



How Optimists Triumph and Change Happens

Robin Collins

Times are probably not great when you feel inclined to look back on US President Ronald Reagan with some affection. For many of my generation, he was the supreme arch conservative, an anti-communist zealot, someone who backed the Contras in Nicaragua and the military government in El Salvador. He was anti-union; he hung out with neo-liberals; and together with Margaret Thatcher of Britain - he moved the global economy in a direction that benefitted the wealthy elites. All true.

That was why I was among those who took to the streets to demonstrate against Reagan, in Ottawa in March of 1981. That day the President's visit was (according to CBC news at the time) "marred by hostile demonstrations" and the "loud voices of hundreds of protesters." *Hundreds?* Come on! A few thousand!

Pierre Trudeau, who was Prime Minister at the time, pleaded with us to be polite, with a shrug and outstretched palms: "Hey guys, when I go to the United States, I'm not met with these kinds of signs... How about a great cheer for President Reagan." Cue the cheering school children that were bussed in.

Protests that day were over acid rain, shipping arms to El Salvador, and nuclear disarmament, among other topics. I was with one of the (shall we say) more radical groups.

At a glance...

- *The author reflects on distinctive responses to three global problems: pandemics such as we experienced with COVID19; imminent climate-induced tipping points that are barreling towards us at a dangerous clip; and nuclear weapons/nuclear war. At the end he refers to some theory about How Change Happens, what some obstacles are, and why we can remain optimistic.*
- *What was missing most of all in Reagan's many-year abolition mission was sufficient trust in him when it mattered. Absent trust, and verifiable truth, sustainable progress is not feasible.*
- *The historical record shows that change is generally unpredictable yet always inevitable.*
- *Dissent brews quietly, and many people may not act until they see motion by others around them. Others may hold no pre-existing views. New norms therefore are possible when a tipping point is reached and a "norm cascade" results.*
- *The common security framework is still the best one available even though it has been sidelined and needs to be revived.*
- *We know optimists will triumph because optimists believe bad situations are temporary and can be bounced back from ... eventually.*
- *Nose to the grindstone, tell the truth as you see it, even when it seems you are all alone.*

Then there was an amusing exchange that was reported on the front page of the Globe and Mail the next day: A “curly-haired” protesting youth who was hanging onto a parliamentary lamppost - let’s call him “Gary” -- called Reagan a warmonger, loudly and persistently. Pierre Trudeau was glaring directly at him. Gary then yells out “Yankee Go Home” at the President, a familiar chant which many start to repeat in unison. However, an indignant woman near to him thought this was just plain rude and emphatically she blurts back: “YOU Go Home!” He ponders this violation of protest etiquette, and then as captured by the Globe, responds: “I AM home!”

Ronny, We Hardly Knew Ye

One lesser-known aspect of Reagan’s legacy was his sincere opposition to nuclear weapons. This may have been missed by most of us in the political Left at the time, but it is also a reason why we shouldn’t be overly gloomy today: There are surprising incongruities!

For this presentation I want to reflect mostly on distinctive responses to three global problems: pandemics such as we experienced with COVID19; imminent climate-induced tipping points that are barreling towards us at a dangerous clip; and nuclear weapons/nuclear war. At the end I’ll refer to some theory about How Change Happens, what some obstacles are, and why we can remain optimistic.

First: Pandemics

The COVID pandemic was declared a global emergency by the World Health Organization in March of 2020. It’s true, we were all in it together, and it’s now a touchstone lodged in our shared memory. In the sense of being an urgent crisis, it was over by May 2023, three years later (1). 15-35 million people may have died, directly or indirectly.

But I want to focus on the global response, and what were remarkable feats of human ingenuity: the optimism part. The cost of vaccine development and early trials typically cost a few tens of millions of dollars. Essentially, in the grand scheme of things: peanuts. Several COVID-19 vaccines are believed to have significantly reduced the spread of the disease,

and the severity of symptoms and death rates. It is said that up to 20 million deaths were prevented because of vaccines. More than 13.5 billion doses have been administered worldwide, and about 70% of the global population (5.5 out of 8 billion people) have received at least one dose, including booster doses, albeit not evenly distributed across the globe.

Most astounding: The vaccines were developed in far less than a year, faster than ever before (2). Moderna’s vaccine took 66 days to produce, the genetic sequence took only ten days to acquire and was quickly shared with scientists around the world. Why did this happen so fast? Fast-tracked research and clinical trials were the fruit of global cooperation in science. 74 countries had joined in the trials, reducing the time for vaccine proofing by 80%.

