ROTARY DISTRICT 5440 PEACEBUILDER NEWSLETTER
MARCH 2020 NUMBER 31

NUCLEAR WEAPONS—USE, PROBABILITIES AND HISTORY

William M. Timpson, Robert Meroney, Lloyd Thomas, Sharyn Selman and Del Benson
Fort Collins Rotary Club
Lindsey Pointer, 2017 Rotary Global Grant Scholarship Recipient

In these newsletters of the Rotary District Peacebuilders, we want to invite readers for contributions and ideas, suggestions and possibilities for our efforts to promote the foundational skills for promoting peace, i.e., nonviolent conflict resolution, improved communication and cooperation, successful negotiation and mediation as well as the critical and creative thinking that can help communities move through obstacles and difficulties.

HOW THE MOST VIOLENT OF HUMAN ACTIVITY, A NCLEAR WWIII, HAS BEEN AVOIDED, SO FAR

Robert Lawrence, Ph.D. *is an Emeritus Professor of Political Science at Colorado State University who has written extensively on this issue of nuclear weapons*

Let's play a mind game. Think back in time and pick an actual war, any war. Now imagine you are the leader who began the war. Would you have ordered the attack if you knew for certain that 30 minutes later you, your family, and your people would all be killed. Probably not. Your logic led Presidents Reagan and Gorbachev to jointly declare "a nuclear war can never be won and must never be fought." This is the sine qua non of American and Russian nuclear deterrence policy.

Always before wars made sense to some because they could be won, and there were many winners. How then has this no-win war situation---the first in history-- happened? Because the U.S. and Russia maintain what is called the TRIAD---three separate and independent nuclear weapon delivery systems, each one of which is capable of destroying the other nation in a second strike, a counter-value attack. The key is the pre-and post-launch survivability of the nuclear weapon delivery systems.

Here is how it works. The long range jet bombers can take off with 15-minute warning, or they can be rotated on airborne alert. They carry ALCMs (Air Launched Cruise Missiles) with nuclear warheads which means the bombers need not enter enemy air space. In the case of the U.S. B-2, the plane's skin absorbs radar beams meaning that they can't be detected by radar.

The ICBMs (Intercontinental-range Ballistic Missiles) are either kept underground in steel and concrete silos or on mobile launchers. Once launched their warheads travel at 15,000 miles an hour. The warheads are convoyed by decoys that confuse enemy radar. They will be replaced by hypersonic glide vehicles that are maneuverable and travel 10 times the speed of sound.

The most survivable components of the TRIAD are the SSBNs (Sub-Surface Ballistic Nuclear). These nuclear powered submarines hide beneath the oceans that cover 70% of the Earth's surface. So far ASW (anti-submarine warfare) efforts to find and sink subs has proved ineffective. The subs carry SLBMs (Sub-Launched Ballistic Missiles) that have the same

survivable characteristics as the ICBMs. Fully loaded one U.S. SSBM carries 24 SLBMs, each with ten hydrogen bomb warheads.

Here is another mind game. Imagine you are an American or Russian general. How would you plan an attack which would destroy half of the opposing side's nuclear delivery systems before launch, and the other half once they are launched? So far no one has been able to do that. Therein lies the substance of nuclear deterrence. To repeat Reagan and Gorbachev---the war can't be won, and thus probably won't be fought, unless leaders wish to commit national suicide.

The Americans and the Russians worry about a nuclear war starting because of human, mechanical, or electronic error. Therefor they both have instigated a number of measures to prevent such a catastrophe. There have been some near misses, like the Able-Archer-83 NATO exercise, and there have been a number of "broken arrow" accidents involving nuclear weapons that did not detonate.

Have we and the Russians been really smart, or really lucky, or both?

