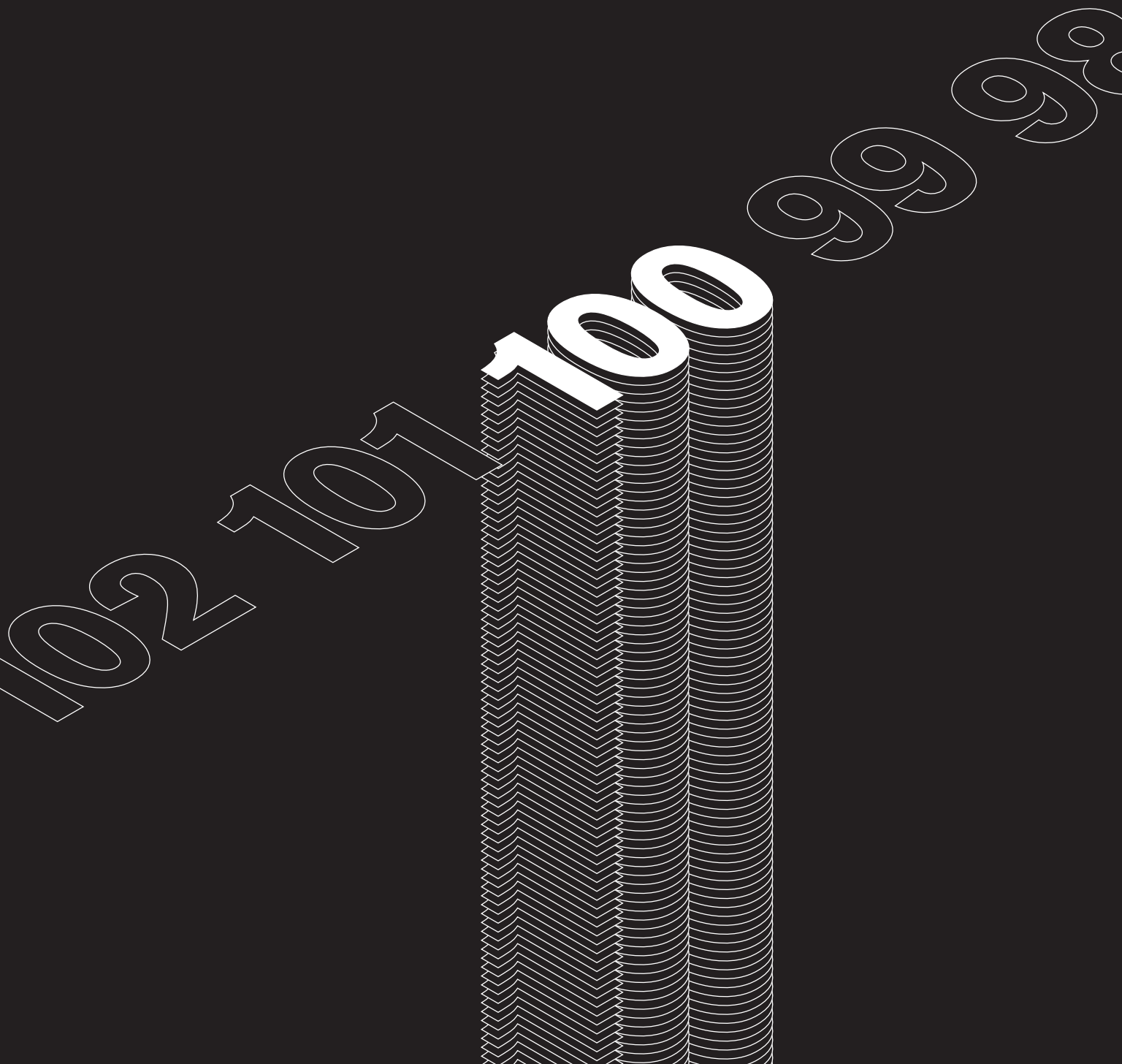


**Bulletin
of the
Atomic
Scientists**
2021 Annual Report
100 seconds to midnight



Bulletin of the Atomic Scientists

2021 Annual Report

100 seconds to midnight

The Mission

At our core, the Bulletin of the Atomic Scientists is a media organization, publishing a free-access website and a bimonthly magazine. But we are much more. The Bulletin's website, iconic Doomsday Clock, and regular events equip the public, policymakers, and scientists with the information needed to reduce man-made threats to our existence. The Bulletin focuses on three main areas: nuclear risk, climate change, and disruptive technologies. What connects these topics is a driving belief that because humans created them, we can control them.

