

Climate, Energy and Community: Vermont 2021

Alan K. Betts
 Atmospheric Research, Pittsford, VT 05763
akbetts@aol.com
<http://alanbetts.com/writings>

This is a compilation of my 2021 columns from the Rutland Herald and Barre/Montpelier Times Argus. This is the fourteenth year of a series that started in January 2008. A 2012 overview paper is available¹. **In the first decade**, these columns dealt with weather, climate, climate change, energy and policy issues. They blended science and opinion from a systems perspective, and encouraged the reader to explore alternative and hopeful paths for their families and society. They were framed so that a scientist will perceive them as technically accurate (although simplified); while the public can relate their tangible experience of weather and climate to the much less tangible issues of climate change, energy policy and strategies for living sustainably with the Earth system. **However, in recent years**, politically motivated attacks on climate science, the global rebellions to save the Earth, and deepening political corruption have expanded my commentary. The climate and extinction emergencies will bring immense suffering to our children and all of life. Earth scientists have a responsibility to communicate clearly and directly to the public² – as we all share responsibility for the future of the Earth. Choosing to protect the biosphere and build a resilient future is challenging.

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List of topics in 2021 [Index is live]

a) The Future has Arrived	(January 9 th , 2021)2
b) Truth and the Earth	(February 27 th 2021)3
c) Climate Crisis and Fossil Empire.	(April 17 th , 2021)5
d) Choosing Truth or Lies.	(May 29 th , 2021).....7
e) Trust, Truth and Climate Change	(July 10 th , 2021)8
f) Spreading the Truth	(August 7 th , 2021)10
g) The Truth about the Covid Vaccines	(September 11 th , 2021)11
h) “Code red for humanity”	(November 6 th , 2021).....13

¹ Betts, A.K. and E. Gibson (2012), Environmental journalism revisited. *Environmental Leadership: a Reference Handbook*. Deborah R. Gallagher, Editor, SAGE publications Inc., Sept. 2012, ISBN: 9781412981507. Available at <http://alanbetts.com/research/paper/environmental-journalism-revisited/#abstract>

² Betts, A. K. (2011), Communicating Climate Science. *EOS Transactions*, 92, No. 24, 14 June 2011. Available at <http://alanbetts.com/research/paper/communicating-climate-science/#abstract>

a) The Future has Arrived

(January 9th, 2021)

https://www.rutlandherald.com/opinion/perspective/weekly-planet-the-future-has-arrived/article_0e43d710-2101-5369-910d-3157cd8e8b36.html

January is a good time to look back, and realize we are not ready for the future that has arrived. This Planet series began in January 2008, so this is the start of the fourteenth year. The teenagers among you who want to catch up can review the 100 articles I have written at alanbetts.com

The past year was a disaster for the planet, with record tropical cyclones and hurricanes, record fires raging in the western US, and record temperatures continuing to melt the Arctic and the permafrost in northern Siberia. The Gulf coast states were hit by storm after storm and Nicaragua was devastated by two category 4 hurricanes just two weeks apart. On November 1st the strongest super-typhoon ever hit the Philippines with 195mph winds. In late November, northern Somalia, struck by the strongest cyclone of the satellite era, got a year's rainfall in 48 hrs.

The Earth was close to a new record temperature in 2020. Tragically, as climate extremes are accelerating, millions of species are becoming extinct, threatening all life on Earth. For the U.S., the question is a simple one: how bad will we let it get? To be very blunt, how many of the world's children and grand-children are we willing to kill, just to appease the fossil fuel industry and increase current profits for the rich?

The year was a disaster for the US. The misery of COVID was made far worse by our narcissistic leader who bears responsibility for killing hundreds of thousands by ignoring the spread of the virus and by lying about it. In contrast, Iceland, using U.S. technology that our government refused to use, achieved a ten-fold reduction in the death toll per capita. In addition, our president has taken large bribes from many industries to roll back EPA regulations for clean air and clean water, and so kill many more people.

His colossal crime of taking the US out of the Paris climate commitments, to increase oil company profits, will haunt the hundreds of millions who will die this century from accelerating climate change. It is staggering that killing our children and the elderly for profit is now acceptable to right-wing capitalism. The ghastly reality is that under present rules the US capitalist system can make more money now from destroying the Earth than by saving it for our children. It boggles my mind that some on the religious right can support climate policies that will kill so many unborn children, and still pretend they are protecting the unborn.