HO HUM. ANOTHER ATOMIC HOLOCAUST PREDICITON

For nation will rise against nation, and kingdom against kingdom, and there will be famines and earthquakes in various places; all this is but the beginning of the sufferings. Matthew 24:7-8

Robert N. Meroney, Ph.D. *is a Rotarian and an Emeritus Professor of Fluid Mechanics and Wind Engineering with a long career at Colorado State University*

People have been predicting the "End of the World" by nuclear holocaust now for 75 years. Less than 10% of the world's population and less than 20% of the United States population were born before the end of World War II in 1945. Although most people have lived with the eminent prediction of nuclear death by prophets of doom all their lives, most have never experienced concerns about fall-out-shelters, storing civil defense supplies, periodic air raid warnings, radiation badges, or even radio disaster warnings. Is it any wonder that the public is unable to generate much enthusiasm for the subject?

People are so convinced a holocaust will happen and nothing can prevent it that post-apocalyptic and dystopian literature has become popular (especially among many youths, e.g. the *Black Tide Rising* series by John Ringo).1

Strikingly, some of the strongest warnings about nuclear war arose from the scientists and researchers who initiated the Nuclear bomb race. Albert Einstein and Leo Szilard drafted the letter alerting President Franklin D. Roosevelt to the dangers of Nazi Germany development of a new extremely powerful bomb in 1939. The letter resulted in the Manhattan project, the development of the nuclear bomb, and the attacks on Hiroshima and Nagasaki, Japan. Yet both later declared that they regretted its development and use. 2

At the end of the war, Einstein spoke out against nuclear strikes on Japan, arguing they were unjustified and motivated by US-Soviet politicking. Einstein was purported to say at a dinner

party in 1947: *"I do not know with what weapons World War III will be fought, but World War IV will be fought with sticks and stones."* He told Newsweek magazine in 1947 that "*had I known that the* 2 *Germans would not succeed in developing an atomic bomb, I would have done nothing."*

Leo Szilard drafted a petition signed by 70 scientists working on the Manhattan Project in July 1945 asking President Truman to not use the bomb on civilian populations in Japan without warning but provide a demonstration elsewhere and give Japan a chance to accept terms of surrender demanded by the allies. The petition never made it through the military chain of command, was classified, and was not declassified until 1961. In reaction to the petition, the military arranged for most of the signers to lose their jobs in weapons work.3

Szilard was devastated and the rest of his life regretted being trained as a physicist. In the 1950s Szilard warned that a deliberate "doomsday device" could be constructed by surrounding a hydrogen bomb with cobalt. Cobalt has a half-life of five years, and the global fallout, would be able to clear out all human life via lethal radiation intensity.4

Similarly, their peer John Von Neumann, computer pioneer, was "absolutely" certain that there would be a nuclear war, and everyone would die. Even massive estimates of damage have not made much impact on public conscience. In 1979 a U.S. Senate report estimated that a full-scale nuclear exchange between the U.S. and the Soviet Union, would cause death of 35 to 77 % of the population in the U.S. and 20 to 40% of the population in the Soviet Union. In 1982 the World Meteorological Organization estimated a nuclear war would quickly kill half the Earth's population. From a high of 70,300 active atomic weapons, it is now estimated that there are about 13,800 nuclear warheads in the world (but many decommissioned weapons are simply in storage.)

Isn't it obvious that trying to juggle of the order of 10,000+ active nuclear warheads in the world can only statistically lead to an incident at some point? If one adds the other weapons of mass destruction like biological and chemical devices, a pessimist will argue an eventual catastrophic release is almost a certainty. Since 1950 there have been 32 nuclear weapons accidents (Broken Arrows) and 6 weapons have been lost and never recovered.5

Then there are the weapon program accidents associated with research, manufacture, transportation, and maintenance.6
Taking all this into account, John Leslie, William Poundstone, and other scientists have projected that mankind has only a 50% chance it will survive another 760 years, less than 95% chance it will survive more than 5100 years, and less than 97.5% chance of lasting more than 90,000 years.7, 8