During the pandemic, two doctors created and shared a vaccine patent-free and at low cost in developing countries (3). Now skip ahead to August of this year: Researchers from Stanford University and the Ark Institute used genome language models to create a new bacteriophage - a virus that can infect and kill E. Coli bacteria. This was a landmark breakthrough for biological engineering and antimicrobial therapy. But to harness the positives of these technologies, we required large doses of global governance (4). With research and development, significant financial and human investment, and global sharing, we can continue to succeed with pandemic early warning and then eradication. The COVID experience, even with its failings, shows that we can replicate these processes. This mentality is in essence a common security approach - global cooperation on the medical front - and it requires deliberation and universalization.

Then There’s Climate

Forest fire season, generally a natural occurrence, has become newsworthy in many countries. In the last decade, we experienced the warmest years on record for the earth’s surface, since 1850. Worldwide, annually, there are now about half a million heat-related deaths. A severe surge of around 16,000 excess deaths in Europe occurred during a single week in late June of this year. We know the cause is mostly

excess CO2 in the atmosphere. [See graph]. And global CO2, as you can see, *continues* to rise despite the herculean efforts of some to transition away from fossil fuels.

Albedo

Albedo loss is the reduced reflectivity of solar radiation because of fewer and darker clouds, melting glaciers, and a measurable decline in annual global snowfall. We know this is now adding far more heat than newly added, still increasing, greenhouse gases. NASA satellite measurements indicate that from the year 2000, earth's albedo has decreased from between 0.5% and 0.8%. Sounds puny, but this warming caused by declining reflectivity is the equivalent to the "greenhouse gas effect of all human carbon dioxide emissions since 1750."

That means we must focus on albedo enhancement - by adding clouds or brightening clouds -- to achieve a 1% brighter planetary result. This should be our most urgent climate pursuit. The standard environmentalist view - and to be clear, I am a lifelong environmentalist - has been that a rapid energy transition away from fossil fuels will be *sufficient* to head off a climate catastrophe. This is wrong; and many observers are beginning to agree (5). Obviously we don't want to add more greenhouse gases, and we also need to remove enough to at least get back to 1970 levels. But climatologist James Hansen (6) and others have produced much academic work showing that global warming is still accelerating, not dissipating from the transition to renewables, as hoped. So, where's the optimistic note, in all of this?

The current political crises, Jim Hansen predicts, "present an opportunity for reset, especially if young people can grasp their situation (7)." That's despite public understanding of now-urgent solar geoengineering research remaining at a low level. In a US study last year, about 58% were unfamiliar with these technologies (and albedo enhancement) and only 3.6% were very familiar with them (8). That's about the same number of people who think the earth is flat (9)! There are others, however, who know it isn't a hoax and that it is a real threat, but they oppose

technological solutions - either because they doubt human ingenuity, or they think solar geoengineering will undermine efforts to transition away from carbon-based fuels, the so-called moral hazard. Too many seem mesmerized by the promise of a net-zero-only solution.

And Yet!

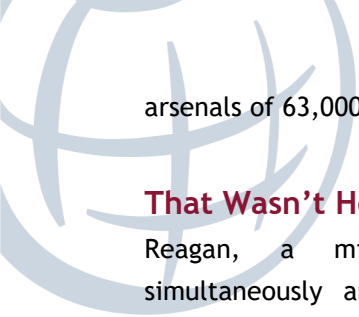
It is also no longer rare that at least one important climate article appears in the news every day (10). Journalists like Gwynne Dyer who has a syndicated column in 175 newspapers worldwide, including at The Hill Times here in Ottawa, is placing climate geoengineering front and centre and is regularly reporting on it. Healthy Climate Action Coalition (HPAC), and our own Metta Spencer at Project Save the World have a growing audience; and groups like Canadian Pugwash Group, and Project Ploughshares have started to put their shoulders to the climate wheel (11). But to be clear, the climate crisis, if we do not act immediately, leads us into an imminent disastrous future, if for example, the polar ice melts (12). Nuclear war and pandemics are high risk probabilities. Climate warming is a certainty without our immediate attention.

