

All good war stories are love stories.

And in every battle lies a reminder of why we fight.

Let me introduce the two main characters in this war: on the one side is man and on the other nature. Man as in hu-man. Nature as in everything else.

Today the war is being won by man: man is decimating nature.

We delay in realizing the effects of our actions, but maybe that's just human nature.

It's not clear how the war between humans and nature started. Maybe it's when we were first banished from Nature: a garden, eden, for not resisting the taking from it. From partaking of the tree of knowledge but now knowledge is a burden and a happier life might just as well be in the not knowing. In Genesis we were given dominion "over all the earth, and over every creeping thing that creepeth upon the earth."

We now grow apples in deserts, where they should not grow, on industrial scale.

We won that battle, but back to the war and grudges that have waged for centuries.

Nature was both bounty and suffering, the divide between us widening with pain (hunger, disease, death), or narrowing with pleasure (love, bounty, being).

For what we did not understand we created myths and cast them into the wilds of nature. Ignorance banished into the dark woods, back to the place we had no control.

We tried asking nature: why do we die? suffer? But our enemy was silent, we were still at war. God was also silent, but robed men offered answers for the cost of membership.

Dark ages, decentralized governments, disrupted food production, reason and philosophy placed on hold, man had to roam once again into the forests, returning to nature for survival.

The body of our enemy shows us how long the war has been going on as well as how much older nature is than us mere children. Soon we will leave scars of battles and the dance between man and nature and the nature of man in the geological record:

950-1250 C.E. Medieval Warm Period, a climatic event of slight warming happens in the north Atlantic. Possibly the last time the earth warmed naturally. Man took advantage and spread. The Vikings, it is guessed, sailed to Newfoundland. The Norse went to the Americas. But prolonged droughts started a retreat, a mere preview of the future and the present. The black death spread and spread, nature was cruel, man retreats in this battle.

1400–1700 the Little Ice Age: nature forces further retreats from the territory it lost in warming. The last time we will likely see an ice age for we are winning that battle. Luxury cruise ships can now sail the Arctic without an ice breaker and oil companies profit and bask in the spoils of war. Crisis is an opportunity. Feedback or irony or both. Tragedy and irony are so interwoven they will be hard to separate from here on.

1492: Globalization begins, the world shrinks. Start of Anthropocene?

Also called “Columbian Exchange” though the exchange was far from equal. Should we start our new geological era when there is an increase of CO₂ or start when there was a decrease?

1610: Start of the Anthropocene? The first time we appear in the geological record —and the only time man, or the absence of man, created a drop in CO₂. Actual absorption rather than contribution or a slowing of contribution. The Americas lost over 50 million natives from disease and war brought by the “Columbian Exchange.” Genocide. Native Americans were not hunters but farmers and when they were gone their farmland was reclaimed by forest. Enough new forest to absorb enough carbon to register on nature’s record. The “Great Dying” after the “exchange” showed us through our absence that our presence can be recorded geologically. It is the last time we absorbed of CO₂.

1637: Descartes suggests it’s OK to question what we know, what we think we know and what we want to know. And by the act of thinking...we are. Maybe we could just make our own gardens, design them as we think best. Religion shouldn’t hold the keys to the only one. Man can be god.

1687: Newton publishes *Principia Mathematica*. The ownership of knowledge was wrestled from the few and offered to the many. Knowledge was now in everyone’s hands, a weapon to fight the ignorance we expelled into nature.

The age of reason and enlightenment came to, and from, man. Descartes, Locke, Hume, all the wig-wearing guys argued to free us from control of the few, and not be slaves to either man or nature. Nature still held things we did not understand so let’s invade and bring light to ignorance. We must know everything, it is a new hunger.

Age of reason: Of Scientific journals, empiricism, all weapons waged against our enemy nature, where ignorance seeks shelter. We give plants scientific names, categories, species...to name is to conquer. To conquer is to dominate. Myth no longer has a place to hide. Scientific method, including reductionism gives answers to questions by finding the smallest part. A sin in humanities, like I'm doing here: reducing history to dates and worse, trying to tell them in order.

Enlightenment. Also called the the scientific revolution. Revolution. A fighting against, liberation from constraints. We'll hear the word revolution a lot, it is a term of war. Or a term to wage war. The war between man and nature.

Handel, Haydn, Mozart all rejoiced a soundtrack to the clarity and the joy of rational thinking. The way we think about the world changes the world. The enlightenment project was a vast disenchanting bulldozer crushing God and myth with the machinery of its rationality. Loss of myth is a loss of meaning and starts a steady disenchantment of the world.