A model for the probability of nuclear war was distributed in 2018. Given an annualized rate of incidents (accidents, 3 face-offs, terrorists) of 0.1 the probability of a nuclear war in the next century is 100%, and even for an annualized incident rate of 0.01 there is a 63.2% chance of nuclear war in a century.9

On January 23, 2020, the *Bulletin of the Atomic Scientists, (BAS)* which was founded by workers on the Manhattan Project in 1947 and includes 13 Nobel Laureates on the board, Ban Ki-Moon, former United Nations secretary-general, and William Perry, former US Secretary of Defense under President Bill Clinton and currently Chair of the BAS, announced that he had moved the Doomsday Clock setting to 100 seconds before midnight.10

It is the closest to Doomsday the Clock has ever been since 1947! They also issued these statements:

- *"Humanity continues to face two simultaneous existential dangers—nuclear war and climate change—that are compounded by a threat multiplier, cyber-enabled information warfare, that undercuts society's ability to respond. The international security situation is dire, not just because these threats exist, but because world leaders have allowed the international political infrastructure for managing them to erode."*

- *"We share a common concern over the failure of the multilateral system to address the existential threats we face. From the US' withdrawal from the Paris Agreement and the Iran nuclear deal, to the deadlock at nuclear disarmament talks and division at the UN Security Council -- our mechanisms for collaboration are being undermined when we need them the most."*

- *"On the nuclear threat, we've seen unprecedented brinksmanship over the past 12 months by half a dozen nations, the termination of major arms control agreements, a dizzying proliferation of nuclear weapons, and an unsettling amount of loose talk about the mistaken idea that limited nuclear warfare is somehow possible or 'winnable.'"*

If these stark predictions do not convince, perhaps the drawings produced by the cartoonist/artist Basil Wolverton for evangelist and cult leader Herbert W. Armstrong to illustrate the apocalyptic end of the world predicted in Revelations will catch your attention. Wolverton produced 16 disturbing grotesque scenes of horror and destruction in which he interpreted words of verses in Revelation as an outcome of nuclear war.

- *"The first angel sounded his trumpet, and there came hail and fire mixed with blood, and it was hurled down upon the earth. A third of the earth was burned up, a third of the trees were burned up, and all the green grass was burned up." Revelation 8:7*

- *The fifth angel poured out his bowl on the throne of the beast, and his kingdom was plunged into darkness. Men gnawed their tongues in agony and cursed the God of heaven because of their pains and their sores, but they refused to repent of what they had done." Revelation 16:10-11*

When it comes to world holocaust risks, I'm pretty sure there are really only three types of people. Those who believe we're buggering things up, those who don't believe we're buggering things up, and those who don't know (and maybe don't give a toss) either way. In a probably ill-fated attempt to remind others that we have an obligation to our children, grandchildren, and

other earth inhabitants, I decided to share another "wake-up-call" essay with you all. No doubt it will go into the trash with other boring spam. Oh well.

1. John Ringo, Wikipedia, https://en.wikipedia.org/wiki/John_Ringo
2. Jim Green, Albert Einstein on nuclear weapons, *Nuclear Monitor* Issue #802, Number 466, 23/04/2015 https://www.wiseinternational.org/nuclear-monitor/802/albert-einstein-nuclear-weapons
3. Szilard petition, *Wikipedia*, https://en.wikipedia.org/wiki/Szil%C3%A1rd_petition
4. Nuclear Holocaust, Likelihood of complete human extinction, *Wikipedia*, https://en.wikipedia.org/wiki/Nuclear_holocaust#Likelihood_of_complete_human_extinction
5. List of nuclear weapon accidents: http://www.atomicarchive.com/Almanac/Brokenarrows_static.shtml
6. List of nuclear accidents during development: https://en.wikipedia.org/wiki/List_of_military_nuclear_accidents
7. John Leslie, The End of the World: The Science and Ethics of Human Extinction, Routledge, London, 1996, 310 pp.
8. William Poundstone, 'Doomsday' Math Says Humanity May Have Just 760 Years Left, Wall Street Journal, June 27, 2019, or The Doomsday Calculation: How a Formula that Predicts the Future is Transforming Everything We Know About Life and the Universe, Little, Brown Spark, 2019, 320 pages.
9. Baum, Seth and de Neufville, Robert and Barrett, Anthony, A Model for the Probability of Nuclear War (March 8, 2018). Global Catastrophic Risk Institute Working Paper 18-1. Available at SSRN: https://ssrn.com/abstract=3137081 or http://dx.doi.org/10.2139/ssrn.3137081
10. 1Ban Ki-Moon et al., Why the world is closer than ever to Doomsday, CNN Opinion, January 24, 2020 https://www.cnn.com/2020/01/24/opinions/doomsday-clock-emergency-moon-robinson-brown-perry

