

What Happens Next - Sunday January 17, 2021 @ 3:00 pm ET

Technology and History, COVID Treatments, Battle between the Elites and Public, Post-Mortem of GA Senate Races – David Edgerton and Dr. Ari Ciment QA

Larry Bernstein:

I'll start out my first question about how we teach our kids in school about technology. For example, in Western civilization classes, we introduce the Industrial Revolution. We tell a story, you'll learn about the steam engine and the role of James Watt. We then have the Gilded Age and then we work into maybe World War II and how technology had changed. And then usually they run out of time in the late 20th century to finish that part of the class. But it sounds to me like you think that the way that we teach it, the history of technology, is fundamentally flawed. Can you talk a little bit about why we teach it in the wrong way or how we should teach it to the next generation of children?

David Edgerton:

I don't really know why we teach it in such bad ways, but we most certainly do. To illustrate the problem, yes, steam drives the Industrial Revolution and the steam is generally raised by coal. So, we associate the Industrial Revolution with the mining of coal. But in fact, we mine more coal today than we ever did in the Industrial Revolution. And relative to the economy as a whole, we certainly mined more coal in the 1900's than in 1800. So, these ideas of successive industrial revolutions, I think, can profoundly mislead people as to what our material world is made of, essentially. And I think a proper history of technology, because I don't like that term, ought to give us an account of the material things that are in the world at any particular historical period. In 1800, we wouldn't be talking about Industrial Revolution. We might be talking about agriculture, for example, which would be the most important industry. In terms of making things, we'd probably talk about what was going on in people's homes, rather than in the few factories that existed.

Larry Bernstein:

Your book is called *The Shock of the Old* and as I read the book, my takeaway was that older technologies don't just disappear. They continue on and grow. So your example, there was substantially more coal output at the end of the 19th century than at the beginning, is indicative of that.

I thought the best example in your book related to the use of horses in war, where you said that the German army of World War II used many more horses than it did in World War I. Why do

you think we always focus on the new and not the old in terms of how technology affects our lives?

David Edgerton:

I think essentially because our image of technology and this strange word is one created by the proponents of new technologies. We have a long kind of record in film, in books and in magazines of novelties that corporations and governments want to sell. And then when we, as historians, kind of go back, this is the first thing we find. We find particular kinds of machines that particular people want to make important and sound as if they're the most transformative of any particular age. And we often produce those same arguments.

What we should do, of course, is actually look at what people are using at any particular time. And of course, much of what we use doesn't get reflected in the world of film or literature or the newspapers. And in a way, the older it is, the less newsworthy as it were, it is. There's a systematic distortion involved in taking literary and visual sources as the first port of call for an analysis.

But it's interesting that you pick up the case of the horses. I mean, that's a particular example where people are very surprised by that because we're used to seeing the German army of 1939, '40, '41 portrayed as the most mechanized army in the world supported typically in newsreel extracts by dive bombers. That's the deeply ingrained image that we've had actually from the war itself. But it's not an image that would last very long if we actually looked at the makeup of the German army or the number of tanks. And one of the strongest images I got actually from a rare documentary that interviews people - a German soldier talking about Operation Barbarossa where he described crossing the frontier into the Soviet Union and described being able to see thousands and thousands and thousands of men walking into the Soviet Union. And that was the reality for the German army at that time.

Larry Bernstein:

We did a book club on the Horse Flu of 1871 with Ernest Freeburg. And what he said was that there was a flu that was killing off the horses. And you'd think by 1871, that wouldn't be critical to economic activity. The railroad would bring in various materials from a long distance. But the last mile was always the horse and if the horses were dead, the stuff couldn't move. And I think that image is relevant here because, in many ways, even if you do have inventions, we have to think of the context of how it fits in with everything else and where the problems are.

David Edgerton:

Yes, absolutely. And the case of the horse is not one of the horse population being independent of new transport technologies. New transport to analyze the railway in particular, but also the ship increased the horse population. I mean, the US horse population peaks around 1915, because there was increasing mechanization and its horsepower mechanization of US agriculture. The urban horse peaks in the early 20th century. Why? Because cities become

bigger, because they're supplied by railways and by ships. It's not simply that the horse is a kind of persistent feature. It's actually something that's expanding. The horse population is expanding in the late 19th century all over the world. And in many places, it's expanding well into the 20th century.

Larry Bernstein:

Another example, I want to bring up Alan Greenspan, when he was head of the FED here in the US, he liked to talk about economic history and the role of invention. And he gave a couple of examples. One was that you could see the role of computers every day, you just couldn't see it in the GDP statistics. That story he discussed 20 years ago. And so that technology was becoming more omnipresent, but wasn't yet fully productive. And he compared it to the role of electricity in manufacturing in the 19th century, when it took a long time for existing manufacturing sectors to fully employ electricity. How do you think about that transitional period when you continue to use the old? Everyone seems to observe that's our future, but you're not there yet. And how do I think about that transition? And then the ultimate disuse of, for example, steam?