Ironically, this incompetent would-be dictator established a new landmark that teachers should note. The U.S. constitution is complex, but if you are too lazy to actually read it, you cannot defeat it just by lying, waving your arms and threatening people. Even the stacked Supreme Court did not think propping up his ego justified overruling a fair election. This week he directly threatened the Georgia Secretary of State, demanding that the certified state election result be reversed in his favor: an extraordinary crime for a president. Finally as I write, this deranged and now criminal loser sent his mob to storm the U.S Capitol in a futile effort to prevent the Senate from affirming that Biden won the election. I just hope that he can be moved

very soon to a far-off putting green, where a trusted smiling servant can divert his ball safely into the hole.

But it is time to leave this evil in the dust and move on. Last month I discussed how the desire for power and control has corrupted our human world. This is an on-going struggle. After the misery of COVID, our society is desperate to return to profit and growth-oriented capitalism, even though this is destroying the planet on which life depends. It is so difficult for the rich and powerful to accept real change away from an economic system that exploits both people and the Earth.

As the Extinction Rebellion has correctly insisted, we have to move to an economic system that works with the living Earth and for all the people across the globe. Stand up for the Earth and for your fellow citizens, whoever they are and wherever you meet. If it seems hopeless at times, slip into the wilderness and reconnect with the truth that will set you free.

Members of Extinction Rebellion Vermont demonstrate for climate action outside the State House last January.



Jeb Wallace-Brodeur /
Staff Photo

b) Truth and the Earth

(February 27th 2021)

https://www.rutlandherald.com/opinion/perspective/weekly-planet-truth-and-the-earth/article_d398fe4f-5885-5a9d-bab5-1ebc4934f32d.html

After losing the election, the outgoing president continued to deny he lost - as he said he would. He even staged an attack on Congress to try to prevent the transition of power to his successor. Using lies to incite violence is a threat to democracy. The former president's lies and denial more than doubled the U.S. death rate from COVID compared to many other countries. He simply

refused to listen to scientists, and encouraged his supporters not to wear masks, which spread the disease.

Last week Texas was crushed by a freezing weather disaster that was accurately forecast more than two weeks ahead. The power grid failed for the extraordinary reason that power producers in Texas, which has its own separate grid, are not required to winterize their equipment.

It is time to face fundamental truths that have been long buried. Much of our human world is driven by science and technology. Science is a good frame for understanding our technological world, and the complexity of the living natural world. However science is rarely the basis for social planning and it does not address moral choices.

In this void, choices are made implicitly by society's guiding capitalist economic frame. In Texas, short term profits won out over planning for future winter extremes. More generally, new things are invented and if they can be marketed profitably, they are introduced with little control. The goal of capitalism is to increase short-term profits within a consumer growth economy. Growth is driven by advertising and by exploiting the Earth's resources as well as people, and especially the poor.

Immense wealth has been created for some, and the human population has increased until our global impact exceeds the Earth's carrying capacity. Now climate and extinction catastrophes are rapidly approaching, simply because much of our economic system has not been designed to pay for future costs, especially the damaging consequences of our vast waste streams.

Consider instead the Blue River Declaration from October 2011.

“A truly adaptive civilization will align its ethics with the ways of the Earth. A civilization that ignores the deep constraints of its world will find itself in exactly the situation we face now, on the threshold of making the planet inhospitable to humankind and other species. The questions of our time are thus: What is our best current understanding of the nature of the world? What does that understanding tell us about how we might create a concordance between ecological and moral principles, and thus imagine an ethic that is of, rather than against, the Earth?”

In our time, science, religious traditions, Earth's many cultures, and artistic insights are all converging on a shared understanding of the nature of the world: The Earth is our home. It will always be our only source of shelter, sustenance, and inspiration. There is no other place for us to go. It follows that the world is worthy of reverence, awe, and care.”

Clearly, ten years later, U.S. society has not made this transition to align its ethics with the ways of the Earth. The recent change in central government will not fix our poor social and economic understanding of the living natural world. I suggest readers view the sincere efforts to address climate change issues by the Biden administration through the clear lens of the **Blue River Declaration**.

This means facing a deeper issue. Even though we are embedded in the biosphere, very few understand this intellectually, let alone intuitively. Reconnecting deeply with the natural world means surrendering to it, so you feel part of it on an emotional and heart-felt level. Indigenous

peoples and the founder of Christianity understood this. But the concept of surrender is horrifying to ‘modern’ humans, because of our devotion to human power and control, and our memories of many centuries of warfare.