Back to Reagan and Nuclear War

Reagan's early interest in SDI, the Strategic Defense Initiative -- the so-called star wars program, a term he publicly shunned -- was generally seen by his harshest critics as his way for the US to win wars and expand the arms race into space. Reagan, himself was a Cold War hawk who famously described the Soviet Union as the 'evil empire', and raised the US Department of Defense budget by roughly 35%, some of it for spending on SDI.

The 1981 National Security directive (#13), under Reagan's watch, is unambiguous about developing "on short notice, immediate options for employment of nuclear forces, both strategic and theater, against targets of significant value." Pretty unambiguous.

For many of us, SDI was a very dangerous plan, disrupting the delicate deterrence arrangement that by the mid 1980s included US and USSR combined



arsenals of 63,000 nuclear warheads.

That Wasn't How Reagan Saw It

Reagan, a missile defence enthusiast, was simultaneously and adamantly opposed to nuclear weapons on moral grounds. He saw SDI and nuclear weapon abolition as complementary projects. "In my opinion," he told reporters in 1983, "if a defensive weapon could be found and developed that would reduce the utility of these missiles or maybe even make them obsolete", then he "could offer to give that same defensive weapon to [the Soviets] to prove that there was no longer any need for keeping these missiles. Or with that defense, he could then say to them, 'I am willing to do away with all my missiles. You do away with yours (13).'"

This earnest declaration by Reagan was made public on many occasions, to the Soviets, to the press, and to policy advisors over several years. (There is documentation from dozens of his speeches, transcripts and memoirs) (14).

In a press conference with Tass in 1985 Reagan made it crystal clear that his proposal was not to enable US first strike capability. He believed that drastic missile reductions were possible and necessary. Missile defences would then only be needed to respond to a 'madman' who secretly built and launched one or a few missiles, even after superpower nuclear abolition (15).

Put aside for the moment the whole question about whether SDI could ever work and defeat countermeasures, and to what extent it was designed to bankrupt any Soviet war economy, or whether (a core concern of Gorbachev) it would lead to war in space (16).

I point this out, not in defence of SDI but to underline what were our possible missed opportunities. I was certainly unreceptive to Reagan's genuine abolition commitment at the time, even though he made it explicit. And repeatedly (17).

Trust

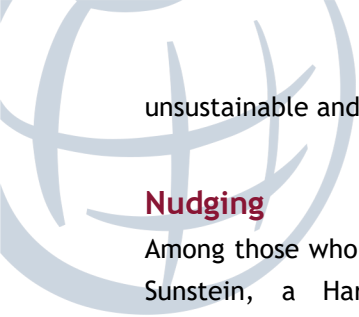
What was missing most of all in Reagan's many-year abolition mission was sufficient trust in him when it mattered. Absent trust, and verifiable truth, sustainable progress is not feasible (18).

But here's another remarkable thing. The time that passed from Reagan's initial announcement of his SDI program (March 23, 1983) to the fall of the Berlin Wall (Nov 9, 1989) was a mere 6 ½ years. Take note, optimists: Historic change can happen at lightning speed. Are we ready? In the middle of this period, Reagan and Gorbachev met in Iceland in October 1986 and engaged in talks that would later lead to the INF treaty, and a 50% reduction of arsenals a few years later. Abolition negotiations ultimately faltered and failed at Reykjavik, Iceland (19).

Reagan stated later that his administration had put forward "the most sweeping and generous arms control proposal in history. We offered" he said, "the complete elimination of all ballistic missiles—Soviet and American—from the face of the earth by 1996. ... [We] are closer than ever before to agreements that could lead to a safer world without nuclear weapons (20)." Do we still doubt Reagan's commitment?

How Change Happens

The historical record shows that change is generally unpredictable yet always inevitable. Eventually. No one precisely, if at all, anticipated the French, Russian or Iranian revolutions, the collapse of Apartheid, the end of the Irish Troubles, nor the Arab Spring. No one expected the end of the Cold War nor the collapse of the Soviet bloc at the time they happened, nor the dissolution of the Soviet Union. In hindsight, it is easy to claim all these events were foreseeable consequences of measurable sequences and contingencies, caused by known structural failings. True enough but so what? Large social movements are nonetheless very hard to predict contemporaneously. We don't know what peoples' actual preferences are; we don't know for sure what will move them to act, alone, or in social groups at scale. And yet we know fundamental change still happens. As well, we also know populist movements can be harmful, or



unsustainable and fleeting.