LEARN FROM BIG BANG THEORY, BIG BANGS ON EARTH, NUCLEAR BANGS, AND ALTERED ANIMAL ADAPTATIONS

***Del Benson**, Ph.D. is a Professor and wildlife specialist for Extension at Colorado State University. His work is with wildlife and recreation enterprises on private land, conservation education, hunter attitudes and behavior, public input to resource management decision making and campus environmental management.*

The "Biggest of Bangs" that created our universe and planet was active for over 14 billion years. It resulted in the cosmos and our relatively insignificant earth systems containing a climate that supports plants, animals and humans with life forms and functions that we should not take for granted today (https://www.space.com/25126-big-bang-theory.html). Changes continue, but are relatively smaller.

A comet, around 66 million years ago that was 7 to 50 miles in diameter, plunged to earth with a Big Bang on the Yucatan Peninsula. It sent debris into the cosmos, covered the earth with an iridium layer, disrupted climate, eliminated all non-avian dinosaurs, and about 75% of all

species on earth went extinct (https://www.newyorker.com/magazine/2019/04/08/the-day-the-dinosaurs-died).

We know the story only from fossils and paleontology studies, because humans had not entered the animal world. Food chains in the sea and on land collapsed, tropics converted to ice, and new forms of life evolved to cope with changed environments. Humans evolved in the new world about 66 million years ago also. Humans decided to make and use a new Big Bangs!

Unlike other forms of animals, humans can think about the future and act accordingly. They dropped nuclear bombs on Japanese cities of Hiroshima and Nagasaki in 1945 killing between 129,000 and 226,000 persons. The blasts and radioactive fallout caused other injuries, illnesses, and altered landscape production, leading to human malnutrition and untold consequences for plants and animals downwind: https://en.wikipedia.org/wiki/Atomic_bombings_of_Hiroshima_and_Nagasaki.

Nuclear Big Bangs effectively ended World War II, but left the world's people with anxious fears about personal survival from nuclear destruction and radioactive fallout from bombs and accidents at nuclear power facilitates. Nuclear Big Bangs were supposed give reason to end all wars…but did they? Nuclear uses are totally within human control unlike the other Big Bangs; thus, people must decide how to use nuclear energy, not to use it, and how they might adapt to catastrophic events that could happen.

Other animals are not able to anticipate how they will adapt to nature; rather, they must evolve with genetic and behavioral changes that fit new situations…natural selection…if they can and if time allows. The fit survives if there is time to physically adjust genetic and behavioral capabilities. Adaptive genes are selected and passed on to others of the species to fit the new situations better. Unadaptable genes will not survive, and life perishes. Plants and animals, prey and predators also adapt behaviorally! If consequences and adaptations are not too drastic, then life forms might continue to succeed. Big Bangs, whether natural, nuclear, or human-caused climatic changes are not good for life as we know it.

