

# THE TRUMP FILES

Gratis Sample Chapter 9

Jack Hassard

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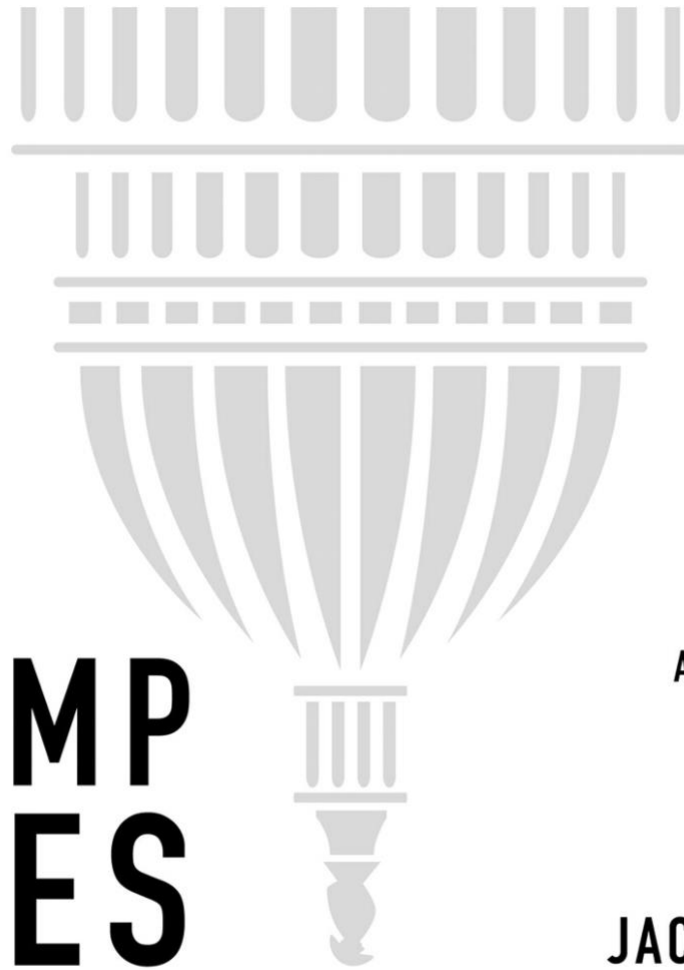
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AN ACCOUNT OF  
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EFFECT ON AMERICAN  
DEMOCRACY,  
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JACK HASSARD

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Citizen Jack  
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# EXISTENTIAL THREATS

### 9.1. BLOG POST, 25 SEPTEMBER 2019: CLIMATE CHANGE YOUTH ACTIVISTS

Activists for social change come in all ages and from all countries. They protest and march for many causes that impinge on their lives. They often join with others to support each other and to bring their protests to the centers of power to demand change.

The youth of the world know that climate change is an existential threat. They also know how to challenge adult leadership to try to make changes.

We have seen climate change youth leaders march and strike from schools around the world. Hundreds of thousands of youth activists have made hundreds of media appearances. Four of these youth leaders met with two committees in the US House of Representatives. Greta Thunberg met with President Obama. She also gave a major speech at the Climate Crisis Conference at the United Nations. The four best-known youth climate change activists are:

- Vic Barrett, 20 years old, New York, member of the Alliance for Climate Education
- Benji Backer, 21 years old, Washington, president of American Conservation Coalition
- Greta Thunberg, 16 years old, Sweden, founder of Friday Strike
- Jamie Margolin, 17 years old, Washington, founder of This Is Zero Hour

It's been estimated that 4 million people marched on September 20, 2019. Streets in major cities around the world were filled with teenagers, young adults, and many others. They all were protesting the lack of progress in mitigating climate change. They want action. They want change.

### CLIMATE CHANGE DENIERS

Yet lurking in the background, and then emerging on Fox News, right-wing radio, and TV talk shows and hundreds of websites and blogs, are climate change deniers. I wrote yesterday about one of these persons who lashed out at the four youth climate change leaders who met with the US House Foreign Affairs Committee.<sup>291</sup>

Climate change denial is an organized machine. A resource that is helpful to tease out this machine is *The Oxford Handbook of Climate Change and Society*.<sup>292</sup> The authors of the handbook explain how contrarian scientists, fossil fuel corporations, think tanks, and front groups have assaulted mainstream science. They've provided misinformation for decades. "Climategate" was manufactured by their finding very minor errors in an Intergovernmental Panel on Climate Change (IPCC) report and blowing it into another "gate."

For the climate change youth leaders to be successful, they need to understand climate denial. This is not very simple. Denial is complex and well-funded. It has a history much longer than the age of the climate change youth leaders.

### COMPONENTS OF CLIMATE CHANGE DENIAL

The climate change denial machine is a collaboration among big corporations and foundations, conservative think tanks, front groups, and astroturf organizations. Conservative think tanks perform research and advocacy on climate science. Front groups and astroturfing are practices of masking sponsors of a message to make it appear as though it originates from grassroots participants. Media, politicians, and blogs

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<sup>291</sup> Jack Hassard, "Why Should We Listen to Young Climate Change Activists?" Jackhassard.org, September 24, 2019, <https://jackhassard.org/young-climate-change-activists/>.

<sup>292</sup> John Dryzek, Richard B. Norgaard, and David Schlosberg, *The Oxford Handbook of Climate Change and Society* (New York: Oxford University Press, 2013).

reproduce, repeat, and echo misinformation and outright lies about climate change. The chart in Figure 8 shows how a top-down apparatus of organizations and individuals work together to promote an anti-intellectual, anti-science, and defiant misinformation campaign against any progress in the effort to mitigate climate change.

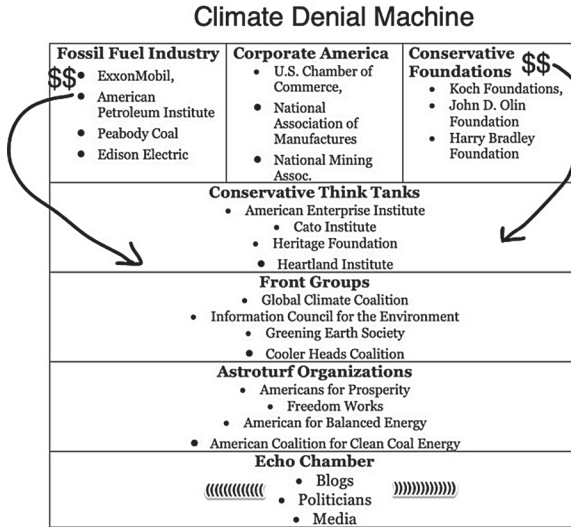


Figure 8. Components of the climate denial machine based on The Oxford Handbook of Climate Change and Society.

## 9.2. BLOG POST, 21 JANUARY 2020: CLIMATE GRIEF

Unfortunately, Donald Trump, president of the United States, wouldn't understand people who experience climate grief. His cavalier attitude toward any earth disaster, such as fires or hurricanes, is hopeless for those affected.

Climate grief is a reality that we don't talk about. But it's impossible not to experience climate grief from reports of natural disasters such as fires, hurricanes, tornadoes, floods, and sweltering, uninhabitable temperatures.

One of the articles I read this week was from the Health and Science weekly email I receive from the *Los Angeles Times*.<sup>293</sup> It was a story

<sup>293</sup> J. Rosen, "An Artist Set Out to Paint Climate Change. She Ended Up on a Journey through Grief," *Los Angeles Times*, January 11, 2020, retrieved January 19, 2020, <https://www.latimes.com/la-sci-coll-climate-change-art-2019-story.html>.

about an artist in Portland, Oregon. This is an artist who doesn't simply paint beautiful landscapes but has focused on landscapes that are being transformed by climate change.<sup>294</sup>

According to Julia Rosen,<sup>295</sup> Daniela Naomi Molnar ended up on a journey through grief. She, like many artists, is bearing witness to environmental changes unfolding in our time. Some have created political works that evoke outrage or guilt. Still others paint to show the beauty of the world. And many others think about how they can deal with climate stress through their art.

