

The Rise and Stagnation of Modernity

Blithering Genius

2019 August 27

Contents

1 Introduction	1
2 Basic Science and Technology	2
3 Prosperity	2
4 Health and Lifespan	3
5 Sex and Fertility	4
6 Homes	4
7 Communication	5
8 Transportation	5
9 Agriculture	5
10 Conclusion	6
11 Sources	6

1 Introduction

Although aspects of it trace back hundreds of years, what I call “modernity” emerged in the 20th century, in the West. As I define it, modernity includes the following:

- Industrialization and mechanization
- Urbanization
- Abundance
- Low child mortality
- Low fertility

In this essay, I will describe some of the major advances that created modernity during the middle part of the 20th century. There is no right way to divide up history into chunks, but because it is

early 2019 as I write this, I am going to consider the hundred-year period from 1918 to 2018, and I'm going to divide it into two 50-year periods, with 1968 as the dividing line.

These two chunks correspond roughly to (1) the emergence of full modernity, and (2) late modernity (sometimes called "post-modernity"). In 1918, the West was modernizing, but it was not yet modern in many ways. By 1968, the West had attained full modernity, as I define it. Since 1968, the condition of modernity has been maintained in the West, but progress slowed down significantly. During that period, we ran into some of the problems with modernity, such as limited resources, an exploding population in the third world, below replacement fertility in the West, social and psychological alienation of various types, and the threat of technologies that humans can create but have difficulty controlling.

This essay is not about the future, but I will make a very brief prediction. I think the next 50 years will be a period of decline in the West. That period might end in the collapse of modern civilization.

In this essay, I will be talking about the West and specifically about the United States. Modernity emerged later in other parts of the world, and some places, such as China and Africa, are modernizing today. When I give statistics, they will be for the United States unless I specify otherwise.

2 Basic Science and Technology

Here are some of the advances in science and technology that occurred between 1918 and 1968:

- Quantum theory
- Subatomic particles
- Nuclear energy and weapons
- Modern cosmology
- Space flight
- Plate tectonics
- The story of life
- DNA and genetics
- Semi-conductors (transistors)
- Basic computing

There have been no major scientific theories or discoveries since the 1960s. There have been many small discoveries and inventions, but nothing to compare with quantum theory or nuclear weapons. There was a lot of progress in micro-electronics and information technology, and also in genetics. But there were no great leaps forward in basic science, and many other fields stagnated. This stagnation occurred in spite of a huge increase in the number of people engaged in science.

3 Prosperity

It's hard to quantify prosperity, but certainly people in the United States were much wealthier in 1968 than they were in 1918. In 1968, almost everyone had enough to eat and a comfortable

place to live. It was possible to support a family in comfort on a working man's wages.

Abundance is a defining characteristic of modernity. In modernity the ordinary person has the equivalent of many slaves working for him, in the form of machine labor powered by fossil fuels. Per capita energy use in the US stopped growing around 1970 and has declined slightly.

The plateauing of energy consumption is one reason why we don't have the flying cars that people imagined in the 1960s. Flying cars would consume a lot more energy than ordinary cars. The overall standard of living is highly dependent on per capita energy consumption, although it can be raised in other ways.

Prosperity hasn't increased that much since 1968 in the West. In some ways, we might even have slid backwards a bit. Mass-produced goods are cheaper today than they were in 1968, but housing is more expensive.

In *Purchasing Power Decline in Big Macs*, I show that per capita GDP has declined in recent years, when inflation-adjusted based on the price of a McDonald's Big Mac.

Also, further increases in prosperity (after 1968) might just be wasted on zero-sum competitions. Many of the things that we want are zero-sum in nature, such as social status and good neighborhoods. Those things cannot be increased by economic growth. A good neighborhood is determined by the location and the people who live there. We cannot produce those things. We can only compete for them. Being poor today means being socially deprived, not materially deprived. It means having lower social status and having to live around other poor people. So, we may have reached an economic limit to industrial civilization. We don't need more stuff that can be mass-produced, especially if we have ultra-low fertility.