The Bulletin is an independent, nonprofit 501(c)(3) organization. We gather the most informed and influential voices tracking man-made threats and bring their innovative thinking to a global audience. We apply intellectual rigor to the conversation and do not shrink from alarming truths.

01	From the Executive Chair
02	From the President & CEO
04	From the Editor-in-Chief
05	@thebulletin.org
10	The magazine
11	Bulletin books
12	The Leonard M. Rieser Award
14	Board Fellows
15	Editorial Fellows
16	Conversations before midnight
17	Virtual programs
18	Bulletin brand
19	Board and staff honors
20	Philanthropy
22	In memoriam
24	Donor appreciation list
28	Financial update
29	Leadership and staff

From the Executive Chair

Edmund G. Brown Jr.



We demand that our leaders rise to the occasion, overcome their acute nationalism, and come together to make a world that's safer, saner, and sustainable.

For decades, the Bulletin has sounded the alarm.

When a group of the world's most prominent scientists comes together and warns us that we're on "the doorstep of doom," we should stop, listen, and wake up.

This year, the Bulletin of the Atomic Scientists' Science and Security Board—with its Board of Sponsors, which includes 11 Nobel laureates—set the iconic Doomsday Clock at 100 seconds to midnight for the third year running. This remains the closest we've come to calamity since the clock was first set 75 years ago.

The danger stems from: the massive volume of greenhouse gases warming the atmosphere; a range of disruptive technologies, including increasingly sophisticated cyber weapons; deadly pandemics and the growing technical capacity for biothreats; and the continuing danger of nuclear miscalculation or blunder. All of these are compounded by the accelerating spread of disinformation that undermines basic trust in democratic institutions.

So the time to avert catastrophe is now by recognizing the stark vulnerability that the people of the world share. We demand that our leaders rise to the occasion, overcome their acute nationalism, and come together to make a world that's safer, saner, and sustainable.

In July 1955, two of the twentieth century's deepest thinkers, Albert Einstein, who helped found the Bulletin, and Bertrand Russell issued their own call to the governments of the world, imploring them "to learn to think in a new way." They said:

We are speaking on this occasion, not as members of this or that nation, continent, or creed, but as human beings, members of the species Man, whose continued existence is in doubt...We shall try to say no single word which should appeal to one group rather than to another. All, equally, are in peril, and, if the peril is understood, there is hope that they may collectively avert it...There lies before us, if we choose, continual progress in happiness, knowledge, and wisdom. Shall we, instead, choose death, because we cannot forget our quarrels? We appeal as human beings to human beings: Remember your humanity, and forget the rest. If you can do so, the way lies open to a new Paradise; if you cannot, there lies before you the risk of universal death.

For decades, the Bulletin has sounded the alarm. It's never too late to listen, heed the warning, and turn back the clock.

Edmund G. Brown Jr.

From the President & CEO

Rachel Bronson



The year 2021 was a tough one.

The cataclysmic events of 2020—the onset of COVID, massive wildfires and unprecedented flooding, huge investments in nuclear weapons, and disinformation perpetuated willfully by leaders—hovered. They embedded in the global conversation and became part of the political furniture.

If the Bulletin didn't exist, we would have to create it. Never has it been more important to manage “the dangerous presents of Pandora's Box of modern science,” as our founder Eugene Rabinowitch described our mission.

The Bulletin is growing and strengthening to respond to today's disquiet. We continue to question whether the more than 1.2 trillion dollars that the United States intends to spend over the next thirty years for nuclear modernization is keeping us safe. That jaw-dropping amount doesn't include the billions being spent around the world on new nuclear arsenals. Collectively, we continue to spend 21st century resources on 20th century weapons. It is a failing strategy.

At the Bulletin, we are also shining a spotlight on how climate change could make billions of dollars being invested in infrastructure totally irrelevant. We are highlighting AI algorithms that perpetuate bias. We are driving

a discussion on biosecurity and about how ill-prepared we are to manage coming challenges.

In 2021, the Bulletin's audience of 4.4 million unique visitors topped last year's record-breaking number. Around the world, people want to know what our experts are saying. Thousands signed up for the Bulletin newsletter, inviting us into their in-boxes twice a week. Bulletin articles are cited in influential media outlets and on newer social media platforms.

We are seeking new ways to engage audiences looking for exactly the content the Bulletin is best known for—cutting edge work at the seams of science and policy. Our monthly virtual programing draws participants from around the world—citizen activists, scientists, students, government representatives, musicians, engineers, and those who are similarly curious.