1670-ish: Spinoza writes on democracy, individual liberty, freedom of expression and elimination of religious authority. Sound familiar? Thomas Jefferson loved it too, helping to create a nation founded on the values of Enlightenment. But back to the age of reason and science:

Mid 1700's, Joseph Black, Scottish scientist "discovers" something in nature through his experiments and gives it a name: carbon dioxide. Remember: to name is to conquer. And in war to conquer is to destroy or enslave. He notes that this this gas does not support "either flame or animal life."

He did not know this, but concentration of CO₂ in the atmosphere was 280 parts per million as it had been since on average since man's arrival 200,000 years ago. Give or take. Now it's give and give.

Mid 1700s: We (I now say we, the complicit we) start machines that start emitting CO₂ that travels globally. We know this now because of the records the earth keeps about us, maybe for us. This is the geological moment we start changing the atmosphere by contributing CO₂. The levels will only increase from here on in. And increase.

1750's: Joseph Black, the scientist who "discovered" carbon dioxide begins the study of thermodynamics. Thermo: heat. Dynamics: power. Can we blame the guy who named it, or the one that saw the use and harnessed the power behind it? Research supports industry because industry supports research and both want money. Heat becomes power and power is what we hunger for.

1757: Joseph Black meets James Watt and become friends over steam. Over the power to harness, enslave water from nature and force it to work for us. By heating water we harness power from nature in the fight against nature. We were finally free to mechanically overcome the inconveniences and limitations nature had set on us. Overcome distance, weight, hunger. Heat into power, power into money.

1776: Adam Smith's *Wealth of Nations* is published, original title: *An Inquiry into the Nature and Causes of the Wealth of Nations*. He argues free-market economy (i.e., capitalism) is most beneficial to societies by the Individual...man's self-interests. Our wants become our needs and the driver of all heat, movement, carbon and now carbon dioxide.

For 200,000 years the earth, nature, averaged 280 parts per million in the atmosphere. More CO₂ means the more infrared light is bounced back to us instead of returning to space and the warmer it gets. Kind of like a greenhouse. It's what kept nature's temperature in check, kept it healthy enough to create and support life. To create us. But there were not that many of us till:

1800: world population 1 billion. Carbon Dioxide: 283 parts per million.

Concentration of CO₂ starts measurably increasing, it will not stop. It, we, can not stop. CO₂ is what we exhale when we breathe, it's natural. Oceans and forests take our exhaust and smoke and give us oxygen back. Have we ever said thank you? But it is the exhaust of economics of scale that rise and begin to collect in the atmosphere. Factories.

Coal, solidified nature dead for 300 million years is being unearthed from its geologic grave with new fervor. We are the grave diggers that cremate the past, freeing the carbon dioxide—and we begin building towards an atmosphere dinosaurs would have breathed. We unearth their buried world to recreate it today and the extinctions that come with it. Fossils to fuels. Irony and tragedy as closely weaved as love and war.

The enlightenment era ends, it is said, with the French revolution. Revolution. Because of a fight between the few who held great wealth, ownership of land and the bounty extracted from it...versus the hungry many. What replaces enlightenment?

The industrial revolution, a revolt from the last chains of nature. A new economic form arises from the exhaust of the fuel that heats the water that moves the machine that puts us ahead in the war with nature. We go from asking nature for our needs to brutally demanding from it our wants.

1896: Swedish chemist Svante Arrhenius concludes that industrial-age coal burning will enhance the natural greenhouse effect. We were told. Let the delay between knowledge and action begin. Human nature.

To heat water is the focus, sometime folly, of modernity for the rest of its life. To this day and possibly to its end. "Modernity" becomes the imposed goal of every developing nation. But every technology comes at a cost, a deferred cost now coming due.

1850's: in exile, in poverty, breathing the coal choked air of London, Karl Marx asks what happens when society—politics, industry, individuals—become purely

economic beings? Who/what is this economic creature that takes resources from nature, including the natural labor of people and turns it into unnatural things we must now naturally possess?

1886 - Karl Benz unveils the personal Motorwagen.

20th Century: Celebrations around the world. Technology: telegraphs, time-zones, connections, innovations, progress...progress...

1900: World population 1.6 billion. Carbon Dioxide: 283 parts per million

1908: Lower cost production methods make what was once lavish and unattainable into newly affordable goods: Model-T car rolls out. Now workers could afford to buy what they produced. Hurray.