Nudging

Among those who have studied these processes is Cass Sunstein, a Harvard behavioural economist who worked for a period within the Obama administration (21). Much of his work (22) focuses on the forces that drive norm change. Sunstein argues that through (what he calls) *nudging*, small factors influencing human choice and behavior can accumulate and result in large, unexpected, impacts. A key reason for this delay - or apparent suddenness -- is that most people seek stability and worry about being seen to question existing norms. The people who want to push for these changes, “norm entrepreneurs” - that would be us! -- can potentially unleash silent majorities when these populations privately object to the status quo but then begin to gain confidence.

Tipping Points

Dissent brews quietly, and many people may not act until they see motion by others around them. Others may hold no pre-existing views. New norms therefore are possible when a tipping point is reached and a “norm cascade” results. Change - even “out of the blue” - can then seem feasible; it becomes possible; and can be firmly established. Sunstein concludes that “if people live in accordance with norms they abhor, the circumstances are right for sudden change.”

Clearly, complete change does not always happen. While not abolition, yet at Reykjavik in 1986, missile reductions began in earnest because of a conversation; the INF Treaty was signed shortly thereafter in 1987, and an entire class of land-based ballistic and cruise missiles was banned.

Credibility

There can be stubborn barriers; but one persistent person offering a coherent argument and pressing up against a long-accepted practice can influence a few, then several, then many, and it might become unstoppable. But if the norm shift energy is half-hearted, insufficiently visible, or there is significant resistance to it (perhaps due to the impact of social media), and it isn't how most people see the world,

then, Sunstein argues, “it will fizzle and the norm might not even budge.” The confidence that people require (whether they are citizens or politicians) can depend on the credibility of the information, but also the supplier of that information. Mistakes in messaging can be consequential (23). Similarly, when we block unpopular ideas from penetrating into our cozy circles, or we pre-select what is allowed to be discussed and debated, one result is that embedded uncertainties are neither addressed nor clarified, and inaccurate but convenient information may go unchallenged and become reinforced (24).

When Threats Become Personal

On the other hand, personal experience can conflict with established norms - actual threats to deploy nuclear weapons in the Ukraine conflict for example, actual pandemic impacts on family members, the absurdly unnecessary resurgence of measles, actual burning forests and smoke affecting our health, or historic heat domes appearing simultaneously in many places around the world. In these moments, advocates for change need to be credible, trustworthy, visible and influential. How does this happen? Generally, not overnight, but from persistent truth-telling. Conversations mount, public actions are organized, and suddenly - or gradually -- political leaders openly challenge existing norms. Sometimes political leaders - they being very *influential norm entrepreneurs* -- are out ahead of publics and can shift public opinion (25). Or undemocratic governments can benefit from normative drift, and may reform, falter, or fall to public revolts or even from internal bureaucratic dissent.

A fundamental point about common security in all of this - the idea of seeking partnerships because of a shared interest in survival -- is that it is principally about cooperating with ideological and political rivals where there is mutual benefit: Talking with the Taliban; sitting with the Russians. But we don't have to agree about everything and we won't. Citizens don't have to agree about capitalism, or nuclear power, or 'root-causes' or even NATO. We do have to agree about making it into the next millennium. The public's tolerance for difficult truths, ambiguity,

complexity and uncertainty can also be greater than the activist camp gives them credit for. Public tolerance for distortion and fabrication, however, is far lower (26). Contempt for the public backfires (27). The public is nervous about climate geo-engineering because there are legitimate worries that altering natural systems might go seriously wrong. On the other hand, there is now urgency that cannot be overridden by denialism, paternalism, or romantic views about ‘nature healing herself’ (28). Similar cautions can be offered for pandemics and how we must navigate around conspiracy theories and defunding of vaccination programs, but we must admit our errors too.

On the nuclear weapons abolition front, John Burroughs recently wrote that promises about stability in nuclear deterrence are delusional. Stable deterrence, as former Prime Minister Pierre Trudeau once declared, “remains an inadequate concept. And such a concept”, he said, “is a poor substitute for genuine world security.” But, Burroughs continues, while the Treaty on the Prohibition of Nuclear Weapons (TPNW) “is a marvelous statement of the principles” guiding abolition, no nuclear-armed states are signatories and in time they will probably “create their own vehicle,” he concludes. It’s unhelpful, therefore, to tell young people that *the TPNW has banned nuclear weapons!* and then be shocked to find they are now disillusioned, have become wary and cynical, and we lose them as activists. Be absolutely honest: Abolition is tough sledding!