We have two critical tasks in this coming decade. One is to slow climate change by reducing the global atmospheric carbon budget to net-zero, which means to stop burning the fossil fuels. This in turn means focusing on improving energy efficiency and implementing renewable energy resources on a global scale. The biggest obstacle, which has been with us for decades, is that the fossil fuel companies and their associates are heavily invested in deceiving the public and politicians. Their strategy is to avoid direct legislative mandates in order to protect their profits as long as possible, even if this means sacrificing the Earth.

The second difficult task is to see that the human destruction of so much of the natural world is driving many species to extinction, and replace destruction with reverence. Neither task is easy, so we all have to plan ahead. Spring will be here soon and if we look more deeply, the Earth can help.

c) Climate Crisis and Fossil Empire. (April 17th, 2021)

https://www.rutlandherald.com/opinion/perspective/weekly-planet-climate-crisis-and-fossil-empire/article_c8bf62a7-512c-517e-8785-01ed9127a79c.html

Australia is far away but it has some climate lessons for us. The fire season in the dry southern summer of 2019-2020 was horrifying and bush fires scorched a record 46 million acres, ten times as much as the 2020 California fires which set a new record on the west coast. The vast Siberian fires in 2020 also burnt through a comparable 49 million acres of the Russian landscape. Australia is a major coal exporter and the burning of coal, a fossil fuel, is accelerating climate change and amplifying wet and dry climate extremes. Russia is also a big exporter of fossil oil and gas. So Australia and Russia are both responsible for a significant part of their self-destruction; as well as destruction elsewhere. Drought is again spreading across the western US this spring, so watch carefully, since we too have a large fossil fuel industry driving climate change. The Russian dictatorship does not have to deny anything, but Australia has a conservative government which had to deny any responsibility for climate change. However the Earth does not listen to politicians. The increasing greenhouse gases simply slow the cooling to space, the Earth gets warmer, surplus heat is stored in the oceans and climate disasters increase.

But in Australia just as the wildfire season ended, the COVID crisis struck. Remarkably, the Australian government woke up and realized they should act preemptively, which they not done with the fires. They immediately closed the Australian borders and ordered returning citizens to go into supervised quarantine. This saved the country from a COVID disaster. The US has 13 times the population of Australia but the US has had 1000 times the number of COVID cases and 600 times the number of deaths. What a difference leadership can make - if it wakes up. Even more important the Australian government gave the aboriginal people control of their own reservation borders, which they simply closed, saying “We cannot afford to lose any of our wise

leaders; their wisdom is irreplaceable". Tragically here in the US the death rate of Native Americans on reservations is double that of the white population.

There are deeper issues here. Collectively all the fossil fuel interests and their political allies deny responsibility for climate change, saying they are not responsible for the future. The fossil fuel companies know hundreds of millions of the world's children and grand-children will die and perhaps a third of the Earth's living species will go extinct over the next fifty years. Exxon has known this for forty years ever since their own senior scientist, James Black, told them the truth in 1978. Did they press the government to take action? No, they suppressed their scientist's report, and for forty years have conspired with the industry to deceive the public and bribe politicians to prevent government legislation to regulate and phase out the fossil fuels.

This fossil fuel industry conspiracy I have called the Fossil Empire. They are driven by maximizing current profit, and avoiding responsibility for the costs of the accelerating climate disasters that will destroy so much. It is so cheap to bribe US politicians. By a recent count, the 139 Republicans in Congress who publically deny the science of climate change were paid a total of only \$61M by the coal, oil and gas industries. For less than half a million dollars each, these Republican are happy to lie in public and vote to destroy so much life on Earth. Yet the capitalist framework can easily address the climate crisis by placing a rising price on burning fossil fuels, since we have estimates of the future damage from climate change. The money raised can be used to drive a rapid transition to renewable energy.

Why does the public accept this criminal conspiracy to destroy the Earth for profit? Because they too have been deceived by a second strategy. At first the Fossil Empire just denied climate change was real, but as climate disasters grew larger they shifted to the deflection strategy that works so well for industry. Deflection is when you convince the public that it is better to solve a challenging problem by individual action (since it is a free country), rather than by government regulation. Covertly selling this strategy has been an immense success. Climate activists can be encouraged to discuss and argue over whether one should travel less, buy an electric car, install solar panels, eat a vegetarian diet, have fewer children or live a simpler life. The list is endless.