### PAINTING ATTENTION TO CLIMATE CHANGE AND CLIMATE GRIEF

When I read the article, I was fascinated by Daniela Molnar's work, not just her painting. She says that her goal of painting newly revealed landscapes with the melting of the Eliot Glacier on Mt. Hood was to draw attention to climate change.

I taught earth science and geology as a high school teacher and college professor. I've studied glaciation of North America and have spent a lot of time in the Colorado Rockies teaching geology and simply being there. In a graduate glacial geology course at The Ohio State University, one of the field trips in the course syllabus was a flight in a beautifully decorated and cushioned DC-9 plane. The first time we were to fly, a storm blew into Columbus, cancelling the trip. I was relieved. I was nervous about flying in a DC-9. A week later, flying on a clear day, we observed and discussed landforms created by retreating glaciers. We flew over a variety of glacial depositional features including eskers, kames, moraines, and drumlins.

Later in life, when I started traveling into the West, especially Colorado, I came across a myriad of mountain glaciers, and now when I see them, I think of Daniela Molnar's work. I've also started to paint and after five years have learned to appreciate the work of artists a lot more than I did at an earlier age.

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<sup>294</sup> Daniela Molnar is a visual artist, poet, wilderness guide, and professor. Molnar founded and directed the Art + Ecology program at the Pacific Northwest College of Art.

<sup>295</sup> Rosen, "An Artist Set Out to Paint Climate Change."



## CLIMATE GRIEF

The journalist Rosen asked Molnar what her goal of painting is.<sup>296</sup> She said, “At first I didn’t know where this was going. But as I worked and created more paintings of vanishing ice, I realized this is what it feels like to try to hold the enormous losses brought about by climate change.”

Molnar created a series of new landscapes formed by the melting of mountain glaciers. She calls her climate change series *New Earth*. Through it she explores the nature of climate grief. When asked about the series, she said, “It’s about how climate change is reshaping our planet and how we experience it. In my paintings I draw shapes of newly exposed ground near the glaciers. I see the new earth as a wound or new delicate skin formed over a wound.”

As she continued her work, she said that she used NASA satellite images and data-based projections to find the shapes to help create her paintings. She concluded by saying that “the information swims together into composite shapes, the colors overlapping to form new colors, reflecting the fundamental interconnectedness of all life, all locales, the way that a glacier calving in Greenland causes the ocean to rise in the Marshall Islands.” The idea that all things are connected is a fundamental concept in nature. One of my friends always reminded his students before taking a nature walk that “when a wildflower is picked, a star is sure to shudder.”

**Author’s Update:** How does the youth of the world understand climate change? Do they experience the climate grief that is being discussed here? One way to find out is to pay attention to what teenagers and young adults are saying about the Earth’s climate.

Greta Thunberg is a Swedish environmental activist who is known for challenging world leaders to act on climate change mitigation. She is an example of many young activists, and her biography is a way to understand what it is that the world’s youth are telling us. When I heard her talk before the House Foreign Affairs

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<sup>296</sup> Rosen, “An Artist Set Out to Paint Climate Change.”

Committee and the House Select Committee in Washington, DC, on September 18, 2019, she barely said anything. Instead, she said to the committee, “I don’t want you to listen to me. I want you to listen to the scientists.” As she said this, she pushed across the table in the committee’s direction a copy of the most recent IPCC report.<sup>297</sup>

Yet people do listen to her. In 2018, she wrote a simple message on poster board, “School strike for climate.” She then started skipping school on Fridays to strike for climate and launched “Fridays for Future,” which was founded on August 20, 2018. Fridays for Future is also branded as Youth for Climate, Climate Strike, or Youth Strike for Climate. Hundreds of thousands of teenagers from around the world joined by skipping school. Soon that number reached millions of youth campaigning and marching to their drumbeat calling for action by world leaders.

I didn’t have to skip school, but I did join them on the Square in Marietta, Georgia. I walked into various shops on the Square presenting a “Climate Crisis Friday” card that I had designed.<sup>298</sup> The message on the card was:

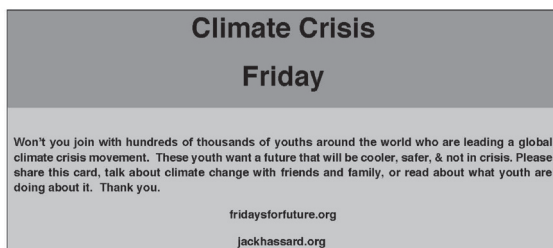


Figure 9. Climate Crisis Friday card.

One could argue that the youth of the world are vocalizing their grief for how climate change is not only impacting their lives now, but also their dreams for their and other’s futures. But too many adults dismiss their passion and chalk it up to youthful daydreaming.

<sup>297</sup> The IPCC issues reports frequently. The IPCC prepares comprehensive assessment reports about knowledge on climate change, its causes, potential impacts, and response options. To access them, visit <https://www.ipcc.ch/reports/>.

<sup>298</sup> At the bottom of the card was a link to [globalclimastrike.net](https://globalclimastrike.net), which is a rich resource of projects and activities. I recommend visiting the site. It will be worth your time to discover the work of the world’s youth.

I don't think it's a daydream! It's more of a nightmare. The psychological effects of climate change and global warming have more grave consequences for teenagers and young adults than we realize.<sup>299</sup>



*Greta Thunberg, a Swedish environmental activist who is known for challenging world leaders to take action on climate change. She received the Rachel Carson Prize in 2019, and was Time Person of Year (2019) and has been nominated for the Nobel Peace Prize. She is author of books and videos. Source: Marked with a CC BY 2.0 license, Anthony Quintano.*

Clear and present climate threat is creating havoc for all living things on the Earth and changing the very nature of the environment that we live within. The melting glaciers' landscapes that artist Daniela Molnar paints bear witness to climate change and to climate grief, as do the protests and actions of the world's youth.

When Hurricane Harvey destroyed thousands of homes and forced people to flee and seek shelter, I felt the climate grief that they must have been experiencing. Some of our friends' homes were flooded, and their neighborhoods were under siege. During the aftermath of Hurricane Harvey, I created four paintings. One of the paintings shows a family fleeing along a flooded street in Houston. The young boy's expression and body motion shows the fear he is experiencing because of this devastating storm. Fortunately his parents and older sister are by his side. In another painting a Houston police officer carries a mother and her thirteen-month-old son from the city's flooded streets.<sup>300</sup>

<sup>299</sup> Juanita Constible, "Let's Talk about Climate Grief and Anxiety," National Resources Defense Council, October 8, 2019, retrieved February 26, 2021, <https://www.nrdc.org/experts/juanita-constible/lets-talk-about-climate-grief-and-anxiety>.

<sup>300</sup> These paintings can be viewed at [theosart.space](https://theosart.space).

### 9.3. BLOG POST, 25 APRIL 2021: THE CASE OF CENSORSHIP OF JAMES HANSEN, CLIMATE SCIENTIST

Climate change is an existential threat to the Earth. We've known this for a long time. In 1896 the Swedish scientist Svante Arrhenius published a report in which he said that the burning of fossil fuels will add carbon dioxide to the atmosphere, resulting in higher temperatures.

In the twenty-first century, report after report from the IPCC<sup>301</sup> has provided scientific information relevant to understanding human-induced climate change; its natural, political, and economic impacts; and risks and possible ways to mitigate climate change. The Sixth Assessment Report (2021)<sup>302</sup> indicates an increasing human footprint resulting in higher temperatures (hot extremes)<sup>303</sup> on every continent, heavy precipitation in some regions of each continent, and increases in agricultural and ecological drought.