Distance, the vastness of nature, shrinks further. Conquered territory transformed by man into profits and amusements for man. Nature is especially domesticated in modern America, the capitalist and enlightened nation. Conquering only begins destruction, efficiency assures it.

Cheaper goods or a life of leisure did not inspire machines, the incentive to make profit made machines. Efficiency displaces labor, that will forever be the way of things from here on. Yet the profits go to the very few. The fight is now between man, between each other. We fight each other over the bounty of conquered nature, the spoils of war. Divide and conquer. The divide between the have and the have-nots widens. We must always be fighting so we fight ourselves.

1912: Thomas Edison writes to Henry Ford cautioning that their industrial success could lead only to "...misery for the many, prosperity for the few." With so many battles against nature won, the war on our side, man returns to fighting man.

Technology becomes an expression of the interests of others. The economic imperative of wealth to only grow. No ceiling in place. More. More.

1930: world population 2 billion. Carbon Dioxide: 308 parts per million

1945: First nuclear test device exploded (for war, not energy). Welcome to the "nuclear age." It's the first time we wrote on the geological record, drawing a radioactive line in the layers of the planet's marine sediments, rock, and glacial ice. The other bookmark in the stratigraphy of earth's record is the K-T boundary, a mass extinction mark 66m years ago when an asteroid ended the dinosaurs and 3/4 of all life. We are bringing CO2 levels back to Pliocene times by resurrecting the fossils into fuels. Irony and tragedy. Now that we're in the nuclear age: The amount of heat we now add to the atmosphere *each day* is equal to 400,000 bombs the size of the one we dropped on Hiroshima.

October 28th, 1956: New York Times article warns that accumulating greenhouse gasses will have long-lasting environmental changes:

“Warmer climate on the earth may be due to more carbon dioxide in the air”
We were told. We were warned.

SCIENCE IN REVIEW

Warmer Climate on the Earth May Be Due To More Carbon Dioxide in the Air

By WALDEMAR KAEMPFERT

The general warming of the climate that has occurred in the last sixty years has been variously explained. Among the explanations are fluctuations in the amount of energy received from the sun, changes in the amount of volcanic dust in the atmosphere and variations in the average elevation of the continents.

According to a theory which was held half a century ago, variation in the atmosphere's carbon dioxide can account for climatic change. The theory was generally dismissed as inadequate. Dr. Gilbert Plass re-examines it in a paper which he publishes in the *American Scientist* and in which he summarizes conclusions that he reached after a study made with the support of the Office of Naval Research. To him the carbon dioxide theory stands up, though it may take another century of observation and measurement of temperature to confirm it.

Abundant Gases

In considering the theory, Dr.

starches) causes a large loss of carbon dioxide, but the balance is restored by processes of respiration and decay of plants and animals.

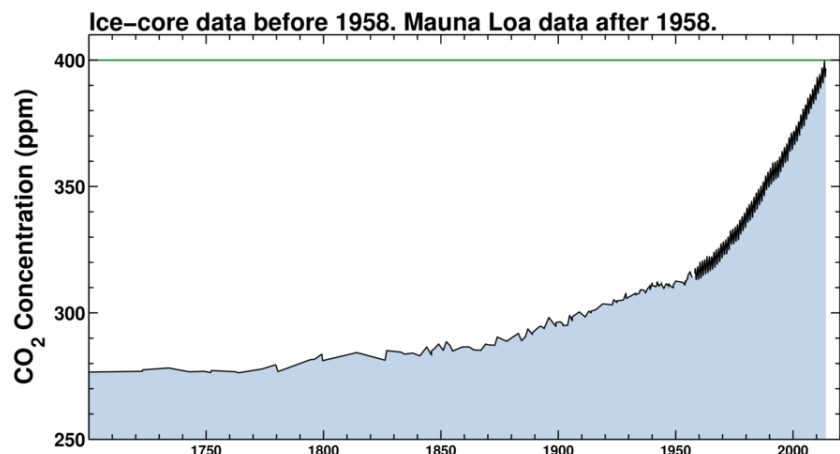
Despite nature's way of maintaining the balance of gases the amount of carbon dioxide in the atmosphere is being artificially increased as we burn coal, oil and wood for industrial purposes. This was first pointed out by Dr. G. S. Callendar about seven years ago. Dr. Plass develops the implications.