This strategy deflects attention from what needs to be done at the societal level to the individual level, where people can either feel they are taking useful steps, or perhaps instead feel guilty. Of course individual choices are very important, but they will not fix the huge climate crisis, which needs both national regulation and global agreements to deal with phasing out the fossil fuels.

Facing the climate crisis this decade is critical, so let us ask again. Why are we allowing the Fossil Empire to destroy so much life on Earth and the lives of our children and grandchildren for profit?

d) Choosing Truth or Lies.

(May 29th, 2021)

https://www.rutlandherald.com/opinion/perspective/weekly-planet-choosing-truth-or-lies/article_07566fe5-38ef-594a-8f65-5150c683d64c.html

One of the dark accomplishments of the last five years has been the normalization of webs of lies in society. The critical value of the truth has faded as the lying has grown. The Fact Checker web site lists over 30,000 false or misleading claims made by the past-president during his four years in office. Of course politicians have long misrepresented the truth to justify their political agendas and please their financial sponsors – but never on this scale. Even after he was defeated in the recent election, Trump and his supporters have continued to spread evil webs of lies. Some rationalize that living in a free country means they are free to lie.

Finally the Big Lie arrived, the opposite of the truth that Trump lost the election by a large margin. The bizarre aspect is he appears unaware that this term was coined by Adolf Hitler in his book *Mein Kampf* (1925) to describe the use of a lie so "colossal" that no one would believe that someone "could have the impudence to distort the truth so infamously." Trump loves big lies, so this fits him very well. He can pretend to believe in his personal Big Lie that he won the election, even though he lost, because the neo-fascist media will support him. Then I realized he chose Hitler as his hero because he admires dictators so much more than democracy. History will remember him both as a confused Hitler and a pathetic lying loser.

What is unbelievably shameful is that the Republican Party has abandoned democracy and the U.S. Constitution and joined him to follow Hitler as the party of the Big Lie. Even worse they have dreamed up a new approach. Across the nation, many states are using lies about election integrity to pass bills that restrict voting by citizens, whom they fear might vote for Democrats. Their hope is that by controlling who votes, they can achieve the fascist dream of a Republican dictatorship.

The web-sites of lies about COVID-19 and the vaccines for it are another disaster for America. Trump was responsible for the deaths of a quarter of a million or more people from COVID by lying about its severity, and the need for testing and protective strategies like wearing masks. Now in a continuing fantasy world, web-sites run by mostly Trumpian supporters are lying about the vaccines and encouraging others not to be immunized. How this will improve Trump's self-image is unclear, but it will prevent the country from recovering quickly from COVID. It seems a gross perversion that if he cannot be president and kill people by his lying and negligence, then he can still kill them through the lies of supporters. Yet it is his own supporters trapped in their own lying web that will collectively suffer most from ongoing COVID infections. Perhaps this is a perverse form of retribution to make governing more difficult for the Biden administration, which they perceive as illegitimate. It is likely that there is also some fiendish input from the dark web by those delighted to weaken the U.S.

So take a deep breath and let us step into the real living world – as it is still almost spring, although mid-May seemed like summer. The direct teaching of the indigenous Aramaic leader Yeshua (known to us as Jesus) was crystal clear: "Step with me into the living world of the Creation and ye shall know the Truth and the Truth will set you free". For our society today this

is a real vivid choice. We must either accept the Truth that sets us free, or the evil webs of lies that trap us in a sick and desperate effort to destroy American democracy.

So plant your spring and summer vegetables and watch the living truth grow in the sunshine and warm your heart. This year, we again overwintered spinach and lettuce in cold frames and have been eating head lettuce for a month now, while the crop of spinach was simply huge. The winter climate has warmed a lot over the last ten years (as the Arctic is melting), which means even the broccoli planted in April will soon be ready for harvesting. I chuckle because the warming Earth is ignoring the 139 politicians that have been bribed by the Fossil Empire to lie, and deny climate change. While these politicians choke on their evil webs of lies, every head of broccoli and lettuce that we grow is a reminder the Truth is free, and tastes so good.