The advances of understanding climate change have taken a long time and have met much resistance from politicians, government appointees, and business and industry, especially the petrochemical and fossil fuel industries. Censorship of science is a global issue<sup>304</sup> that has been exacerbated by the Republican administrations of Ronald Reagan, George H. W. Bush, George W. Bush, and Donald Trump, or whenever the majority leadership was held by the Republicans.

One of the first scientists who worked on global warming for more than three decades faced the same kind of treatment as other scientists whose work was condemned and ridiculed, including Rachel Carson,<sup>305</sup> Alice Augusta Ball,<sup>306</sup> Hedley Marston,<sup>307</sup> and Anthony

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<sup>301</sup> The Intergovernmental Panel on Climate Change, IPCC, 2021, <https://www.ipcc.ch/>.

<sup>302</sup> "Sixth Assessment Report, *Climate Change 2021: The Physical Science Basis*," IPCC, 2021, <https://www.ipcc.ch/assessment-report/ar6/>.

<sup>303</sup> During the summer of 2021, the northwest region of the United States and British Columbia experienced one heat dome after another, resulting in the highest temperatures ever recorded in some of the cities in the region.

<sup>304</sup> Euan G. Ritchie, Don A. Driscoll, and Martine Maron, "Science Censorship Is a Global Issue," *Nature* 542 (2017): 165, <https://doi.org/10.1038/542165b>.

<sup>305</sup> Mark Stoll, "The Personal Attacks on Rachel Carson as a Woman Scientist," Environment & Society Portal, March 5, 2020, <http://www.environmentandsociety.org/exhibitions/rachel-carsons-silent-spring/personal-attacks-rachel-carson-woman-scientist>.

<sup>306</sup> Esi Edugyan, "The Silencing of Black Scientists," *Boundless*, November 8, 2019, retrieved February 1, 2021, <https://unbound.com/boundless/2019/11/08/the-silencing-of-black-scientists/>.

<sup>307</sup> Roger Cross, *Fallout: Hedley Marston and the British Bomb Tests in Australia* (Kent Town, South Australia: Wakefield Press, 2001).

Fauci.<sup>308</sup> The scientist I'm speaking about is James Hansen, former director of the NASA Goddard Institute for Space Studies. He is now an adjunct professor directing the Program of Climate Science, Awareness and Solutions at Columbia University's Earth Institute.

In 1988 Hansen testified before the United States Congress saying that "he was 99 percent certain the Earth was warmer then than it had ever been measured to be, there was a clear cause and effect relationship with the greenhouse effect, and lastly that due to global warming, the likelihood of freak weather was steadily increasing."<sup>309</sup> In his book on Hansen, Mark Bowen says it became clear that Hansen's ideas were the result of him facing headwinds from climate science deniers.

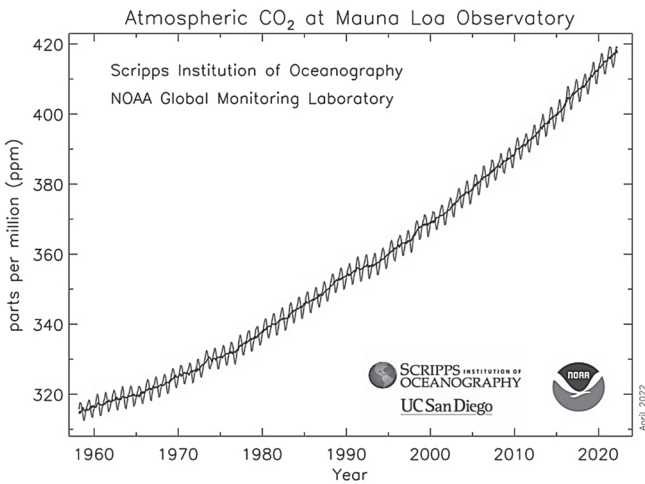


Figure 10. The Keeling curve: atmospheric CO<sub>2</sub> annual average amount measured at Mauna Loa Observatory 1960–2020. Credit: NOAA Global Monitoring Laboratory

I want to point out that Hansen, in 1976, published one of the earliest papers on greenhouse gases.<sup>310</sup> In this paper he reported that the non-carbon-dioxide gases, such as methane, nitrous oxide, and fluorinated gases, trap more heat, becoming important greenhouse

<sup>308</sup> Charlotte Klein, "Trump Health Officials Reportedly Tried to Censor Fauci's COVID Messaging," *Vanity Fair*, September 12, 2020, retrieved October 11, 2021, <https://www.vanityfair.com/news/2020/09/trump-health-officials-reportedly-tried-to-censor-faucis-covid-messaging>.

<sup>309</sup> Mark Bowen, *Censoring Science: Inside the Political Attack on Dr. James Hansen and the Truth of Global Warming* (New York: Dutton, 2008).

<sup>310</sup> W. C. Wang, Y. L. Yung, A. A. Lacis, T. Mo, and J. E. Hansen, "Greenhouse Effects Due to Man-Made Perturbation of Trace Gases," *Science* 194, no. 4266 (1976): 685–690, <https://doi.org/10.1126/science.194.4266.685>.

gases. However, it wasn't until 2007 that the EPA would start monitoring greenhouse gases.

James Hansen was convinced that he needed to share his research as widely as possible. He began by giving the Keeling talk, "Is There Still Time to Avoid 'Dangerous Anthropogenic Interference' with Global Climate?"<sup>311</sup> at the American Geophysical Union meeting in San Francisco. The Keeling talk is in honor of Charles David Keeling, the scientist who monitored carbon dioxide at the Mauna Loa Observatory beginning in 1958 (Figure 10).

After this and other talks, Hansen was admonished by political operatives within NASA to seek preclearance for any future media interviews, speeches, and web postings. Despite these rebukes, Hansen blew the whistle and asserted a scientist's right and responsibility to call attention to research findings and their implications for society. Hansen spoke out during George W. Bush's administration while it attempted to dissuade him from speaking freely. Finally Hansen was convinced that the United States and other countries needed to act on reducing global fossil fuel emissions now rather than later.

At the height of the censorship controversy, a top NASA administrator secretly gutted the budget for the agency's Earth scientist (Hansen) by 20 percent. Hansen would have none of it. He circulated a letter widely within the scientific community entitled "Swift Boating, Stealth Budgeting, and Unitary Executives."<sup>312</sup> Hansen's research on climate change conflicted with the high-level NASA administrators and the Bush White House. Hansen believes that someone within NASA changed the mission of NASA from "to understand and protect our home planet" to "to pioneer the future in space exploration, scientific discovery, and aeronautics research." To this Hansen replied that "to protect our home planet" was erased by "the slimy belly of a slug crawling in the night."

For two decades, Jim Hansen's research was subdued and

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<sup>311</sup> "Censorship of Federal Climate Scientists: The Critical Case of Jim Hansen," Government Accountability Project, February 3, 2006, retrieved February 2, 2021, <https://whistleblower.org/general/whistleblowers/censorship-of-federal-climate-scientists-the-critical-case-of-jim-hansen/>.

<sup>312</sup> J. Hansen, "Swift Boating, Stealth Budgeting, and Unitary Executives," *ResearchGate*, November 1, 2006, retrieved August 30, 2021, [https://www.researchgate.net/publication/293773830\\_Swift\\_boating\\_stealth\\_budgeting\\_and\\_unitary\\_executives](https://www.researchgate.net/publication/293773830_Swift_boating_stealth_budgeting_and_unitary_executives).

undermined by three Republican administrations: Ronald Reagan, George H. W. Bush, and George W. Bush. Even when Clinton was president, the Democrats lost the Senate and House of Representatives in 1996, stalemating any progress on climate policy. This was the first time Republicans held both houses since the 1950s. It wouldn't be until Barack Obama came into power in 2009 that the Democrats could make any progress on climate and environmental science. But that lasted only two years, before the Republicans took back the House and Senate. As I explain ahead, Donald Trump's administration caused enormous harm to environmental regulations and climate change policy. We now must wonder what will happen under President Biden if his party loses control of the House or the Senate in the next election.

