirement to find and count the "right number" of coronavirus casualties.

nCov2019 is China's Vietnam War.

From a narrative perspective, China is fighting this war against nCov2019 exactly like the US fought its war against North Vietnam.

It's what the Best and the Brightest always do … they convince themselves that the people can't handle the truth, particularly if the truth ain't such good news. They convince themselves that they can buy enough time to win the real-world war by designing and employing a carefully constructed "communication strategy" to win the narrative-world war.

That strategy proved to be a social and political disaster for the United States, as the cartoon tail (*gotta get more NV casualties for Cronkite to report*) ended up wagging the policy dog (*send out more counterproductive search-and-destroy missions*).

I think exactly the same thing is happening in China.

And I think the social and political repercussions will be exactly as disastrous.

PS. A couple of thoughtful readers on both the original reddit thread and here on my Twitter feed have asked whether it makes a difference to look at the daily reported cases and deaths rather than the cumulative reported cases and deaths. It's a good question, as cumulative data can give the illusion of being "smoother" than the underlying phenomenon truly is, and the way you get around this is typically to evaluate the individual data points that are added together to get the cumulative data points.

First, it really is a good question, and it's why I assign very little meaning to the high r-squared results for the quadratic regression on the reddit thread.

Second, though, you've got to be really careful with standard econometric techniques for evaluating the daily event count data (typically a Poisson regression), because the *assumption* that underlies those techniques is that the observations are, in fact, independent of each other. In other words, the standard assumption is that the number of new deaths or new cases today is independent of the number of new deaths or new cases yesterday, and I would submit to you that this is obviously not a viable assumption. There are ways to relax this assumption (for example, assume a negative binomial distribution for the underlying stochastic nature of this phenomenon rather than a Poisson distribution), but I am pretty certain that just by writing those words I have lost 99.99% of my readers.

So instead let me give you a numeric example of why I believe that – just like the American military leadership in the Vietnam War – the Chinese party leadership today is assigning a "target" death rate for the nCov2019 epidemic, and how that target plays out in both the daily and the cumulative reported data.

Let's imagine, for example, that you're President Xi, and you'd like to show that you are Winning the War ™ against nCov2019. You can't just say that the epidemic is over and the disease is cured, because you've got more than 100 MILLION people in a military quarantine, and it's kinda obvious that the disease is anything but cured. But you want to show *progress* in Winning the War ™.

So maybe you come up with a rough formula that goes something like this …

Yesterday we told everyone that 500 people have died since the outbreak. That's a made-up number, of course, but that's what we told everyone. Today let's tell everyone that an additional 15% of that number died yesterday, so 75 new deaths for 575 total dead. And tomorrow let's tell everyone that 14% of that total number died, and the day after 13%, and then 12% and then 11%. Clear progress! Got it, my loyal cadres?

In fact, China reported a total of 491 cumulative deaths from nCov2019 through Feb. 5th. If you applied my incredibly rough and cartoonish model, then, of 15% new deaths on Feb. 6th, and 14% new deaths on Feb. 7th, and so forth and so on, you'd end up with the following daily data points on new and cumulative deaths:

- Feb. 6 — 74 new deaths — 565 cumulative deaths
- Feb. 7 — 79 new deaths — 643 cumulative deaths
- Feb. 8 — 83 new deaths — 720 cumulative deaths
- Feb. 9 — 87 new deaths — 810 cumulative deaths
- Feb. 10 — 89 new deaths — 901 cumulative deaths

And now here's what China and the WHO actually reported:

- Feb. 6 — 73 new deaths — 564 cumulative deaths
- Feb. 7 — 73 new deaths — 637 cumulative deaths
- Feb. 8 — 86 new deaths — 723 cumulative deaths
- Feb. 9 — 89 new deaths — 812 cumulative deaths
- Feb. 10 — 96 new deaths — 908 cumulative deaths

I mean … c'mon, man.

I just gave you a ridiculously naive and idiotic model of "Progress in the War against Coronavirus!", and it's incredibly predictive for the reported data ON A DAILY BASIS for a nation of 1.4 BILLION people in the throes of an unimaginable public health crisis.

They'll need to tweak this ridiculously naive and idiotic model, because the 1% improvement per day is clearly too optimistic even for the willing stooges at WHO to keep swallowing, but tweak it they shall. And the willing stooges at WHO will keep reporting the official numbers.

You remember what happened to the American narrative of Winning the War in Vietnam ™, right?

This happened. The Tet Offensive happened.

In real-world, the Tet Offensive was a disaster for the Viet Cong and the NVA regulars. In narrative-world, though, it changed everything. North Vietnam wasn't on the "verge of surrender". We weren't "winning the hearts and minds" of the Vietnamese people. What everyone knew that everyone knew about the Vietnam War changed on a dime.

The Tet Offensive changed our Common Knowledge about the Vietnam War.

We are one photograph like this from Common Knowledge about nCov2019 changing in exactly the same way.

It's coming.

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