Still, many find it hard to face both truth and freedom, so the way forward for America might seem fuzzy. Fortunately the Earth backs the Truth every time, and humanity has so little power unless we back the Earth. When we harvest our Brussel sprouts and winter squash in the fall, I believe the Earth will be smiling as well as a little warmer.

e) Trust, Truth and Climate Change (July 10th, 2021)

[Weekly Planet: Trust, truth and climate change | Perspective | rutlandherald.com](#)

It is mid-summer and dramatic climate signals can be seen across the globe. The last week of June was a shock to the north-western US when Oregon and Washington had record temperatures as high as 110F. This extreme warm pool extended up into western Canada. Over in the eastern Siberian Arctic, satellite-measured ground surface temperatures were over 100F, continuing to melt the permafrost.

Here in Vermont, severe lightning from clusters of extreme June thunderstorms took out my surge protector and computer (even though switched off), routers, internet and one printer. I had seen the storm coming and had backed up my data; but next time I will switch off the main electrical breaker to try to protect the house.

Some good news is that 56 House Republicans formed a new Conservative Climate Caucus in recognition of the reality of climate change. Good luck to them as they confront the larger number of Republicans who have been bribed by the Fossil Empire to deny climate change. This new group wants to reduce carbon emissions while remaining aligned with the business community. This will be challenging as so many businesses are still focused on short-term profits at the expense of the future of the Earth, which ensures ongoing destruction for life on Earth.

In other good news Canada passed the Net-Zero Emissions Accountability Act. Canada now has a law to try to ensure the government follows through on promised climate action in a transparent, systematic and holistic way. Many governments make promises they do not keep, so the climate crisis grows.

Green energy businesses in the Northeast all understand that trust is central to developing and deploying new technology. Trust depends on honest, truthful and clear explanations, and the climate crisis needs this for decades.

The COVID crisis has illustrated how trust is key to public communication. Vermont was the first state to reach the key 80% vaccination coverage for those over age 12. Governor Scott and Health Commissioner Dr. Levine and staff held weekly on-air press conferences, explaining how to manage COVID, encouraging vaccination, and outlining the steady progress towards re-opening the state. With open public questioning by reporters, it was clear that the Governor and his staff were telling the truth and could be trusted.

I am stressing this because the critical value of the truth has faded during the last five years, as the webs of lies have grown. In the disaster world of Florida, the Governor has ordered towns to keep using fossil fuels; forbidding them from moving to 100% renewables. Is he really unaware that rising seas will drown the sinking Florida coast? Trapped in his web of lies on COVID vaccination, he also says cruise ships that sail from Florida cannot mandate that all onboard are vaccinated. Some of the cruise industry business may have to leave Florida. Paradoxically the cruise industry contributes to climate change, but these big ships going nowhere can just move on.

It was refreshing to hear the Chairman of the Joint Chiefs of Staff, Gen. Mark Milley bluntly confront the attacks by Republican neo-fascists against the educational efforts by the US military to confront our racist past. He grasps that the truth has to be faced not simply denied as these racist bigots want. Since Gen. Milley is pledged to support US democracy, he also wants to know why there were so many ex-military in the Jan 6 attack on the Capital trying to destroy our democracy.

Academic science communicators keep urging scientists to communicate more – yet large sections of the US community are not listening to scientists. Many are listening to the webs of lies of politicians and the skillful propaganda and advertising from the Fossil Empire and conservative neoliberalism. Oil industries are coming under financial pressures to deal with climate issues, but they are so rich and powerful that they can frame fake solutions within their business as usual.

Scientists are expected to communicate science but not confront the political and economic corruption and lies designed to prevent the public from hearing. It is hard to do otherwise, as scientists are being paid by the political system and are expected to tolerate the corruption. In fact for decades they have been told to stay out of politics. This collusion means many go along for the ride because their funds come from the system, while the Earth is being destroyed for profit by the rich who have the money for deception.

However the living planet is still healthy. With several inches of rain in Vermont, our squash and tomatoes are growing fast and setting fruit to our delight, and our broccoli is heading up quickly. We also have a fantastic crop of poppies and dill that reseed every year. All I have to do is admire their beauty and weed and weed again, which is very grounding.

f) Spreading the Truth

(August 7th, 2021)

[Weekly Planet: Spreading the truth | Perspective | rutlandherald.com](#)

Little by little fragments of truth leak out from the webs of lies. Trump and his Chief of Staff, Gen. John Kelly were in Europe in 2018 for the 100th anniversary of the end of the First World War. John Kelly was giving Trump an essential history lesson explaining who was on which side, and how the First World War led to the rise of Hitler and the horrors of the Second World War. To the General's shock, Trump commented that Hitler did a lot of good things for Germany, and helped their economic development in the 1930's. Indeed the building of the autobahns to transport troops quickly and the massive military investment was an economic boost. Later the massive investment in concentration camps, huge gas ovens and crematoria to slaughter millions efficiently did benefit some companies.