We are broadening the pool of Bulletin contributors, ensuring that our writers reflect the diversity of our audience, nearly 50 percent of whom come from outside the United States, and almost half of whom are under 35 years of age. Our new Editorial Fellows program includes, among others, a soon-to-be professor in the UK and a free-lance journalist in India. It includes a doctoral candidate from Notre Dame and another

from Howard University. One of the fellows translates his work so that he can directly engage his large Spanish-speaking following.

The topics we cover have large and often competing constituencies, and there are few easy answers to the questions we ask. It is our intent to publish the best thinking on our topics, and to help shape and inform the public debate. If a position is well-argued, well-sourced, and well-defended, you can expect to find it published at the Bulletin. This is true even if doing so leads us into controversy, perhaps especially then.

We can't do what we do without your ongoing support—your time, talent, and treasure. We are grateful that you come to our site and that you engage in our work. We are grateful that you send us your ideas and point us to new important work and contributors. We are grateful that you make contributions at all levels to the Bulletin. I hope you can see in the pages that follow how your increased support is being used responsibly.

2021 was a tough one. Let's make 2022 safer, so that next year's message is brighter.

Gratefully and respectfully,

A handwritten signature of Rachel Bronson in cursive script.

Rachel Bronson

**“It is time
for all to
take the
actions
needed to
—quite
literally—
save the
world.”**

From the Editor-in-Chief

John Mecklin



A year of expanded impact and extraordinary journalism

The Bulletin continued to grow on multiple fronts in 2021, surpassing its previous readership record (set in 2020) and publishing an impressive array of investigative journalism and expert analysis across our coverage areas. As the Bulletin's website drew 4.4 million unique visitors last year, one major story—veteran science writer Nicholas Wade's authoritative essay, "The origin of COVID: Did people or nature open Pandora's box at Wuhan?"—changed the international conversation about the COVID-19 pandemic in profound ways. Wade's essay assembled disparate facts from many sources, some highly technical, to explain why a leak from a Chinese biological research laboratory was a viable hypothesis for the origin of the SARS-CoV-2 virus that causes COVID-19.

Few media efforts have produced the truly extraordinary impact of Wade's article. Before the Bulletin article appeared, a lab leak was a discredited conspiracy theory; afterward, it was a possibility to be seriously considered alongside the previously dominant theory that the pandemic started when a coronavirus passed naturally from bats to people. The article received over 1.5 million pageviews on the Bulletin's site, and just 20 days after its publication, President Biden ordered a US intelligence community investigation into the origins of pandemic, specifically including the possibility that it leaked from a lab.

Two valid hypotheses for the origin of the COVID-19 pandemic are on the table and will doubtless remain so for some time. Whether or not experiments being conducted in Wuhan were the source of a COVID-19 virus that somehow escaped the laboratory, it's greatly in the public interest for such a possibility to be explored.

From the moment I read Wade's essay, I saw that it opened a window into a world that the Bulletin had already probed but that needed further exploration. Publication of Wade's essay, I believed, would open the world's eyes to a danger that many media outlets had been disregarding. I was right. Seldom in the history of journalism has the global impact of a single story been clearer.

The Bulletin of course published many other quality articles last year, including three major examples of the deeply researched and finely crafted long-form journalism that has become a Bulletin hallmark. In "Why is America getting a new \$100 billion nuclear weapon," Bulletin contributing editor Elisabeth Eaves traveled across the United States to better understand all the reasons—historical, political, and to a significant extent economic—behind the United States' decision to build a new intercontinental ballistic missile, the ground-based strategic deterrent, or GBSD. One of her top-line findings: Many people in the states where the new missile will be built and based see it as an economic lifeline, and their elected officials are trying to deliver jobs in a political environment that has been hostile to government spending on anything but defense.

Alex Wellerstein is one of America's foremost nuclear historians, and his in-depth piece, "An unearthly spectacle," reveals the previously untold story of the world's largest nuclear bomb, the Soviet Union's Tsar Bomba. Publicly, the United States dismissed the 1961 above-ground test of this gigantic bomb (its yield was 50 megatons, or more than 3,300 times the power of the atomic bomb that leveled Hiroshima) as a stunt.

But behind the scenes, America was working to build a "superbomb" of its own, Wellerstein wrote, in "a potent example of how nationalism, fear, and high technology can combine in a fashion that is ultimately dangerous, wasteful, and pointless."