#### **9.4. BLOG POST, 1 OCTOBER 2021: CLIMATE CHANGE THREAT**

Kip Ault, in his book *Beyond Science Standards*, provides detailed examples of how elementary through high school students use a variety of tools to study weather and atmospheric patterns to understand the nature of climate science. The research that these students are doing is comparable to research done by EPA scientists.<sup>313</sup>

#### **CLIMATE DENIAL**

One of the most serious problems that we face in the context of climate change is those deniers that distort climatology to support their political and economic views. For example, some researchers have commented that climate change science has been distorted, and at the same time science is evoked as a defense. They describe how a handful of scientists obscured the truth not only about climate change, but also issues related to tobacco and vaccines. As they point out, the climate change deniers use the same playbook that big tobacco firms used to convince the public that smoking tobacco was not associated with cancer.<sup>314</sup>

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<sup>313</sup> Charles R. Ault Jr., *Beyond Science Standards* (Lanham, MD: Rowman & Littlefield, 2021).

<sup>314</sup> Naomi Oreskes and Erik M. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (New York: Bloomsbury Press, 2010).

The chief denier is Donald Trump, along with a slew of Republicans in Congress, who claim that global warming is a hoax perpetuated by the Chinese. Trump withdrew the US from the Paris Agreement, an international treaty within the United Nations Framework Convention on Climate Change. Trump and his associates claim that the accords will undermine the US economy, and at the same time, they deny that global warming is undermining and changing environments throughout the Earth.

Addressing climate change stagnated during the Trump administration. On many occasions, Trump refused to accept warnings from scientists, governors, and natural resources officials that increasing air and ocean temperatures were driving hurricanes, superstorms, and ravaging fires.

The Trump administration refused to acknowledge the facts that show how temperature rise has resulted in raising sea levels, melting glaciers, flooding coastal cities, increasing the number of Category 4 and 5 hurricanes that reach land and producing serious canopy fires, which burn to the tops of trees. Some of these wildfires are so big, they create their own weather. Wind patterns can change, but more dangerous are low pressures that are created around the fire, allowing air to rush in and create fire-induced winds. Fire tornadoes and fire clouds (pyrocumulonimbus clouds) can be formed by fire-induced winds.<sup>315</sup>

The EPA released a climate report in May 2021 that was hidden or delayed by the Trump administration.<sup>316</sup> The delay was not surprising, given the rebuke of science by Trump. The last time a climate report was released by the EPA was in 2016. The climate report, according to law, is published every four years, so visiting the EPA climate change indicators page was refreshing. EPA scientists, who had done the work three years earlier, finally had their work published and available to the American public.

During Trump's time in office, the effects of climate change were stunning yet ignored by his administration. Hurricanes, flooding, and fires caused billions of dollars in damages as well as staggering human

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<sup>315</sup> Matt Simon, "California Wildfires Can Create Their Own Terrifying Weather," *Wired*, August 21, 2020, retrieved May 21, 2021, <https://www.wired.com/story/california-wildfires-can-create-terrifying-weather/>.

<sup>316</sup> "Climate Change Indicators in the United States," Environmental Protection Agency, May 3, 2021, <https://www.epa.gov/climate-indicators>.



loss. Much of the human suffering has disproportionately affected Black people, Indigenous people, and people of color.

Climate change is also a driving force in Central American migration. Trump treated woman and children who approached the US border inhumanely, many of whom traveled more than 2,000 miles (about twice the distance from Florida to New York City) on foot. Researchers have documented that climate displacement is especially prevalent in Guatemala, El Salvador, and Honduras, also known as the Northern Triangle. These countries have experienced climate-related impacts including food insecurity, recurring droughts, decline in agricultural production, increased vulnerability to disease, and water scarcity. Experts predict that climate change will displace up to 3.9 million people (about twice the population of New Mexico) across Mexico and Central America by 2050.<sup>317</sup>

### CLIMATE GENERATION

Sarah Jaquette Ray, in her book *A Field Guide to Climate Anxiety*, explains that we are the “climate generation” and we live in the Anthropocene, a geological age marked by the way humans have affected the climate and environment in irreversible ways.<sup>318</sup> In an article published in *Scientific American*, she points out that climate anxiety is overwhelmingly a white phenomenon.<sup>319</sup> She says that white response to climate change is suffocating to people of color. To her, climate anxiety operates like white fragility, sucking up all the resources toward soothing the dominant group. The migrants coming to the southern border were labeled by Trump as rapists, criminals, and drug dealers. We know these characterizations are not true.

In *A Field Guide to Climate Anxiety*, Ray incorporates the idea of “resilience” as the best condition for thriving in a climate-changed world. She says this about resilience:

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<sup>317</sup> “Shelter from the Storm: Policy Options to Address Climate-Induced Displacement from the Northern Triangle,” Human Rights Network, April 22, 2021, retrieved April 24, 2021, <https://www.humanrightsnetwork.org/climate-change-and-displaced-persons>.

<sup>318</sup> Ray, *A Field Guide to Climate Anxiety*.

<sup>319</sup> Sarah Jaquette Ray, “Climate Anxiety Is an Overwhelmingly White Phenomenon,” *Scientific American*, March 21, 2021, retrieved February 11, 2022, <https://www.scientificamerican.com/article/the-unbearable-whiteness-of-climate-anxiety/>.

Resilience must be advocated for in culturally sensitive ways, with acknowledgment that the crises of environmental change have been impacting Indigenous peoples around the globe since the age of expansion, beginning as early as the fifteenth century. Climate change is not an impending future crisis. It is an extension of ongoing extinctions, destabilization, and rapid environmental transformation. We should resist crisis narratives for the reasons I have presented in this book, but also because they perpetuate the erasure of these legacies.<sup>320</sup>

### EMPTY WORDS

Climate grief—a feeling of despair, anxiety, or fear that causes people to feel helpless and overwhelmed—has impacted the lives of our youth. As mentioned earlier, Greta Thunberg cut school on a Friday and sat in front of the Parliament House in Stockholm. This action inspired millions of teenagers around the world to join her in an international movement to protest governments to do something about climate change. Teenagers joined her to strike from school on Fridays and to organize rallies and conferences on climate change.

However, even though governments and organizations invite teenagers to conferences and meetings, there are questions about the motivation for these gatherings. Greta Thunberg recently challenged the adults who organized a conference in Milan, Italy, in September 2021, a month before the COP26 meeting in Glasgow. The COP26 is United Nations' twenty-sixth climate change conference.

The conference in Milan, Youth4Climate: Driving Ambition and Pre-COP26, brought together four hundred youths from 197 member countries of the United Nations Framework Convention on Climate Change. The Milan person-to-person conference followed nine #Youth4ClimateLive series of interactive virtual episodes covering a wide range of climate topics in 2020 and 2021. Each episode was a discussion put on by the Italian Ministry of Ecological Transition and

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<sup>320</sup> Ray, *A Field Guide to Climate Anxiety*, 140–141.

the United Nations Secretary General's Envoy on Youth.

For several years the world's youth have protested and marched to speak out and act against government's lack of action on climate change. Greta Thunberg is one of the most decisive and esteemed leaders among the youth of the world. At the conference in Milan, she ripped into adult leadership and asserted that they have done nothing but "blah, blah, blah" for the past thirty years.<sup>321</sup> She said the leaders of this conference cherry-pick attendees and "pretend they are listening to us, but they are not." At stake is bringing the warming of the planet under control, which means preventing a temperature increase of no more than 1.5 degrees Celsius.