It is now much clearer why Trump admired Adolf Hitler's concept of the Big Lie, and was so proud to become the Big Liar himself (after 30,000 documented false statements in four years). But as I have commented before, the admiration of Hitler's Big Lie by the neo-fascist Republican right is a stunning betrayal of American democracy. Of course it is consistent with the re-emergence of white racism from the shadows. These bigots fear having to face up to our racist history, and almost choke on their hatred of non-white citizens, especially women, who are elected to power. But surely Hitler as their fascist hero will be the ruin of the Republican Party?

The other bizarre aspect of the present politics is the worship of Trump by some conservative evangelical groups in a mutual admiration pact. Their racist views do not overlap with the teachings of Jesus and the "Truth that sets you free", but they can pretend to be Christian by selectively citing the Bible to justify their own power. In Trump however they are worshipping a personification of the lying anti-Christ. This is incomprehensible except through the lens of their racist, anti-Christian past. Perhaps their lying webs will also slip into the dark shadows of history, so that the Truth can shine through.

But when will we really face up to the destruction of the Earth to maintain the profits of the Fossil fuel Empire? This crime of ecocide against the Earth and our children and grandchildren is a hundred times bigger than Hitler's genocide. As heat waves, drought and fires sweep the west, the public response is only a feeble whisper. The brainwashing by 40 years of lies from the Fossil Empire has triumphed. Society still allows them to claim they are not responsible for the future, even though they have known for 40 years that their business plan and propaganda will kill hundreds of millions and perhaps a third of all life on Earth. But buried in the comfort of consumerism and economic growth fantasies, only a few want to rock the boat.

But we must face the challenge of building a sustainable future for our children, and replace the fossil fuel economy as fast as possible. We must listen to the Earth and shout her Truth at all levels of society, not listen to the lies from the Fossil Empire and bribed politicians. We must make the Fossil Empire pay for the transition they delayed; and pay for the needs of all people for a just transition. The entire banking, financial investment and insurance industries must also divest from the fossil fuel world. Otherwise citizens who grasp the long reality of the climate crisis should peaceably shut these financial institutions down.

The lying politicians should be voted out, whether they are lying about the climate, or the efficacy of vaccines or claiming we need loser Trump as a neo-fascist dictator more than we need democracy. Their lying kills people, now and in the future. In mid-July, Dr. Fauci pointed out that 99.5% of those dying from Covid are now unvaccinated. This is a tragedy driven by lies spread by politicians and by a notorious group of 12 anti-vaccine fanatics, using social media to deceive more than 50 million people.

In the real world, record temperatures, deeper droughts and widespread fires are shaking the western U.S and Canada. The Hoover Dam on the Colorado River was built in the 1930's to create Lake Mead for water storage and hydroelectric power. The water level has reached a record low, and the water commitments cannot be met. Elsewhere on the planet there are extreme rains, and Europe has been swept by record floods that have killed hundreds and destroyed towns. People protest the forecasts were not good enough. This is foolish, as the Earth is in charge, and global extremes must increase as we are heating up the oceans.

Back here in Vermont there has been unusual weather with many days of clouds, drizzle and rain in June and July. Compared to 2019 and 2020, this has reduced electric generation from our community solar panels by 36% for the period May 19 to July 19. For the first time we are paying a small amount for electricity in summer, rather than getting a credit for next winter.

We have had eleven inches of rain in July, a lot of it at night. This is more than twice the historic climatology. The growth of vegetation and crops has been quite remarkable, although the ripening of tomatoes and squash has been slow.

g) The Truth about the Covid Vaccines (September 11th, 2021)

https://www.rutlandherald.com/opinion/perspective/betts-the-truth-about-covid-vaccines/article_926e301b-01f0-5e5e-bf29-5096e5894d77.html

It is easy to invent lies on the web, since they can come from anyone, anywhere in the world with no fact-checking. Lies can be more creative than the truth and they attract ten times more readers; and this brings billions in advertising profits to the web-sites. The webs of lies about the Covid-19 vaccines (and now face-masks) have been a tragedy. As Covid strains get more infectious and dangerous, many more people are getting sick, and more than 95% of those dying are now unvaccinated. It is bizarre that Facebook and other websites permit (encourage?) people to spread lies that may kill others, but this is capitalism where the freedom to kill others for profit is tolerated. Similarly the Fossil fuel Empire has free rein to kill us, our children and much of life on Earth to maintain their \$50+ billion in annual profits. Exxon-Mobil is not expected to pay for the destruction from Hurricane Ida, even though they are directly and criminally responsible, because they have known and lied about climate change for forty years.