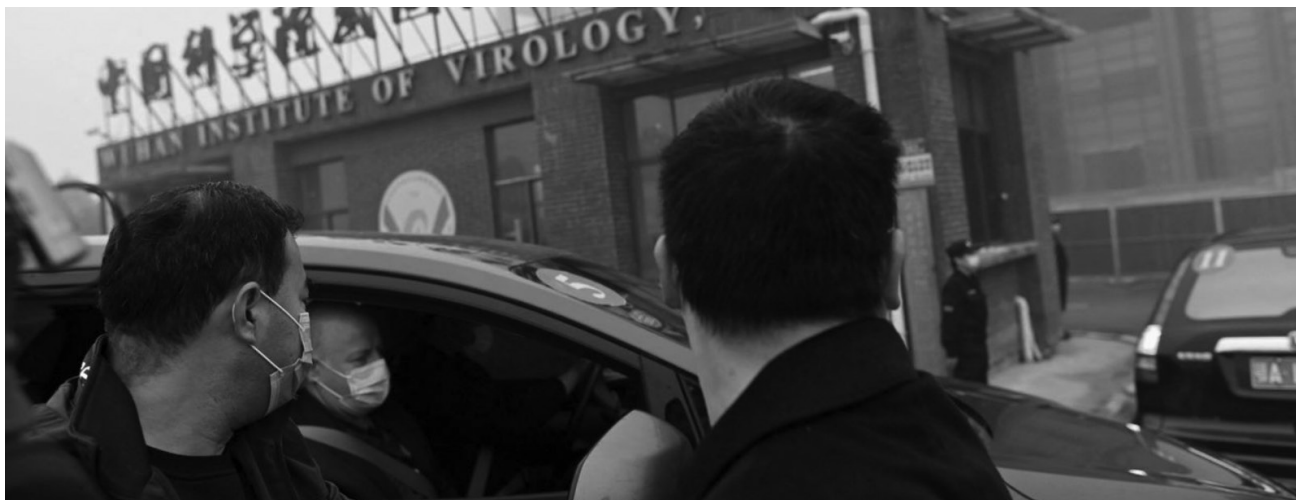
And in December, we published "Gathering storm: The industrial infrastructure catastrophe looming over America's Gulf coast," an investigation by award-winning New Orleans journalist Tristan Baurick. In collaboration with MIT, Baurick analyzed authoritative governmental and private-sector databases and found that almost 4,900 sites that handle toxic chemicals sit in flood-prone areas of Texas and Louisiana, posing a catastrophic environmental threat if a major hurricane—of the kind climate change makes more likely—hits the wrong place. The government's current plan to protect Gulf Coast infrastructure from hurricanes—the \$29 billion Ike Dike—will not stand up to major storms, Baurick's exhaustive investigation shows.

So let me end by summarizing the incredibly good Bulletin news: In an era when many media outlets are under enormous financial pressure, scaling back their editorial staffs and far too often closing their doors, the Bulletin of the Atomic Scientists is thriving. There are a lot of reasons for our success, but all of them lead back, directly or indirectly, to you, our supporters, who believe in our mission and provide the means to carry it out. With your continued backing, we will find new and powerful ways to tell the stories of humanity's most important and interesting pursuit: survival.

John Mecklin

@thebulletin

Investigative journalism and expert analysis



Members of the World Health Organization (WHO) team investigating the origins of the COVID-19 coronavirus arrive by car at the Wuhan Institute of Virology on February 3.

We are coming off three blockbuster website traffic years—including 2020 and 2021, which were driven by COVID-19 coverage. We saw nearly 4.8 million pageviews in 2019, topped by 7.4 million pageviews during 2020's pandemic year. Understandably, with a somewhat slower news cycle, traffic has stabilized in 2021—but we're still in record-breaking territory.

As Editor-in-Chief John Mecklin stated, the impact of two pieces by Nicholas Wade in 2021 on COVID-19 has been outsized, ever since the first was published in early May, with countless publications—such as mainstream legacy newspapers like *The Washington Post* and *Wall Street Journal* and web-native outlets like Axios and Vox—linking to it.

Along with the Wade pieces, we have published articles that reflect a range of other views on the origins of the pandemic, including a lengthy essay reporting on science in today's hyperpolitical environment, written by Science and Security Board member Herb Lin, with the concurrence of other board members.

The evidence of the Bulletin's growing reach, however, is not confined to one story. Overall, more than 3,000 sites referred readers to Bulletin content since the start of January.