David Edgerton:

Yes. There was a famous quip, that one. The cases aren't parallel, actually, electricity and IT. I mean, it is well established indeed by Paul David, that the impact of electricity took place decades after its introduction. But the case of IT is a little bit, I think, because it was clearly used in lots of different contexts. I think the question may be really just how big is the effect is of IT rather than it's effect is delayed. There's a kind of assumption that IT should have had this dramatic effect. And when that was found not to be the case, let's say it wasn't in the statistics, the assumption was that the effect would come later.

Well, I'm not sure that the effect is detectable later. In any case, there'll be many, many more changes in the economy than the introduction of IT. And this is an example of this rather problematic way of thinking about new technologies and the economy. You take a technology which you assume to be massively important, and then look for the impacts. I would much rather look at the economy and see what's changing in it, and deduce from that, what is having the greatest impact. And IT may come out at some time or another times in some sectors and not in others. But the isolating of one technological element seems to me to be an inappropriate way of going about this sort of investigation.

Larry Bernstein:

I wanted to include Dr. Ari Ciment, our pulmonologist in this conversation as well. Ari, one of the interesting things about COVID treatments is that you're starting to use steroids that have been around for decades. How often in medicine do you use the old to solve new problems and rely less on the latest and greatest technologies in the treatments of novel diseases like COVID?

Dr. Ari Ciment:

Yeah. So that's an interesting question. We're using a lot of the old therapies for COVID. That is true. Steroids are actually not, they might be an old therapy, but they're used for so many pulmonary diseases so that sort of makes sense. But drugs like Ivermectin, things that you wouldn't think you would use are just good. Old vitamins, vitamin C, vitamin D. That's, I think, a better example of trying to use it. Even the best example is convalescent plasma. If you go back in the American Journal of Public Health in 1919, you could read about one of the lieutenants using convalescent plasma during the Spanish Flu. And now all of a sudden that's the rage right now, is let's use convalescent plasma. That's bringing up the old and treating a new disease.

David Edgerton:

I can think of an older one still, not a treatment, but a means of coping with disease and that's quarantine.

Dr. Ari Ciment:

Exactly. That's funny.

David Edgerton:

There isn't a more classical approach to infectious disease than quarantine and it came back with a vengeance. We've had the greatest global quarantine in human history.

Larry Bernstein:

You talked about, you were making fun of people emphasizing the upcoming and important role of both robotics and AI. I was thinking about having a show on those topics. Do you think it's just a waste of time to engage with that, or is your point that calling it like some sort of critical new variable that's going to alter our world, is that the problem?

David Edgerton:

Yes, I hope I didn't come across as making fun of AI. I mean, I was making fun of a particular theory as to how AI would change the world, the fourth industrial revolution. I mean, I'm not an expert on AI. I think there are divergent views as to what it can and can't do and how it will change.

My difficulty is really just the assumption that we already know that AI is going to change the world and it will be one of the most important factors doing that changing. I would take a lot of convincing that, that's the case. And it's really interesting that the arguments that are made for it are actually not that convincing. It's a series of assertions that are very, very familiar kind. I'm not saying that new things aren't coming along. What I'm saying is we don't have a proper picture of the full range of new things, and we don't have a good understanding of what the

likely effects are going to be. And instead of that, we have the recurrence of these very, very old modes of proclaiming certain technologies to be transformative and world changing.

Larry Bernstein:

It feels like you're starting to challenge the kind of the way we think about technology in a historical setting. So going back to where we started the conversation about how we teach history. In history classes, we were presented with Gutenberg's technology of the printing press and its importance for idea generation, and maybe just playing all to the present. I'm sure that that same class today was taught, they would be emphasizing the role of the internet to disperse information. If you don't like that approach, how would you replace that in educating the history of technology?

David Edgerton:

Well, I would just ask the question, when in the 15th, 16th, 17th century, did people actually get their information from? Where do people get information from today? And not assume that today it's the internet and back then it was the printed book. I mean, people today get information from all sorts of places, including newspapers and old-fashioned television. And we systematically downplay the importance of those things. When we talk about President Trump and his mediatic influence, we focus on Twitter, but we've got to think about Fox News. We've got to think about The New York Post, is it and countless many other newspapers. So we've got to look at much more than the thing that we take in advance to be the key medium.

For example, I'm sure that sermons from church pulpits were more important source of ideas in the 17th century, even than books.

Larry Bernstein:

I bet that's right.