Humans can plan ahead, and they must be thoughtful enough to prevent unnecessary, unintended and dire consequences from their actions. "Big Bangs" remove options! Human caused Big Bangs are dangerous. Humans can only adapt to changes in relation to earth systems that might be unforgiving. Civil discourse, thoughtful actions, and sincerely caring about people and the planet are imperative. Listening, empathy, planning, and ethics toward lands and peoples should replace human "Big Bangs"! Nature seems to always provide important messages to learn and share…if we listen.

DO NUCLER WEAPONS REALLY DETER VIOLENCE?
WHAT RESTORATIVE JUSTICE CAN TEACH US

Lindsey Pointer, *PhD in Restorative Justice at Victoria University of Wellington, is a past recipient of the Rotary Global Grant Scholarship. She works as a restorative justice facilitator, trainer and researcher.*

Central to the nuclear weapon strategy of all countries that possess them is the idea of deterrence. The theory is that attacks will be deterred through the threat of catastrophic

retaliation and peace and stability will arise through this awareness of mutually assured destruction. As Winston Churchill described in 1955, “Safety will be the sturdy child of terror, and survival the twin brother of annihilation.”

This reasoning for possessing nuclear weapons is almost taken for granted. The deterrence reasoning is also remarkably similar to the theoretical underpinnings of the mainstream criminal justice system, which has long claimed that the threat of punishment will deter people from committing crimes. However, as I’ve described in a previous newsletter (#19), research has shown that punitive sanctions, or the threat of punitive sanctions, actually rarely lead to the decision to desist from crime.

What does work to deter violence is the cultivation of healthy relationships and the development of understanding and compassion. We see it again and again in the restorative practices field in the criminal justice system, schools, workplaces, churches, and neighborhoods. When people take the time to listen to each other, to understand each other’s perspectives and speak honestly and opening about their needs and experiences, violence decreases and peace and stability grow.

This is, of course, more difficult to achieve on an international scale, but particularly with the growth of technology that makes communication across the planet as seamless as calling your next door neighbor and more and more people traveling and getting to know other places and people, those relationships of mutual understanding and positive regard are increasingly possible.

PREVENT CATASTROPHE AND BUILD A CAPACITY FOR PEACE

***William M. Timpson**, Ph.D. is a professor at Colorado State University in its School of Education and a member of the Fort Collins Rotary Club. What follows is adapted from his 2009 book, 147 Tips for Teaching Peace and Reconciliation, co-authored with an international group of peace scholars that included Ed Brantmeier, Nat Kees, Tom Cavanagh, Claire McGlynn and Elavie Ndura (Madison, WI: Atwood).*

In an editorial for the *International Herald Tribune,* South African Bishop Desmond Tutu (2008) argued for both proactive intervention and prevention “when a government is unwilling or unable to stop mass atrocities being committed within its borders?” Could this same logic and call to action be applied to the threat of catastrophe should a nuclear war be triggered?

Tutu writes: “The Universal Declaration was adopted in the aftermath of World War II, the Holocaust and the use of nuclear weapons. World opinion came together then to say, ‘never again.’ Yet in the past six decades, we have witnessed mass atrocities committed against others across the globe. We all share a responsibility to do whatever we can to help prevent and protect one another from such violence.

The place to start is with prevention: through measures aimed in particular at building state capacity, remedying grievances, and ensuring the rule of law. My hope is that in the future, the *Responsibility to Protect* will be exercised not after the murder and rape of innocent people, but when community tensions and political unrest begin. It is by preventing, rather than reacting,

that we can truly fulfill our shared responsibility to end the worst forms of human rights abuses."

Could Tutu's focus on prevention, planning, communication and cooperation be used to "reverse the doomsday clock" in its move toward midnight and disaster, i.e., when a nuclear exchange and/or climate change pushes the earth toward catastrophe?

The University of Ngozi in Burundi, East Africa has a very special, albeit tenuous, position in the world. It may be the only university with peace and reconciliation as the very first, foundational commitments in its mission followed soon thereafter with a commitment to sustainable development.