According to Dr. Katja Frieler at the Potsdam Institute for Climate Impact Research in Germany, to remove the burden and lessen the grief experienced by children and youth, we need to phase out fossil fuel use. If this change is done, then planetary warming will be limited to 1.5 degrees Celsius.<sup>322</sup>

## **9.5. BLOG POST, 15 OCTOBER 2021: A LIFE DEFINED BY THE BOMB**

This is a guest post written by Roger Cross, PhD, a science educator and writer from Bura, Australia. He was professor of science education at LaTrobe University, Melbourne, Australia. He is a highly regarded and respected science educator and author of many books and research papers in the field of science education. Among his books, two are about his research into the British bomb tests in Australia.

Cross's book *Fallout*<sup>323</sup> was the basis of the film *Silent Storm* produced by the National Film and Sound Archive of Australia. The film follows celebrated scientist Hedley Marston's attempt to blow the whistle on radioactive fallout from the British atomic tests.

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<sup>321</sup> Stephen Jewkes and Giulio Piovaccari, "30 Years of 'Blah Blah Blah': Thunberg Questions Italy Climate Talks," Reuters, September 28, 2021, retrieved September 29, 2021, <https://www.reuters.com/world/europe/protests-proposals-activists-face-climate-talks-test-2021-09-28/>.

<sup>322</sup> Katja Frieler is the IPCC lead author for Key Risks Across Sectors and Regions in the 6th Assessment Report of Working Group 2. She has published more than seventy peer-reviewed articles on climate change and was named a Highly Cited Researcher in 2020.

<sup>323</sup> Cross, *Fallout*.

*Beyond Belief: The British Bomb Tests: Australia's Veterans Speak Out*, coauthored by Cross and Avon Hudson, tells the stories of people who were directly involved in the British bomb testing. They also expose how government and scientists secretly supported the British, who were desperate to develop their own bomb. They report harrowing stories of how the bomb tests carried fallout around the country, affecting unsuspecting citizens as well as active service members. Many people affected by the bomb tests died of cancer and were in a sense guinea pigs for the British and Australian governments.<sup>324</sup>

Roger is a close friend and colleague. He and I worked together on the GTP while he was on sabbatical at GSU in the 1990s. He asked several Australian schools to join the GTP and teachers from these schools attended GTP Summer Institutes in Atlanta along with American, Czech Republic, Russian, and Spanish teachers.

My name is Roger Cross (born 1941), and I grew up in the shadow of possible nuclear war. I remember vividly the little British government booklet informing us how to survive an atomic explosion in London. My parents took the information very seriously and believed it. We were to cover windows with newspapers and to shelter in the bath! As a teenager, I learned about the Campaign for Nuclear Disarmament (CND) and witnessed the greatest of all the rallies against nuclear weapons in Trafalgar Square, London. The philosopher and mathematician Bertrand Russell was its early chair, and many prominent figures in British life joined the movement. CND became a household slogan, but to no avail.

After I moved to Adelaide, South Australia, in 1966, I was astonished to find that Australia, too, had played a part in the proliferation of nuclear weapons. The British were determined to build their own atomic bombs. When the USA and Canada

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<sup>324</sup> American atomic and nuclear bomb testing was on a gigantic scale compared to what Cross and Hudson report about the British bomb testing. On each continent, atomic weapons affect millions of people who were near or in the path of nuclear fallout. In each case the Australian/British government and the American government failed to warn its citizens of the effects of testing nuclear weapons in the atmosphere and underground. Underground testing was just as dangerous as exploding bombs in the air or at the surface.

refused to allow them to explode their bombs in their countries, they turned to Australia. At that time, the early 1950s, it must be said that we Australians were sycophantic when it came to our relations with Britain. The government gave enthusiastic permission.

From 1952 to 1957, twelve atomic bombs were exploded on Australian soil, the majority at Maralinga in the far west of South Australia. I spent many years researching this terrible legacy and came to admire the only senior Australian scientist to oppose these tests. His name was Dr. Hedley Marston, and he worked for the government's scientific agency. Hedley found iodine-131 and strontium-90 contamination over large tracts of the continent. He did what he could to expose what he called the "gangster scientists" of Great Britain.

I presented a talk at a Hiroshima Day conference and met a military veteran of the British bomb tests. We wrote about the ordinary servicemen who were exposed to ionizing radiation while working at the test sites. These are chilling stories.<sup>325</sup>

## 9.6. BLOG POST, 20 OCTOBER 2021: THE NUCLEAR RISK

St. Mary's is a small town on the coast of Georgia at the border with Florida. In a graduate environmental education course, thirty students accompanied me as we boarded the Cumberland Island Ferry at St. Mary's dock to reach the barrier island of the same name. It's home to loggerhead turtles and feral horses, and very few humans. It's one of fifteen barrier islands along the Georgia coastline. Barrier islands are coastal landforms made of a type of sand dune system that are formed by wave and tidal action parallel to the coastline. They typically occur in chains, as they do along the Georgia coast.<sup>326</sup> Barrier islands are separated from the mainland usually by bays or rivers leading to the open ocean.

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<sup>325</sup> Roger Cross and Avon Hudson, *Beyond Belief: The British Bomb Tests: Australia's Veterans Speak Out* (Kent Town, Adelaide: Wakefield Press, 2005).

<sup>326</sup> I have taken graduate students (mostly Atlanta-area middle and high school teachers) to four of Georgia's barrier islands including Skidaway, Sapelo, Jekyll, and Cumberland Islands.

Separating Cumberland Island and the mainland is Kings Bay, which opens to the Atlantic Ocean. It's also home to the Kings Bay Naval Submarine Base, the US Atlantic Fleet's home port for Navy fleet ballistic missile nuclear submarines armed with Trident missile nuclear weapons. A Trident is a submarine-launched ballistic missile armed with multiple nuclear bombs. Kings Bay has been in use since 1979. It's a big base with more than 16,000 acres of land, including 4,000 acres of protected wetlands.

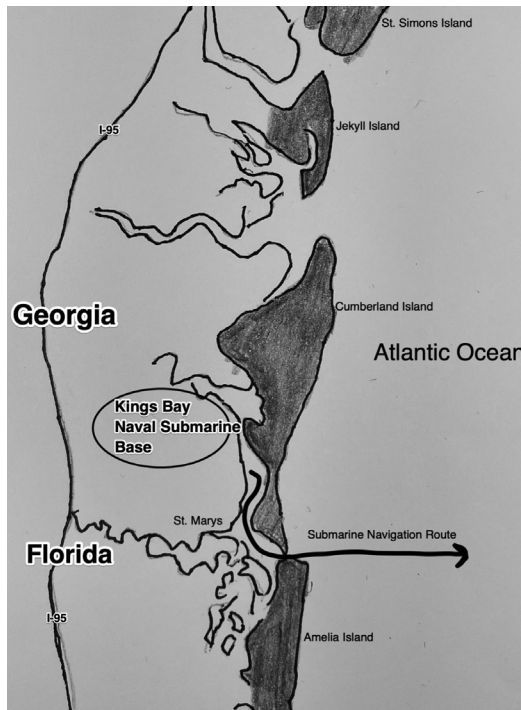


Figure 11. Map of Georgia Barrier Islands near the Kings Bay Naval Submarine Base.

On April 4, 2018, a group of seven Catholic peace activists broke into the Kings Bay Naval Submarine Base and engaged in a nuclear weapons protest. They cut through a wire barrier and left symbolic messages to convey their belief that nuclear weapons would result in omnicide—the destruction of all people. In their 2019 trial, they were found guilty on three felony counts and a misdemeanor charge. Critics of the trial believe the judge, Lisa Godbey Wood, prevented

the defendants from mounting a full defense. They were not allowed to mention their religious motivations or any mention of international law or treaties restricting nuclear weapons. They were sentenced to two to five years in prison.