Generated by Man

Today more carbon dioxide is being generated by man's technological processes than by volcanoes, geysers and hot springs. Every century man is increasing the carbon dioxide content of the atmosphere by 30 per cent—that is, at the rate of 1.1° C. in a century. It may be a chance coincidence that the average temperature of the world since 1900 has risen by about this rate. But the possibility that man had a hand in the rise cannot be ignored.

Whatever the cause of the warm-

1958: Charles Keeling measures CO₂. The Keeling curve, known as the hockey stick curve is more proof that the climate is warming and is man made.
Al Gore will get an Oscar for riding a scissor lift to illustrate the absurd steepness of the curve.



1960: world population 3 billion. Carbon Dioxide: 319 parts per million.
Remember, it was 280 when our human story started.
Up the curve we go, steeper and steeper. CO₂ is a measure of accumulated economic exhaust. The debt of our profit.

Nature was too slow in our hunger—not for food, but for profit. Industrial agriculture invited insects that knew only of the old ways, so we defend our territory.

1962: “There was a strange stillness. The birds, for example—where had they gone? Many people spoke of them, puzzled and disturbed...”

We are smarter than our enemy after all, smarter since we know the scientific words we chose for the plants, the insects and the weaponized chemicals wielded into insecticides, poisons against nature. As Rachel Carson writes in *Silent Spring*,

“...The few birds seen anywhere were moribund; they trembled violently and could not fly. It was a spring without voices.”

1975: world population 4 billion. Carbon Dioxide: 330 parts per million.

1980s: Ghosts of enlightenment liberation speak through Regan, Thatcher: new-liberalism. laissez-faire. Let the markets decide what is best, not government. Let corporations regulate themselves, it's only natural. What is best for the economy is best for us. But, and this is the biggest “but” in our story, the model has no cap on natural resources: endless fantasies of growth and unlimited resource extraction. Man declared nature free to be pillaged without limits.

Margaret Thatcher was a research chemist. The gap between knowledge and action can also be intentional. Profitable.

1981: First front page climate article in *times*: “Study finds warming trend that could raise sea levels”

1987: world population 5 billion. Carbon Dioxide: 349 parts per million.

1988: Scientist James Hansen in a senate testimony: “It is time to stop waffling so much and say that the evidence is pretty strong that the greenhouse effect is here.” Our deferred bill from “prosperity” has come due.

We warm the earth and the world we're changing will have no option but to retaliate and change us. Long before we change ourselves.

1999: eve of 21st century, world population 6 billion. Carbon Dioxide: 368 parts per million.

2000 years, give or take, as the story goes in the same book describing our sinful expulsion from nature, a man was born then died for our sins that we base our calendar on.

2008: Global economic crisis. CO2 count does not stop, it can not stop, it can only slow. When the global economic machine slows the growth of emissions is halved. The growth of emissions, the steepness of the Keeling curve slightly slopes. It does not level out, it only slows its climb. Proof that our economy and the way we regard nature is the source of our own destruction.

2011: world population 7 billion people. Carbon Dioxide: 391 parts per million.

Where were you? Do you remember the day we reached 400ppm? Why not?

May 2013: CO2 levels in the atmosphere hit 400 parts per million.

What future generations, if there are to be any, will want to know is: Where were we when carbon dioxide levels passed 400ppm? When warming and the effects of it became irreversible? What did you do in that horrible time, the last time you could wallow between realization and action? And how did we not drop to the ground crying? Why didn't the guilt and burden of history not crush our soul at that moment, the moment we heard we passed the tipping point? What did we tell our children? Did we tell them not to have children?

In the 21st century we ask the machines to learn from us and profitably predict what we will do. Persuade us what to do. But the machines are still our children so they learn from us. They are an expression of us. Selfish, hungry, endless growth, endless distractions. The seduction of the instantaneous, the forever now. Tech thinking is magical thinking when it comes to climate crisis—tech will not conquer the laws of physics and get us out of this because it is tech that got us into this.

Today our dying enemy nature takes a last breath as pollution levels drop where a virus spreads and we're forced to pause our angry lives of economic growth. 8% drop in the growth of CO2. Not much but a sign. The greatest danger is we return to "business as usual" that we miss this last of many messages from a dying foe. Including their surrender.

COVID IS climate change. When man encroaches into the last hiding places of what we once called "wild" a virus jumps species in revenge. We created the conditions in every step of the development and rapid distribution of nature's last and dying notice.

In the battle between man and nature we've realized too late that we ARE nature... that this battle we've been fighting is with ourselves.

We have finally met the enemy and the enemy is us.

A deep breath today will contain 412ppm of Carbon Dioxide.

Truce?

Jake Warga