As has long been the case, a major chunk of our traffic was driven by the search giant Google, but below that, many of the top traffic sources were social media sites, including industry giants Twitter and Facebook and specialized aggregating sites like Reddit, SmartNews, and Hacker News.

The Bulletin continued to gain referral traffic from web-native news sites like vox.com and vice.com and authoritative

legacy media—including *The New York Times*, NPR, *The Washington Post*, *The Guardian*, and the BBC.

As usual, a wide range of prominent think tanks and public interest foundations referred traffic to thebulletin.org, including Ploughshares, the Federation of American Scientists, the Council on Foreign Relations, and Harvard's Belfer Center for Science and International Affairs.

The full stories, and much more, are always available at the Bulletin website: thebulletin.org. A small sample of the top features in our three subject areas follows.

2021 by the numbers

4.4 million
website visitors

7.8 million
page views

45%
from outside U.S.

44%
under age of 35

+7%
Twitter followers

Launched new
TikTok account

Addressing facial recognition as a law enforcement AI tool

University of Notre Dame analyst and Bulletin Editorial Fellow Trenton Ford described the urgent need to assess the expanding use of artificial intelligence, namely facial recognition, by police departments to aid crime fighting.

Among these AI technologies, facial recognition technology is arguably the most troubling. Studies have documented the racial and gender biases of these systems, and unlike with fingerprint or DNA-analysis algorithms, police are using facial recognition in the field to make on-the-spot decisions.

Police are using facial recognition in the field to make on-the-spot decisions.



Safer indoor air

In "Air Quality Surveillance and Control: How to Improve the Response to All Respiratory Diseases, COVID-19 Included," Laura Kahn, a physician and policy researcher at Princeton University, argued that it's time to improve national and global capabilities to prevent the spread of all respiratory pathogens. Kahn, a respected expert on public health crisis management, maintains that governments around the world need to support better surveillance, improved vaccines, reduced vaccine hesitancy, and safer indoor air.

Monitoring misuse of facts

In another COVID-19 article, with a different and unsettling angle, "Disinformation Watch: How a Bulletin Story About Self-Spreading Vaccines Was Used in Anti-vaxxer Propaganda," Editor Matt Field called out anti-vaccine websites that were attempting to misuse the Bulletin's work. Unfortunately, the Bulletin's future seems likely to include the continued policing of disinformation efforts that use the Bulletin work illegitimately.

The drone threat to infrastructure

The FBI recently revealed an attempted drone attack on the American electric grid, via an electrical substation in Pennsylvania. The 2020 attack failed, but a blueprint for trouble remains, according to Zachary Kallenborn, an unconventional weapons expert. Risks to critical infrastructure are growing as terrorists increasingly adopt drones as an attack vehicle.

Worried about the autonomous weapons of the future?

Weapons with a lot of autonomy have been deployed before. In "Look at what's already gone wrong," experts Ingvild Bode and Tom Watts used some of those experiences to illuminate the terrifying ways future autonomous weapons could fail.



Understanding nuclear war probability

In “An Existential Discussion: What Is the Probability of Nuclear War?” Associate Editor Susan D’Agostino persuaded two recipients of the Turing Award (sometimes called the Nobel Prize of computing), Martin Hellman and Vint Cerf, to engage in a fascinating debate: Should the US National Academies use quantitative methods to assess the probability of nuclear war and nuclear terrorism? Cerf, the “father of the internet” and Hellman, “father of public key cryptography” agree that the US needs to understand the risk of nuclear war. However, they disagree about the best means for understanding that risk.

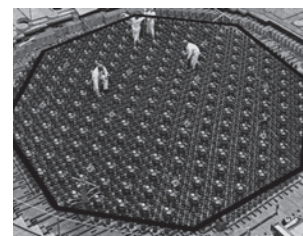
Balancing power through alliances

Bulletin Editorial Fellow Lauren Sukin, who is also a MacArthur Nuclear Security Postdoctoral Fellow at Stanford, warns in “How Biden Can Improve European Relations While Pivoting to Asia” that the United States

cannot succeed alone. Incorporating allies and partners—including those in Europe—in the planning, negotiating, and implementation stages of its efforts to manage threats from China will be critical, she maintains.

Rebranding Chernobyl

Julian Hayda, a journalist, multimedia producer, and community convener based in Chicago and Kyiv, filed a story about how 20 employees at Banba, a design agency located about two hours north of Chernobyl, created a visual brand for Chernobyl and its legacy. The new logo is really a series of 78 logos—one released every year between 1986 and 2064—representing the 78 years during which the Ukrainian government hopes to dismantle and dispose of the power plant entirely. Roughly 55 percent of the octagon logo remains visible for 2021, the missing pieces radiating from the center. Next year, only 53% of the visible portion will remain.