The US government implemented a program for the peaceful use of nuclear weapons and called it Project Plowshare (the USSR did the same thing). Exploding nuclear bombs in the atmosphere or underground and calling this “peaceful nuclear explosion” was part of a larger goal of exploiting the “peaceful” uses of the atom.

An antinuclear group began the Plowshares movement. They initially broke into the General Electric Division in King of Prussia, Pennsylvania. Re-entry vehicles for the Minuteman II missiles were made here. The Plowshares group hammered on two re-entry vehicles, poured blood on documents, and offered prayers for peace.

Ever since atomic bombs were dropped on Japan, scientists and citizens around the world began to be increasingly concerned about the destructive power of these weapons. A scientist that I met at the Unitarian Universalist Church in Atlanta (of which I was a member) worked at the Centers for Disease Control, which was located just a few miles from our church. While in a group discussion, he told us he had been a young scientist working at Los Alamos when the atom bomb was developed. He was ashamed that he worked with others to develop the bomb. People in the group gave him great comfort, but he wanted us to know that he wasn't the project's only scientist who felt this way.

The goal of antinuclear activists is to ban nuclear weapons and work toward the elimination of them. The Treaty on the Prohibition of Nuclear Weapons was adopted in 2017 and is a comprehensive treaty to attain a nuclear-free world agreed to by eighty-six nations. Although the treaty is in effect, all the nations that have nuclear weapons abstained from voting. The two nuclear weapons that were dropped on Hiroshima and Nagasaki and the worldwide testing that was done created great risk to people living in areas where testing took place, especially Australia, the United States, the Soviet Union, and the South Pacific.

### TRUMP AND NUCLEAR WEAPONS

The nuclear threat is rarely discussed.<sup>327</sup> But it should be. These are weapons of mass destruction. I decided to examine the cost of the US spending on its nuclear program. Here is what I found. From 1940 to 1998, the United States spent \$5.5 trillion on nuclear weapons and weapon-related programs.<sup>328</sup> Most of this money (86 percent) was spent on launch systems—B52 bombers, nuclear submarines, and missiles.

During the period of 1999–2019, the US spent on average \$45 billion each year. The Congressional Budget Office is required by law to project the ten-year costs of nuclear forces every two years. For the period of 2021–2030, the Department of Defense’s and the Department of Energy’s combined costs would be \$634 billion, or slightly more than \$60 billion a year.<sup>329</sup> Over two-thirds of the costs would be for ballistic missiles and nuclear laboratories.

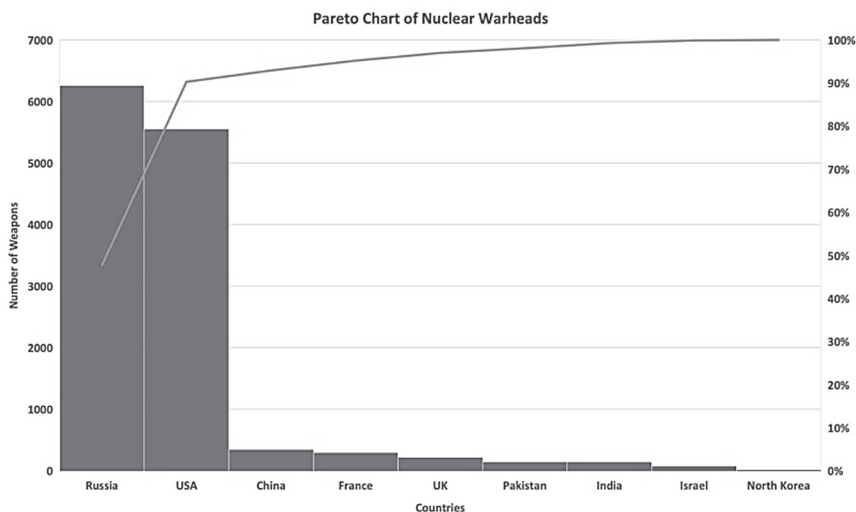


Figure 12. Pareto chart of the number and percentage of nuclear weapons by country in 2021 showing the individual values for each country and the cumulative total represented by the line.

<sup>327</sup> There are more than 13,000 nuclear weapons in the world spread unevenly among nine countries. The US and Russia account for more than 90 percent of them. There are several organizations that report on nuclear weapons. These include the Ploughshares Fund, the Federation of American Scientists, and the Bulletin of the Atomic Scientists’ Nuclear Notebook.

<sup>328</sup> Stephen I. Schwartz, “The Hidden Costs of Our Nuclear Arsenal: Overview of Project Findings,” (Presentation, Brookings Institution, Washington, DC, June 30, 1998), retrieved September 15, 2021, <https://www.brookings.edu/the-hidden-costs-of-our-nuclear-arsenal-overview-of-project-findings/>.

<sup>329</sup> Congressional Budget Office, May 2021, retrieved September 15, 2021, <https://www.cbo.gov/system/files/2021-05/57130-Nuclear-Forces.pdf>.



In 2016, Congress approved a nuclear weapons spending plan that will cost taxpayers \$1.7 trillion between 2017 and 2046. This expenditure represents 6 percent of all national defense spending for that period. The plan calls for improved nuclear delivery systems, nuclear warheads, and supporting infrastructure. China and Russia are also investing in their nuclear capabilities, continuing the Cold War arms race.

The United States possesses 1,650 strategic nuclear warheads, while Russia has 1,700 nuclear warheads. There are seven additional countries that have nuclear arsenals: China (350 weapons), France (300 weapons), UK (225 weapons), India (150 weapons), Pakistan (150 weapons), Israel (80 weapons), and North Korea (20 weapons).

Throughout Trump's term in office, many had great concern about his mental stability and feared that he might unleash a nuclear attack on China, Iran, or North Korea. After the 2020 election, General Mark A. Milley called his counterpart in China and assured him that the US would not launch a nuclear attack on his country. If it did, Milley told General Li Zuocheng of China's People's Liberation Army that he would call to warn him. Milley called Li Zuocheng again on January 8, 2021, after the attack on Congress.

I know what I'm about say sounds bizarre, but Trump wondered: If we have so many nuclear weapons, why don't we use them? He even threatened North Korea with nuclear weapons. He said, "North Korea best not make any more threats to the United States." If they do, "They will be met with fire and fury like the world has never seen." He later met a couple of times with North Korea's Kim Jong-un and made up.

### **A BRIEF HISTORY OF NUCLEAR WEAPONS**

In 1945 the United States dropped atomic bombs on the Japanese cities of Hiroshima and Nagasaki, killing between 129,000 and 226,000 civilians and soldiers.

The United States conducted 1,032 nuclear tests between 1945 and 1992: at the Nevada National Security Site; at sites in the Pacific Ocean; in Amchitka Island of the Alaska Peninsula; and in Colorado, Mississippi, and New Mexico. Fallout downwind contained radionuclides and gases

transported thousands of miles away from the Nevada National Security Site by wind. A radionuclide is a radioactive form of an element. When a nuclear explosion occurs, about twelve different radionuclides are produced, including iodine and cobalt-60. People living in the US during these years were exposed to varying levels of radiation. The American government released very little information warning people of potential effects of nuclear fallout. Fallout of radiation moved through the food chain causing cancerous diseases.

In Area 10 of Yucca Flat at the Nevada National Security Site, a shallow (636 feet) underground nuclear test was conducted on July 6, 1962, to investigate the use of nuclear weapons for mining, cratering, and other civilian purposes such as open-pit mines, railroad and highway cuts, and dams. The program was called Project Plowshare. Plumes of radioactive fallout from this test contaminated more people in the US than any other nuclear test carried out by the US military. Radionuclides carried to the east over Nebraska, South Dakota, and Illinois and continued eastward toward the Atlantic Ocean, bringing lower levels of nucleotides. At the time, I was living in Boston, which would have been in the path of minor levels of fallout. The test released 7 percent of all radioactive fallout on the US since testing began. The government dropped the idea of using nuclear weapons for excavation; however, it continued testing devices until 1992.