Common Security

To solve global problems - and I’ve mentioned three whoppers -- we must work cooperatively because the solutions can never be narrowly achieved within one idea group, one country or one region. The common security framework is still the best one available even though it has been sidelined and needs to be revived. The number of events here this week that focused on common security - a roundtable, the student essays produced through the Douglas Roche Common Security Project, some of the Pugwash Canada-CIPS sessions - these are evidence that a resurgence is possible and perhaps is now engaged. Canada is getting some

airplay nowadays, too, for standing up to a bully. We must find avenues to get our most urgent causes on this agenda too. Nudging middle powers towards common security arrangements might hold some promise (29).

Imperative Change

Pessimism is about identifying, and generating obstacles, but not removing them. That’s a swamp, and a dead end. On the other hand, you can be either an optimistic realist (a practical person) or an optimistic idealist (a forward-looking person) and get things done; but we need both flavours working together and we need to inspire and encourage far more young people to take over - so that, hands-on, they can more quickly circumvent the inevitable obstacles, and find the required, sustainable solutions.

We know optimists will triumph because optimists believe bad situations are temporary and can be bounced back from ... eventually. And optimism is not just a positive feeling; it is a highly effective strategy for problem-solving when it is based on commitment, factchecking, perseverance, and patience. People may indeed be risk averse and prefer to avoid uncertainty, probably for evolutionary reasons, and because our negativity outweighs our positivity biases. We therefore also tend to choose options with more certain outcomes. This can be why shifting the framework is delayed until a fresh or convincing alternative seems to be not just feasible -- but imperative. Often opportunities arrive unexpectedly, “gradually, then suddenly” as with any number of social and political transitions. This may be because the ground has been prepared in advance. Examples include, as we’ve seen: The global COVID response, and the Reagan-Gorbachev moment. And I’d predict: overdue climate security transformations.

As the President of Finland, Alexander Stubb recently pronounced, there is a stark choice for our planet: “Either a multipolar, transactional and conflictual world where interests drive what you do; or multilateralism which is cooperative, based on



international institutions, norms and rules.” Let’s push together to achieve the second option.

Persist!

Nose to the grindstone, tell the truth as you see it, even when it seems you are all alone. But be willing to learn from mistakes and listen to those contrary views, and to fine-tune your own. Prepare for the unimaginable. These are the conditions that can determine when change happens.

Thank you, to all of you, for what you do, bearing with it, pressing forward to grip the benefits waiting for us. Let us stay the course.

Footnotes

1. Most of those infected exhibited mild or moderate symptoms, about 14% developed severe symptoms, often sorted by age - with the elderly hardest hit. Early variant numbers indicated that while .0004% of infected people under 35 died, 28% of those over 85 did. It is believed that 0.5% to 1% of those considered to have been infected, died (this is known as the IFR, or infection-fatality rate, and includes some who were not symptomatic). Generally, more men died than women (in Europe, 72% were men.) World-wide, officially more than 7 million died according to the WHO confirmed death count. Several aspects of the COVID pandemic experience persist as controversies, including the subjects of origin, school closures versus improved ventilation, mask effectiveness and distancing strategies etc. [Again: trust in our institutions.] Different variants of the virus also had significantly different impacts, which is why infection and death rates changed over time. The Omicron variant by January 2022 constituted about 95% of cases globally, was able to evade early vaccines, but was generally less severe.
2. Typically, vaccines take 10-15 years to develop, although the mumps MMR vaccine took about 4 years.
3. This was not the first time that scientists and their institutes shared their discoveries free of charge. In 1955, Dr. Jonas Salk developed the first successful inactivated polio vaccine. When asked who owned the patent, Salk replied, "**Well, the people, I would say. There is no patent. Could you patent the sun?**" Albert Sabin developed the oral polio vaccine (OPV) and refused to patent it. He famously called it "**my gift to all the world's children**" and insisted that it be mass-produced at the lowest possible cost.
4. This provides great hope through the creation of bacteriophages in our ability to address anti-microbial resistance through precise targeting, but it also has significant risk for biosafety and biosecurity, if misused.
5. See for example: Helge F. Goessling *et al.* Recent global temperature surge intensified by record-low planetary albedo. *Science* **387**, 68-73 (2025). DOI: [10.1126/science.adq7280](https://doi.org/10.1126/science.adq7280) RobertTulip: "There is a compelling argument that **renewable energy makes only marginal real contribution to climate stability**, while crowding out effective responses on both the carbon and albedo fronts."... "Rapid cooling would reduce heat extremes, tipping risks, ecosystem damage and other climate losses during the decades in which decarbonisation produces only a tiny temperature effect. These loss and damage costs and the associated suffering can be mitigated by sunlight reflection, not by decarbonisation." As noteworthy, fossil fuels have reduced from 83% to only 81.5% of global energy consumption from 2005 to 2023. (Robert Chris)
6. In particular: <https://www.tandfonline.com/doi/full/10.1080/00139157.2025.2434494> and <https://academic.oup.com/oocc/article/3/1/kgad008/7335889>
7. In part this is from the reduction of aerosols emitted into the atmosphere, underestimated by the IPCC (shipping fumes, Chinese industrial pollution and Indian biomass burning). In 2023, his co-authored paper [Global Warming in the Pipeline](#), concluded that "global warming will exceed 1.5°C in the 2020s and 2°C before 2050". Required actions include "intervention with Earth's radiation imbalance" to correct for the human-caused geo-transformation. Buck, H.J., Shah, P., Yang, J.Z. et al. Public concerns about solar geoengineering research in the United States. *Commun Earth Environ* **6**, 609 (2025). <https://doi.org/10.1038/s43247-025-02595-5>. Most people recognize there is climate change. There are [encouraging signs](#) that research funding is beginning to flow through US foundations and the UK government, for instance.
8. As for supporting further research into solar geoengineering, about 33% supported it, while 44% were opposed, 23% with no opinion. Only about half of Americans attribute climate warming to human activity. About 59% of Canadians believe this, in a 2026 poll; significantly down from 71% in 2021.
9. There are, of course, some who still think climate change is a hoax. An estimated 15-24% of people globally hold skeptical, or conspiratorial views. Highest levels are in the US and Brazil; lowest levels are in Germany and Morocco.