Top: ICBM at the Military-historical Museum of Artillery, Engineer and Signal Corps in Saint Petersburg; middle: animation depicting the full 78-year transformation of Chernobyl's new official logo; bottom: the octagonal shape of the doomed nuclear reactor inspired Banda's design for a new logo.



So close— and yet so, so far.

In August 2018, outside the Swedish parliament building, Greta Thunberg started a school strike for the climate.

COP26 highlights an infuriating, depressing, miserable situation. And yet...

So close—and yet so, so far, is how Adam Sobel, professor at Columbia University's Lamont-Doherty Earth Observatory and Engineering School summed up COP26, the United Nations climate conference that took place in Glasgow. "And of all the emotional responses I have, the most acute is sadness. Sadness that, to the extent that we can allocate blame to individual nations, my own, the United States, deserves so much of it," he said.

Do TV meteorologists influence the public's views on climate?

Television weathercasters are more than local news celebrities. They are broadcast meteorologists, generally trusted sources of information, according to John Morales, who is an atmospheric and environmental scientist, and chief meteorologist for WTVJ NBC6-TV in Miami, and Editorial Fellow at the Bulletin. But, he adds, "aren't we wrong half the time? How can we possibly be seen as brainiacs when we're telling you that there's a 50-50 chance of rain?!"



Top: oil refineries along the Houston Ship Channel; bottom: the Houston Ship Channel winds through the city's colossal industrial landscape of tanks filled with chemicals.

The industrial infrastructure catastrophe looming over America's gulf coast

In a stunning multimedia Bulletin investigation, "The Gathering Storm: The Industrial Infrastructure Looming Over America's Gulf Coast," Tristan Baurick, who is also an environment reporter for *The Times-Picayune / New Orleans Advocate*, explored the potential effects of large hurricanes on the Gulf of Mexico in vulnerable areas of Texas and Louisiana. Home to more than 4,876 sites that handle toxic chemicals, according to an analysis of flood plain and industrial data from the Bulletin and the Massachusetts Institute of Technology, 1,987 of those areas of Texas and Louisiana were in locations with moderate risk, and 2,889 were at high risk.

Beware the Blob!

Associate Editor Jessica MacKenzie described how an unexpected discovery has become deeply concerning to a group of scientists. Back in 2011, Colleen Kellogg and her colleagues began sampling the microbial community at Ocean Station Papa, a research buoy in the Pacific Ocean about 970 miles west of Vancouver, British Columbia, which is part of one of the longest running oceanographic time series studies in the world. In late 2013, a mass of warm water formed, which came to be known as "the Blob." The Blob was nearly 1,000 miles wide in all directions, some 300 feet deep, and up to 10 degrees Fahrenheit warmer than the average temperatures in the northeast Pacific Ocean. The microbiologists didn't set out to study the Blob. But the Blob came for them—and the climate—anyway. And it's not good news, as MacKenzie explained.

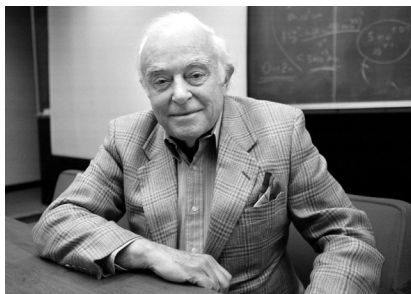
The magazine

Reaching new readers

Subscriptions increase

In the first full year since the Bulletin reached a first-of-its kind agreement with our publisher Taylor and Francis—giving the Bulletin full control of individual subscriptions while Taylor and Francis continues to market and publish the magazine to nearly 10,000 universities around the globe—the results have been remarkably successful.