Where can we find the deeper truth? The mRNA vaccines for Covid-19 are a beautiful illustration. When I ask people the story of the invention of the mRNA vaccines, very few know. There is nothing on the popular web-sites of vaccine lies. You have to search, but unless you

know who to look for, you probably still won't find the amazing story below. You will find only government information, along with many pages that are skillful advertising or bogus claims. It is almost as if the astonishing truth has been suppressed. American society has crumbled in recent years into fear-filled worlds, where the freedom to spread lies that harm others is worshipped by many. In reality of course it is the truth that sets you free.

The brilliant Hungarian-born scientist Dr. Katalin Karikó was behind the key mRNA development. She was an expert on coronaviruses, and she knew we needed new types of therapeutics and vaccines. In 1985, she left Hungary, then still a communist country, and came to the US with her husband and 2-yr-old daughter, thinking there would be more support here for this critical work. They sold their car and purchased 900 British pounds (about US\$1200), which was sewn into their daughter's teddy bear for the journey. Hungary did not encourage emigration. They settled in Philadelphia where she worked for Temple University.

Her determined struggle to develop mRNA vaccines lasted many decades. For more than ten years her applications for funding were simply rejected by reviewers saying "These have never been made, so you cannot prove they can be made". Is this a good framework for funding creative scientists? Perhaps some may have also thought: why should we fund an immigrant woman scientist from a communist country? In 1998 this all changed when she met a young American immunologist Dr. Drew Weissman, a professor of medicine at the University of Pennsylvania, and the two formed a research partnership. Today, Karikó and Weissman are widely recognized for their groundbreaking work in developing mRNA therapeutics and vaccines over decades. In December 2020, more than 20 years after they began their collaboration, she and Weissman were each vaccinated with a first dose of the Pfizer/BioNTech Covid-19 vaccine at the University of Pennsylvania. They will receive the Columbia University 2021 Louisa Gross Horwitz Prize in January 2022 for their trailblazing work on messenger RNA vaccines for COVID-19.

Katalin Karikó still lives in Philadelphia, but she is also a senior vice-president of BioNTech, which manufactures the Pfizer vaccine in Germany. Her greatest pride is her daughter, who carried that teddy bear stuffed with cash to the US at age 2. Susan Francia, who grew up in a family where it was clear from childhood that hard work is part of life, and if you embrace it, there will be a fulfilling reward, won Olympic gold medals in 2008 and 2012 in the US Women's Rowing Eight Team.

The Pfizer/BioNTech mRNA vaccine development was shared with Moderna. So when I am asked if you can trust these vaccines, I tell them the story of their long development by a brilliant woman scientist Katalin Karikó who refused to quit. And I say "you can trust her with your life". Watch closely the many new developments in the next six months.

h) “Code red for humanity”

(November 6th, 2021)

https://www.rutlandherald.com/opinion/perspective/weekly-planet-code-red-for-humanity/article_389310b8-b6ff-5795-9bf1-54a4d2062b9c.html

The climate crisis from the burning of the fossil fuels is bringing disaster after disaster this year. We have known for decades this was coming, but most societies have made promises but delayed action, so CO₂ keeps rising. The first part of the Sixth Assessment Report (AR6) was released in draft form in August 2021 in preparation for the COP26 meeting in Glasgow currently in progress. It was described by the UN Secretary-General António Guterres as nothing less than "a code red for humanity. The alarm bells are deafening, and the evidence is irrefutable".

We understand why this is happening. The Fossil fuel Empire (led by Exxon-Mobil) were told by their own chief scientist in 1978 to change their business plan, since doubling CO₂ would be disastrous for the planet. But Exxon silenced him and started the webs of lies to deceive the public, followed by the bribing of politicians to prevent action. Exxon is still being subsidized to destroy the Earth, so the Fossil Empire can greedily make trillions killing our children and grandchildren and much of life of Earth.