In 1962 the US and the Soviet Union came close to a nuclear holocaust when the US learned that the USSR was installing medium- and intermediate-range missiles in Cuba. Although the United States held an overwhelming nuclear weapons advantage over the Soviet Union, the nuclear age became front and center of international policy and politics. The American and Soviet people did not know the truth about nuclear weapons until many years later. We were told to shield ourselves with aluminum foil and newspaper and hide in the bathtub. Weapons were being used like chess pieces as one side confronted the other. Little has been done to make the world safer from nuclear weapons. No country should have these weapons.

In 1969, President Richard Nixon ordered nuclear bombers to be put on standby for an immediate strike after North Korea shot down an

American spy plane.<sup>330</sup> Recent documents show that there was a plan to target twelve military targets each with a nuclear bomb. These bombs were at least twenty times as powerful of those used on Hiroshima and Nagasaki in 1945. The plan was scrapped soon after it was ordered.

However, in 1974 on the eve of Richard Nixon resigning as president, many were so concerned about his drunken state that the nuclear football that normally accompanies the president was removed from his presence during his last two hours before flying Nixon back to California after he resigned.<sup>331</sup>

In September 1983, while I was in Moscow in a meeting among AHP and Soviet researchers just days after Korean Air Lines Flight 007 was shot out of the skies by the Soviets, a Soviet satellite report showing incoming US nuclear missiles was received at Serpukhov-15, the secret bunker outside Moscow. Lieutenant Colonel Stanislav Petrov, the duty officer, felt the report was a false alarm. He acted on a hunch that the report, which indicated only five incoming American missiles, was wrong. If it were an attack, there would have been hundreds of missiles. He was right. And because he reported a false alarm to his superior officers, the world escaped nuclear war.<sup>332</sup> The false alarm was triggered by reflections from the tops of clouds. A similar episode happened in 1995 when, again, Russia thought it was under attack and nearly launched a nuclear strike.

On January 13, 2018, a ballistic missile alert was accidentally issued over television, radio, and cellphones in Hawaii. The alert stated that there was an incoming ballistic missile threat to the state and that citizens should seek shelter; the message concluded, "This is not a drill." After more than a half an hour, officials called off the alert, blaming the message on a miscommunication during a drill. However, millions of people were traumatized. Cynthia Lazaroff, founder of Women Transforming Our Nuclear Legacy and NuclearWakeUpCall, was in

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<sup>330</sup> Chris McGreal, "Papers Reveal Nixon Plan for North Korea Nuclear Strike," *The Guardian*, July 7, 2010, retrieved September 17, 2021, <https://www.theguardian.com/world/2010/jul/07/nixon-north-korea-nuclear-strike>.

<sup>331</sup> Garrett M. Graff, "The Madman and the Bomb," *Politico Magazine*, August 11, 2017, retrieved September 17, 2021, <https://www.politico.com/magazine/story/2017/08/11/donald-trump-nuclear-weapons-richard-nixon-215478/>.

<sup>332</sup> Tony Long, "Sept. 26, 1983: The Man Who Saved the World by Doing...Nothing," *Wired*, September 26, 2007, <https://www.wired.com/2007/09/dayintech-0926-2/>.

Hawaii and actually made phone calls to loved ones.<sup>333</sup> Cynthia is also founder of the US–Russia Exchange Initiatives, a project that began in 1983 at the same time that the AHP Soviet Exchange Program began.

Since the advent of these weapons, the US has had dozens of nuclear accidents, including the dropping of two live atomic bombs on North Carolina on January 23, 1961.<sup>334</sup> In fact, a commander of US nuclear forces said that the real nuclear threat to America is an accident.

## 9.7 BLOG POST, 1 NOVEMBER 2021: PROMOTING GLOBAL COLLABORATION IN A WORLD OF EXISTENTIAL THREATS

During the years of Trump, global collaboration was diminished to a whimper. Banning people from Muslim nations and making it difficult for people from other countries to secure visas removed the power of citizens interacting with each other in a framework of trust and acceptance.

Decades ago, in the later part of the twentieth century, there was a movement to engage students and teachers to work across the world to participate in localized and global ecological investigations. The emergence of new technologies increased the opportunities to bring people to communicate with each other. The GTP<sup>335</sup> was developed during this period along with other initiatives such as Global Lab<sup>336</sup> and the International Education and Resource Network (iEARN).<sup>337</sup>

The GTP was a collaboration among researchers, teachers, students, and parents from the United States and Russia, as well Australia, the Czech Republic, and Spain. The GTP emerged during a time when the internet was in its infancy and becoming a way for people to communicate with each other. Educators grasped onto the internet as a tool of collaboration.

What follows here are discussions I had with educators from Spain, the United States, and Russia. Each of the educators explains why

<sup>333</sup> Women Transforming Our Nuclear Legacy: [nuclearwakeupcall.earth/women-s-project](http://nuclearwakeupcall.earth/women-s-project).

<sup>334</sup> Bill Newcott, "Remembering the Night Two Atomic Bombs Fell on North Carolina," *National Geographic: History & Culture*, January 26, 2022, retrieved February 12, 2022, <https://www.nationalgeographic.com/history/article/remembering-night-two-atomic-bombs-dropped-on-north-carolina>.

<sup>335</sup> Jack Hassard, "Teaching Students to Think Globally," *Journal of Humanistic Psychology* 37 no. 1 (1997): 24–63, <https://doi.org/10.1177/00221678970371003>.

<sup>336</sup> Global Lab was developed by TERC in Concord, Massachusetts, and was a science program used by schools around the world.

<sup>337</sup> iEARN is a worldwide network comprised of thousands of schools in more than 140 countries. iEARN has been an active project since 1989. <https://iearn.org/>.

cross-cultural collaboration is important and how they contributed to fostering international relations.

### TEACHING ABOUT THE EARTH IS NOT AS IMPORTANT AS TEACHING IN OR FOR THE EARTH

Narcís Vives is an educator from Barcelona. I've known Narcís since 1992 and worked with him on several telecommunication projects. He is one of the most experienced educators using international telecommunications to link students and teachers together on common problems. Vives points out that "being an individual changemaker is not enough." He reminds us that when each and every one of us tries to individually change things for the better, "the results are poor, although better than nothing."<sup>338</sup>

Vives and many others have been involved in global collaboration projects for decades. He explains that "when we, teachers and students, collaborate, sharing the same vision and trying together to solve environmental or social problems, the results are great."

Vives and his colleagues in Spain and more than twenty-two Latin American countries have found that it's worth inviting teachers and students to participate in international telecommunication projects. However, he says that "projects that deal with the quality of life on our planet should be for learning with the world, not just about it." Traditional teaching has overemphasized "teaching about" ideas rather than showing students how to be involved within those ideas.

Global collaboration should begin with a strong local curriculum that helps students think locally. Vives says, "I am in favor of a local curriculum that invites students to learn about different aspects of their neighborhood: places, people, and data. Students' contributions should be meaningful and useful for the local community because when this happens, it is the whole village, neighborhood, or local community that learns."

Being open to collaborating globally is essential for dealing with the economic, social, and ecological problems that the world faces. During

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<sup>338</sup> Narcís Vives (president of Itinerarium Foundation, founding member of International Education and Resources Network, honorary president of iEARN, cofounder of Clowns without Borders, director of Atlas of Diversity, and former teacher, Barcelona), email interview with the author, September 18, 2021.

the Trump administration, work across cultures was denied and exasperated by bans on Muslim citizens from traveling to the United States and the denigration of immigrants approaching the US southern border.