10. A 2024 report of European Union science advisors (none of whom were climate scientists), called on the EU to “prioritise reducing GHG emissions as the main solution to avoid dangerous climate change”, and to agree to a Europe-wide moratorium on using solar engineering “for the foreseeable future.” They did support a global governance system for future deployment, and ongoing research, including into the “risks and opportunities” of SRM, which should be reassessed, they said, “every five to ten years.” I’m not so sure that indicates a sufficient level of urgency. The majority of environmentalists (including most of those who come readily to your mind) have been opposed to geoengineering, often even research into the potential of necessary albedo restoration technologies. That is not a good sign, but it may be beginning to change because there are also exceptions such as the Environmental Defense Fund (present in 30 countries, with >1000 employees) and the Natural Resources Defense Council.
11. The majority of environmentalists (including most of those who come readily to your mind) have been opposed to geoengineering, often even research into the potential of necessary albedo restoration technologies. That is not a good sign, but it may be beginning to change. But there are also exceptions such as the Environmental Defense Fund (present in 30 countries, with >1000 employees) and the Natural Resources Defense Council.
12. The key tipping points we currently face: Warm-Water Coral Reefs dieback; Greenland and West Antarctic Ice Sheets melting; Permafrost Thaw; Amazon Rainforest Dieback; Atlantic Meridional Overturning Circulation (AMOC) weakening.
13. March 29, 1983. Question and Answer session with Reporters. In Public Papers of the Presidents: Ronald Reagan, 1983, Book 1 page 465. Later, in October of 1983, Reagan in a radio address said: “What I’m speaking of is a balance of safety, as opposed to a balance of terror. This is not only morally preferable, but it may result in getting rid of nuclear weapons altogether. It would be irresponsible and dangerous on our part to deny this promise to the world.”
14. See a comprehensive collection of these statements in Paul Lettow: Ronald Reagan and His Quest to Abolish Nuclear Weapons, Random House, New York, 2005.
15. Someone who appeared to be listening, Jonathan Schell, in his 1984 book “The Abolition” argued that if nations first abolished nuclear weapons, a shared, limited strategic defense shield could safely be built. Schell was a rare journalist/writer who reported on Reagan’s proposal.
16. Lettow, page 165.
17. [March 25, 1983 with reporters; March 29 with reporters; letter to Roy Innis, June 20, 1983; address to the nation, March 23, 1983; letter to Patrick Mulvey, June 20, 1983; confirmed later by Weinberger, May 23, 1990, again August 1, 2001; Poindexter interview August 16, 2001; Deaver interview August 3, 2001; Iklé interview July 24, 2001; Reagan interview with BBC October 29, 1985, foreign broadcasters November 12, 1985; memcons Geneva Nov 19, 20, 1985; Q&A June 13, 1986; Matlock interview Sept 5, 2001; Matlock and Shultz quoted, Adelman interview August 13, 2001; memcon and transcript, Reykjavik, Oct 11, 1986]
18. A few years earlier, in 1978 at the United Nations, Canada’s Prime Minister Pierre Trudeau had launched his own nuclear weapons suffocation strategy. And there followed Trudeau’s peace initiative in 1983-84. These initiatives did not generate the US President’s abolition journey, as far as we know, but they would certainly have reinforced it. As Paul Meyer points out in his 2016 paper, Trudeau felt that the dynamic that drove “strategic superiority over potential adversaries” was just too risky and required “mutual restraint.”
19. Purportedly this was over the word “laboratories” (because Gorbachev would not accept real world testing of strategic missile defences).