Faced with the 2021 climate catastrophes, most people can see the obvious: that the climate crisis is out of control. Grasping this Truth sets us free to act. We must choose between the Earth and the Fossil Empire. The choice is obvious: we must choose the Earth. Indigenous people have known this for thousands of years, but ‘modern western society’ has done everything it could to destroy the indigenous mindset. The deep shift in consciousness to back the Earth, who is in charge, is still heresy. Indeed it is almost impossible for our society, obsessed with human power and greed, and business-as-usual capitalism.

Let us review the many 2021 climate disasters from the perspective of the Earth. Since evaporation goes up steeply with temperature, rainfall rates are also going up steeply. With slower moving mid-latitude weather systems (because the Arctic is warming rapidly), this means that heavy rain periods can now last much longer, and drive extreme flooding. The extreme mid-July floods in Europe and China stunned people and many were drowned. The huge Three Gorges dam in China came close to collapse. China has a power shortage as their coal mines were flooded.

On August 21 as Tropical Storm Henri approached, Central Park in Manhattan saw a new record rainfall rate of 1.94 ins/hr and a new daily record total of 4.45 inches; only to see this record shattered 10 days later on September 1 when the remnants of Hurricane Ida crossed the Northeast. The new Central Park record is 3.15 ins/hr with an event total of 8 inches. Many died in the massive flooding of NYC and New Jersey. Despite the warning of Hurricane Sandy in 2012, the unprotected subways again flooded, and people drowned in their cars and basement apartments. The Earth will flood the NYC financial infrastructure, until it grasps that it is criminal ecocide to profit from funding the Fossil Empire to destroy the Earth.

The record-breaking Arctic cold that flowed deep into Texas in mid-February hit the Texas refining and petrochemical sectors as hard as any hurricane, causing lasting damage. The Texas power grid was shut down, and infrastructure was damaged at a cost that could exceed \$100 billion. I do not need to tell readers how corrupt the Texas government is, and that it is a key focus of the Fossil Empire's plans to destroy the Earth. The response by the Earth is fitting.

The wake-up call for Houston was Category 4 Harvey in 2017, which damaged some drilling platforms and brought devastating flooding to the city. But they did not wake up – they just rebuilt at a cost of about \$125 billion. The Texas and Louisiana coasts are a maze of pipelines from thousands of off-shore oil wells and drilling rigs. Many hurricanes will be needed to take them out. In 2020, hurricanes Hanna and (Cat 4) Laura and TS Beta hit Texas, followed by hurricanes Nicholas and Ida in 2021 (both Cat 4). To the east the coast of Louisiana was hit in 2020 by TS Cristobal and hurricanes Laura (Cat 4), Delta (Cat 2) and Zeta (Cat 3); and in 2021 by TS Claudette and Cat 4 hurricane Ida. For each major storm, rigs are often evacuated and damaged so they leak oil into the Gulf. Massive flooding and frequent power outages on-shore are making life very difficult. These states will do nothing to shut down this fossil fuel infrastructure, so the Earth system will destroy it with increasing storms and hurricanes.

This perspective is a challenge for us. I can hear the protests that the Earth has no perspective or intelligence to protect its interests. This is almost funny when it is obvious that humanity utterly lacks the intelligence to protect the Earth on which all of life depends. Pray the indigenous people are right and back the Earth.

My perspective as a climate scientist is that the climate system is a fully-coupled complex living system. It has an infinite number of modes, and from these the Earth system now appears to be choosing modes many months ahead to impact the infrastructure that is destroying the Earth.

With our models we struggle to forecast climate one month ahead. This year, some forecasts a week ahead have been simply hard to believe. Oregon, Washington and British Columbia have typical summer high temperatures in the 70's or 80's, but in late June 2021 extreme temperatures as high as 110°F occurred with a stationary ridge of high pressure. The small town of Lytton in southwest Canada was warmer three days in a row by more than 2°F until it reached 121 °F. Imagine Death Valley temperatures in a Canadian forest. On the 4th day it simply caught fire and burnt down. This extreme broke the all-Canadian temperature record, set during a drought in southern Saskatchewan 80 years ago, by an unimaginable 8 °F (4.6 °C). Canada was in shock, but will they shut down the massive oil sands development that is part of the climate crisis?

The truth is that the living Earth system is in charge, not human power and greed. If we do not choose the Earth over the Fossil Empire, global climate change will destroy many industrial societies.