See *Unsatisfiable Desires*.

4 Health and Lifespan

Between 1918 and 1968, child mortality (death before age 5) declined from 17% to 2.5%.

1918 was an exceptional year because of a deadly influenza pandemic, known as "the Spanish flu". For that reason, the child mortality statistics for 1918 are elevated. So, I interpolated between 1917 and 1920 to get 17%.

It is estimated that the Spanish flu killed roughly 4% of the global population. That gives some idea of how deadly infectious disease was in the past.

By 1968, we had eliminated most infectious diseases as causes of premature death, with a combination of hygiene, vaccination and antibiotics. Antibiotic drugs were invented in the 1930s and 1940s, and were widely used by the 1950s. Polio was eradicated by vaccination in the 1950s and 1960s.

Between 1918 and 1968, life expectancy increased by 16 years, from 54 to 70. Again, 1918 was anomalous, not only due to the Spanish flu, but also due to WWI, so I used the statistic for 1920.

Between 1968 and 2018, life expectancy increased by 9 years, from 70 to 79. Child mortality has gone down further to about 1%. The increase in life expectancy of the past 50 years was mostly due to the extension of old age. The previous increase was more significant in terms of both quantity and quality.

5 Sex and Fertility

The West already had relatively low fertility in 1918, compared to the rest of the world. However, it was above the replacement level. In 1920, the total fertility rate (TFR) in the US was over 3 children per woman. During the 1930s, it declined to just over 2, and then rebounded after WWII, reaching a peak of roughly 3.6 (the baby boom). After that, it declined rapidly during the 1960s. In 1968, the TFR was still almost 2.5 but falling rapidly. In the early 1970s, it went below 2, and it has been below or barely above 2 ever since. In 2017, the TFR was 1.77.

Low fertility is an important aspect of late modernity. It liberates men and women to pursue their careers and other interests, but it also liberates them from the natural purpose of life, and (like many aspects of modernity) it is unsustainable.

6 Homes

Indoor plumbing in its current form was basically nonexistent in 1918. Even by 1940, 45% of homes were lacking full indoor plumbing, defined as hot and cold running water, a bath and a flush toilet. By 1970, only 7% of homes lacked full indoor plumbing. Showers didn't become common until the 1950s. In 1918, most people had to heat water on a stove to have a bath.

Indoor plumbing is a complex technology. It involves having water delivered to your house, automatically heated for you, available at the twist of a tap, and having waste water carried away by sewers.

Indoor plumbing is a luxury that we now take for granted. It was a huge leap forward in comfort, convenience and hygiene.

I can't find a good source of statistics, but it seems that roughly 30% of homes had electricity in 1918, and it became common by the 1930s. Almost all homes had electricity by 1968.

Early refrigerators existed in the 1920s for commercial uses, but refrigerators weren't common in homes until after WWII. In 1918, some people had ice-boxes (boxes with ice), but this was tedious and ineffective as a way of keeping food cool. Perishable food usually had to be purchased and eaten within a day. That's why there were milkmen who delivered milk every day.

Refrigerators revolutionized food storage and preparation. You could go to the store, take milk out of a refrigerator, take it home and put it in your refrigerator, and consume it over a week. Refrigerators made the modern grocery store and kitchen possible.

There was no air-conditioning in 1918. Imagine living in New York City or Washington DC in the summer without air conditioning.

Most electrical appliances, such as clothes washers and dryers, dishwashers, toasters, vacuum cleaners, etc, came into widespread use between 1918 and 1968. There was a rapid modernization of home life after WWII.

Plastic existed in 1918, but plastics were of limited use until the middle of the 20th century. Today, plastic is ubiquitous, and it is hard to imagine life without it.

7 Communication

In 1918, roughly 33% of households had telephones. By 1968, it was 89%. Telephones had become part of ordinary life, and much easier to use.

The technology of radio transmission predates 1918, but radio broadcasting started in the 1920s, and radios in homes became common after 1920.