In our experience, students' ideas about the world grow when they are involved in global telecommunications projects. As Vives points out, successful global projects occur "when we are linked with and involved in common projects with different schools around the world." He adds that "we can share our best experiences, learn from others, and have an open dialogue about controversial issues or problems that arise. When this happens, we are creating a global network for learning and change, and we are making a meaningful contribution for the planet and its people."

### YOUTH EMPOWERMENT

Ramon Barlam, professor of Social Sciences at the Institut Cal Gravat in Manresa, Spain, is a colleague and friend that I met in 1995 in Callús, a small community near Barcelona in the state of Catalonia. He is one of the world's pioneers in the use of the internet to connect students worldwide. He told me that he was lucky enough to discover the internet early on, and he "did so thinking that this tool would offer us a great chance not only to improve education but also to promote global friendship."<sup>339</sup> He regarded this early period as historical, and as he said, it "coincided with a project, the Global Thinking Project, and a teacher from Atlanta, Georgia."

Barlam became very involved in the GTP. He described that "at that time, I was working at L'Escola Joventut primary school in Callús, where we did a research project over the quality of the water of the Cardener River, which flows nearby. We also worked together with county institutions on the deforestation caused following the worst fires that we have suffered in Catalunya Central, those that took place in 1994. From the school we contributed to the reforestation of nearby forests as well as undertaking many other actions."

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<sup>339</sup> Ramon Barlam (professor of social sciences at the Institut Cal Gravat, Manresa, teaching professional, K-College, member of LaceNet educational network and World Mobile City Project), email interview, September 17, 2021.

Barlam went on to say, “With this project and many others that followed which I took part in, we have tried to promote and foster youth empowerment to make a better world.” Then he added, “Three decades later, the world has seen a distressing twist: the end of the Cold War has not led to times of stability and fair prosperity. The internet has not been able to keep the romantic spirit of its beginnings as it has succumbed to the big technological multinational greed.”

In my communication with Ramon, he warns of the rise of authoritarianism by saying, “It is not only the rise of Donald Trump and Jair Bolsonaro in America and Brazil but also the resurgence of extreme right-wing political parties in Europe. In Hungary, France, and even in Germany the clamor for Hitler and radicalism resonates. In Spain the shadow of Franco, the fascist dictator, persists, and his followers walk down the streets with impunity openly hurling fascist anthems and military salutes.” One is reminded of the “Unite the Right” rally in Charlottesville, which Donald Trump said had very fine people on both sides. It didn’t.

In the context of where Barlam resides, he added this comment:

We cannot forget that Spain is the country in the world, after Cambodia, with the largest number of murdered citizens for political reasons in ditches and common graves. As for Catalonia, a country which has peacefully demanded its independence, it has seen the Spanish government answer back with sheer violence against it. Watching the news programs on TV has become more and more depressing day after day.

### FIGHTERS FOR THE ENVIRONMENT

The GTP designed a curriculum that would enhance collaborative environmental research and cross-cultural communication.<sup>340</sup> The American–Russian student and teacher exchanges made it possible for students to live and go to school with each other. Sara Crim, a

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<sup>340</sup> Hassard and Weisberg, *Environmental Science on the Net*.

science educator and middle school science teacher from Walker County Schools in Georgia, participated in three student exchanges from 1995 to 1998. Crim was one of more than thirty-five American and thirty Russian teachers that participated in the GTP exchanges. Global collaboration among these educators was remarkable in that many have maintained communication with each other. By their willingness to embed themselves for weeks at a time in another culture, living in homes and teaching in a foreign nation, they helped their students become global collaborators and participants at the same time.

Crim said “to travel as a teacher from a small country school was such a rewarding experience. Each time I participated as a teacher in the GTP, my students and I were able to visit and live with Russian families in Moscow, St. Petersburg, and Chelyabinsk.” In each city, she brought ten of her students, each of whom lived with a Russian family, as she did. She and her students reciprocated and hosted the Russians when they traveled to the northwest mountains of Georgia.

In an interview, she said that “during our exchanges we developed friendships and gained new families. Since finishing the project, some of my students have traveled back to Russia to visit their partners and have taken family members with them.”<sup>341</sup>

Crim explained, “Students worked with each other at a distance and face-to-face on ecological projects such as an investigation of ground-level ozone and air pollution, an open-ended ecological study of a local stream, and other projects, including a study of the local environment, soil studies, and solid waste.”

She reminded me that “from our participation in the GTP, we learned that people from entirely different cultures can work together and develop long-lasting friendships.” She also told me that “we can learn to work together to solve problems that are important to our countries.” She then emphasized that “problems are not so big when you can understand how a problem affects someone else in a way it doesn’t affect you.”

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<sup>341</sup> Sara Crim (retired science teacher, Walker County Schools, Georgia, and artist, Pampa, Texas), email interview with the author, September 9, 2021.



### NEW TYPE OF THINKING

One of the leaders of the GTP in Russia was Dr. Anatoly Zakhlebny. He is an ecological researcher and educator and was instrumental in involving scientists and educators in the GTP. At the very last student conference held in Moscow, where there were one hundred American and Russian students plus thirty teachers, Zakhlebny invited twenty-five Russian scientists to mingle and talk with the students about their projects. It was not a competition, but a collaboration among students and scientists. The scientists wanted to find out what ideas students were working on and how they dealt with ecological issues.



*Dr. Anatoly Zakhlebny, ecologist and chief researcher of the Federal State Institute for Development of Educational Strategy at the Russian Academy of Education and professor of pedagogical sciences provided leadership for the GTP throughout Russia. Here he is speaking to American middle and high school students and teachers from Georgia who had arrived in Moscow in October 1997 for a three-week exchange with five Russian schools in Moscow, St. Petersburg, Yaroslavl, and Chelyabinsk.*

I asked Anatoly about the implementation of the GTP in Russia. He recounted, "For two decades, together with my colleagues from the Russian Academy of Education, we have tried to popularize the ideas of the Global Thinking Project among teachers in a number of Russian

regions—in the Baikal region,<sup>342</sup> in the Urals, in the Moscow region.”<sup>342</sup> He conducted workshops to help teachers become acquainted with the method of integrating natural science with humanistic education.

He said that the humanistic ideas underlying the GTP were at least fifty years ahead of the mass consciousness of most people. He said, “For almost twenty-five years (after the Rio Summit 1992),<sup>343</sup> politicians and diplomats of many countries have mastered this type of thinking in order to reach agreement on the common goals of sustainable development.” In his view, global thinking is the psychological basis for sustainable development goals. Global thinking is not unlike global citizenship or education for a global perspective.

GTP teachers and researchers viewed global collaboration as learning to see problems and issues through the eyes and minds of others. Project learning also incorporated empathy, being able to put oneself in another’s shoes, and intercultural competence, which means being able to function within the norms and expectations of another culture. This is humanistic collaboration.<sup>344</sup>

According to Zakhlebny, “In Russia, we consider global thinking as an intellectual product of the integration of natural science knowledge about the modern scientific picture of the world and the general cultural value orientations of the individual in order to maintain established ecological quality and conditions of life of the environment.”

At the end of my conversation with Anatoly, he said, “I regret that at the present stage, political relations between our countries are at a low level, and we cannot interact now on the ways of best conveying a new type of thinking about the common future on our planet to the young generation.”

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<sup>342</sup> Anatoly N. Zakhlebny (chief researcher of the Federal State Institute for Development of Educational Strategy at the Russian Academy of Education, professor, doctor of pedagogical sciences, and chairman of the Scientific Council on Environmental Education Problems of the Russian Academy of Education), email interview with the author, September 29, 2021.

<sup>343</sup> The Rio Summit 1992 was the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil.

<sup>344</sup> Hassard, *Teaching Students to Think Globally*.