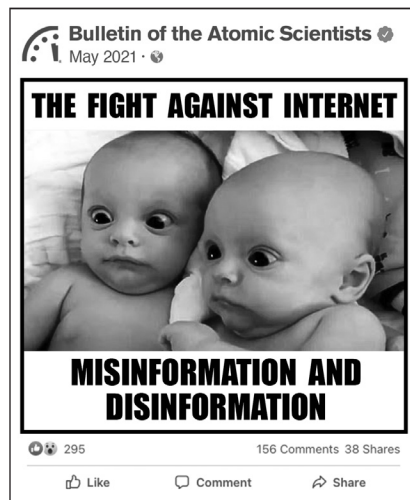
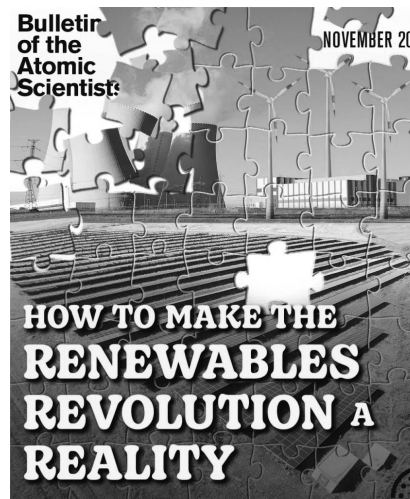
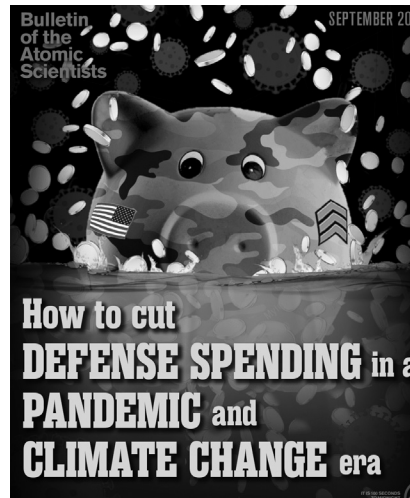
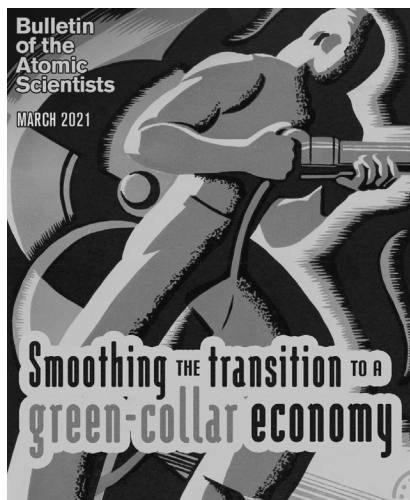
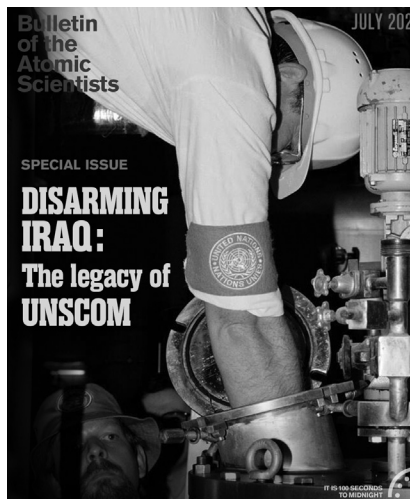
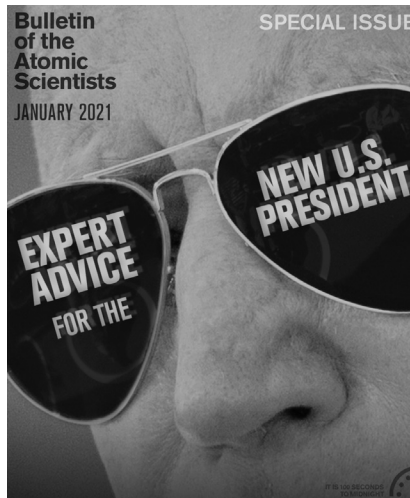
Since the beginning of 2021, we have multiplied the number of subscribers several fold, attracting readers from around the world. The digital magazine is promoted through social media channels and especially the weekly newsletter, itself the single biggest driver of new subscriptions.



Searchable archive collection dates to 1945

Magazine subscribers also have access to the complete Bulletin of the Atomic Scientists' archive, which contains every article published since our founding in 1945. This archive was created in honor of John A. Simpson (above), one of the Bulletin's principal founders and a longtime member of its Board of Sponsors.

This searchable archive provides exclusive online access to original interviews and commentary by luminaries like Albert Einstein, J. Robert Oppenheimer, Ruth Adams, John F. Kennedy, Stephen Hawking, Christine Todd Whitman, US Secretary of Defense William J. Perry, and multiple Nobel laureates. The Bulletin has continued to present the issues with provocative covers, some of which have been imprinted on Bulletin store items.