In 1950, 9% of homes had the new technology of television. By 1968, the vast majority of homes had televisions. All the cultural forms related to television (sitcoms, TV news, game shows, etc.) have been developed since the 1950s. They were new in the 1960s. TV had a huge impact on the way people saw the world.

Since 1968, there have been two major advances in communication: the internet and cell phones. These are also having a huge impact on our culture and even on our psychology. This is one area in which we have progressed a lot since 1968, but that progress has had some negative consequences, as did television.

8 Transportation

Motor vehicles for transportation were rare in 1918. In 1920, there were 87 motor vehicles per 1000 people. By 1970, there were 545 motor vehicles per 1000 people. Car ownership and travel became a normal part of American life. Today, the US has roughly 900 motor vehicles per 1000 people.

Air travel went from being an expensive and dangerous hobby to a commodity that was affordable for the middle class.

The transportation of people hasn't changed much since 1968. We still use motor vehicles with internal combustion engines for most land transportation, airplanes with jet engines for air travel, and ships fueled by diesel engines. There have been some important advances in the transport of goods, such as containerized shipping, that make it easier and cheaper to transport goods around the world.

9 Agriculture

Food production depended heavily on human labor in 1918. In 1920, roughly 25% of the workforce was in agriculture. By 1970, it was only 4.4%. For comparison, it was about 35% in 1900, and 74% in 1800.

In 1918, most farmers plowed their land using animal traction: horses, mules or oxen. The number of horses peaked around 1920, and then began to decline. It wasn't until the 1940s that tractors did more work than horses on farms. By the 1960s, tractors had almost completely replaced draft animals.

A process to convert atmospheric nitrogen to ammonia — the Haber process — was invented during WWI in Germany. This enabled the mass production of nitrate fertilizers, which increased crop yields. Roughly half of the nitrogen in your body comes from artificial nitrogen fertilizers. (Only certain bacteria can convert nitrogen gas into a biologically useful form of nitrogen.)

The human population roughly doubled in the last 50 years. The great achievement of modern agriculture was keeping up with that growth.

Crop yields have increased significantly since the 1960s. For example, corn yields in the US more than doubled from 1968 to 2018. Increases in less developed societies have been even greater, as they adopted modern farming methods. There wasn't a big increase in land under cultivation. The increase in food production was almost entirely due to better farming methods, including the use of fertilizers, pesticides, herbicides, irrigation, tractors and better crop varieties produced by selective breeding.

10 Conclusion

By 1968, modernity had come to fruition in the West. After that, progress slowed or stalled in most areas of life.

It could have been much worse. The big achievement of the past 50 years was avoiding catastrophe. We didn't have a nuclear war. We didn't poison ourselves with chemicals (at least not too badly). We haven't run out of food or energy yet. We stalled but we didn't crash. That achievement is nothing to sneeze at.

But we can't maintain modern civilization forever, in its current form. We still depend on fossil fuels for energy. Economic and fertility differences are causing mass migration and political instability. Technology is causing biological and psychological problems for individuals. Dysgenics is becoming harder to deny. The great problem-solving engine of modernity, consisting of science, technology and capitalism, is not only failing to deliver progress, it has no solutions to the new problems of modernity.

The stagnation of the past 50 years is a warning sign. Progress is not inevitable. Things don't always get better.

11 Sources

- 90% of All the Scientists That Ever Lived Are Alive Today (futureoflife.org)
- Energy in the United States ([Wikipedia](#))
- Child and Infant Mortality ([Our World in Data](#))
- Spanish flu ([Wikipedia](#))
- Life Expectancy ([Our World in Data](#))
- Demographics of the United States ([Wikipedia](#))
- Lest We Forget, a Short History of Housing in the United States (James D.

Lutz)

- A Brief History of Plastic's Conquest of the World ([Scientific American](#))
- Percentage of housing units with telephones in the United States from 1920 to 2008 ([Statista](#))
- Motor vehicle ([Wikipedia](#))

- Changes in Agriculture, 1900 to 1950 (US Census)
- Haber process (Wikipedia)