20. The next year, in 1987, Gorbachev wrote to Reagan and referred more specifically to “strategic offensive weapons” and “the space problem”, that being the “US attitude to the question of research on strategic defense”, because in his view SDI would give the US capacity for offensive advantage from space. Some have suggested that this was a lost opportunity for clarification from the American side, because Reagan had insisted SDI would be defensive only, and in his letter Gorbachev said “The Soviet Union is ready to make additional efforts” to finding a “fair solution to both these organically interrelated problems.”
21. White House Office of Information and Regulatory Affairs
22. His 2019 book **How Change Happens**
23. Nudges are preferable to coercion (that being: mandates, laws, regulations) because of the perception of free choices, but if this fails to deliver, sometimes mandates are necessary. In those cases, the best way to reduce *reactance* (or negative pushback) is to ensure the best factual information is available, and that leadership exists, is honest, visible and credible. It is this reactance or defiance that Sunstein sees as prevalent in Trump’s presidency, such as in “his attitudes towards immigration, NATO, and the Paris agreement on climate change” (p. 138). Enclaves of like-minded people may be inclined to move positively and shift norms in a welcome direction; they may also be stuck in a variant of group-think that inhibits the emergence of new norms.
24. Roadblocks or misunderstandings can sometimes be resolved with a simple factual explanation.
25. The ICBL was calling for a landmine ban treaty for 2000; Lloyd Axworthy called for one in 1996, and succeeded one year later. Mark Carne in Davos is another example, notwithstanding some of his ambiguous messaging.)
26. See Sunstein, page 263-272. Worse, when factual corrections are made, there is a tendency to double down into our pre-existing silos, rather than to break out of them. However, among the larger obstacles in the path of truth are partisanship and ideological framing - what Sunstein calls “partyism”.
27. Rebekah White: “Failure to communicate: Geoengineering could be crucial in the fight against climate change. But first scientists need to learn how to talk to the public about it.”
<https://www.science.org/content/article/geoengineering-fight-climate-change-if-public-can-convince> doi: 10.1126/science.z0g6jc4
28. In addition, conspiracy theories abound about geoengineering. 28 US states have introduced legislation banning research or deployment. On the other hand, a study at Cardiff University indicates that research into carbon removal in the United Kingdom “consistently finds that no one is entirely opposed to it.” A promising carbon capture technology -- covalent organic framework (COF) -- coming out of University of California-Berkeley is the brainchild of Nobel Prize for Chemistry recipient, and Von Hippel Award Recipient Omar Yaghi - and has some people very excited about the possibility of sucking CO2 out of the ambient air and combining it with artificial intelligence to speed up the design.
29. Canadian Prime Minister Carney has appealed to the embrace of new kinds of multilateralism based on pragmatism and stepping around obstacles injected by large powers disrupting the rules-based or international law-based order. This seemed to have struck a chord. But as our Pugwash Canada colleague, academic Michael Manulak recently wrote, this reconfiguration will not be easy. “Middle powers cannot compel great powers to support their efforts, but neither are they powerless. Focused middle-power engagement could do much to reinforce the UN’s weakened peace and security role.”



Robin Collins has supported disarmament, alternative defence, peace and UN peacekeeping for 35 years through a variety of organizations, including as a chair of Mines Action Canada, and as a co-chair of the Canadian nuclear weapon abolition network CNANW. He is currently secretary of Canadian Pugwash Group and a board member of the Rideau Institute.



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