The only comparable university we know of is the University of Peace in Costa Rica. Established by a vote of the United Nations it has subsidies that the University of Ngozi (UNG) does not enjoy and that is significant. Perhaps this campus, with the clarity of its commitment to peacebuilding, can help prompt a new discussion of global security in an era of nuclear weapons.

In many ways this example parallels what happened in Japan after World War Two as it was emerging from the devastation of atomic bombs that were dropped on Hiroshima and Nagasaki and sparking a deep national clarity about peacebuilding.

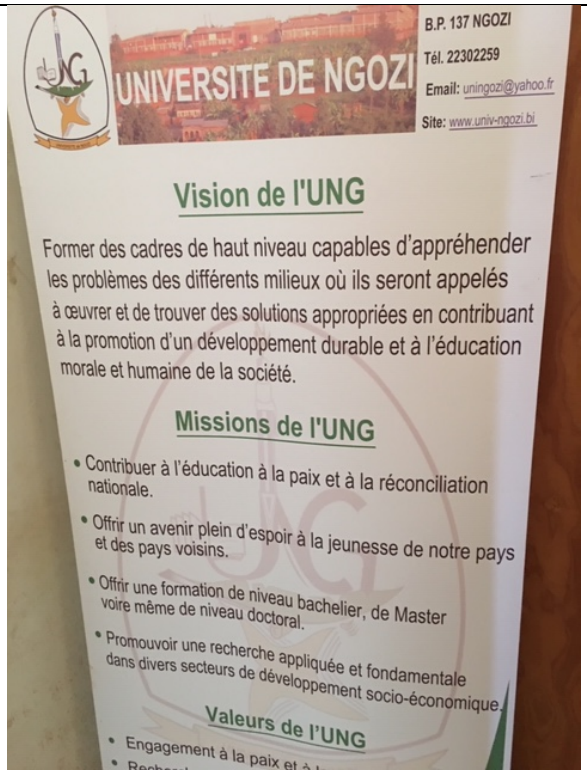
The story of the commitment to peace in Burundi is all that more remarkable because it arose out of the burning horrors of a devastating civil war raging in this already impoverished post-colonial legacy. It arose before the Arusha Peace Accords were signed, a commitment by the people of the Ngozi region to "wage war against war."

These peacebuilders went door to door to ask for household contributions. They also got some initial funding from the Catholic Church although the founders were clear about being "ecumenical" and serving all faiths. UNG also got the use of a small campus-like space from the city of Ngozi.

VISION OF THE UNIVERSITY OF NGOZI:
To train high level executives capable of understanding the problems of the different environments where they will be called upon to work and find appropriate solutions by contributing to the promotion of sustainable development for moral and human education in society.

MISSION OF THE UNIVERSITY OF NGOZI

- Contribute to education for peace and national reconciliation.
- Offer a hopeful future to the youth of our nation and neighboring countries.
- Offer a bachelor's master's or even doctoral level training.
- Promote applied and fundamental research in various sectors of socio-economic development.



Describe a conflict that has impacted your school, organization, family or community. What prevention efforts and "capacity building" would have made a positive difference? What more could schools and universities do in your area to promote peacebuilding in this era of nuclear weaponry?

PRIORITIES OF THE ROTARY FOUNDATION

See the RI website: https://my.rotary.org/en/learning-reference/about-rotary/our-priorities If you would you like to respond to one of the pieces in this newsletter, check out our blog www.rotarypeacebuilder.com and join the conversation! If you would like to contribute to a future newsletter, visit www.rotarypeacebuilder.com/submit/. Future issues may explore the following: APRIL—(Meroney) **The use of music and art by proponents of peace;** MAY--(Timpson) **Interconnections between peacebuilding and climate change (sustainability);** JUNE--**National elections and their influence on war and peace;** JULY—(Thomas) **Human diversity and leadership skills for peacebuilding**.