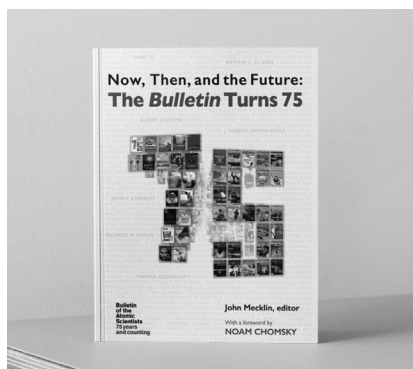
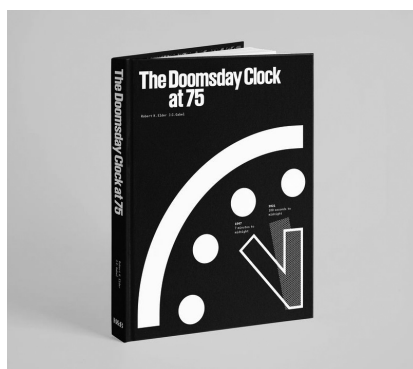


Bulletin books

Marking 75 years

“[The Clock] is the most powerful piece of information design of the 20th century.”

Michael Bierut



The Domesday Clock book was edited by Robert K. Elder, chief digital officer at the Bulletin, and J.C. Gabel. John Mecklin, editor-in-chief at the Bulletin edited the 75th anniversary book.

The Domesday Clock at 75

The Domesday Clock is many things all at once: It's a metaphor, it's a logo, it's a brand, and it's one of the most recognizable symbols of the past 100 years.

Chicago landscape artist Martyl Langsdorf, who went by her first name professionally, created the Domesday Clock design for the June 1947 cover of the Bulletin of the Atomic Scientists, then published as a magazine.

The Clock sits at the crossroads of science and art, and therefore communicates an immediacy that few other forms can. Designer and brand expert Michael Bierut called it “the most powerful piece of information design of the 20th century.”

The Domesday Clock has permeated not only the media landscape but also culture itself. As you'll see in the pages of this book, more than a dozen musicians, including The Who, The Clash, and Smashing Pumpkins, have written songs about it.

It's referenced in countless novels (Stephen King, Piers Anthony), comic books (Watchmen, Stormwatch), movies (Dr. Strangelove, The Simpsons Movie, Justice League), and TV shows (Doctor Who, Madame Secretary). Even the shorthand, the way we announce time on the Domesday Clock—“It is Two Minutes to Midnight” (or whatever the current time might be)—has been adopted into the global vernacular.

Throughout the Domesday Clock's 75 years, the Bulletin has worked to preserve its integrity and its scientific mission to educate and inform the public. This is why, in part, we wanted to explore this powerful symbol and how it has impacted culture, politics, and global policy—and how it's helped shape discussions and strategies around

nuclear risk, climate change, and disruptive technologies.

It's a symbol of danger, of hope, of caution, and of our responsibility to one another.

Now, Then, and the Future

This 365-page limited edition 75th Anniversary book gathers some of the best writing published by the Bulletin throughout our first 75 years, in keeping with our mission to equip the public, policymakers, and scientists with the information needed to reduce man-made threats to our existence. It includes never-before-seen bonus material, with a foreword from noted theoretical linguist and author Noam Chomsky.

“[T]he Bulletin has been in the forefront of our effort to break the silence, to lift the veil that conceals the dread fate to which the human species is hurtling...” said Chomsky.

The history of the Bulletin of the Atomic Scientists is a remarkable one, full of some of the greatest thinkers of modern times trying to grapple with a truly existential dilemma: the first invention of humankind that could exterminate humanity.

Interviews with and articles by:

Arthur C. Clarke
Jennifer Doudna
Albert Einstein & Edward Teller
Beatrice Fihn
Mikhail Gorbachev
Rose Gottemoeller
Fiona Hill
John F. Kennedy
J. Robert Oppenheimer
William J. Perry
Martin Rees
& more!

It's not too late to purchase your copies! Visit thebulletin.org/books

ICBMs Are Ridiculous: A Millennial's View



An unarmed Minuteman III intercontinental ballistic missile launched during a test at Vandenberg Air Force Base in California on February 5, 2020.

2021 Rieser Award recipient

Noah Mayhew

Noah Mayhew, a research associate at the Vienna Center for Disarmament and Non-Proliferation, was named the 2021 recipient of the Bulletin's Leonard M. Rieser award. Mayhew, who focuses on nuclear arms control and IAEA safeguards, was selected for his July 8, 2021 article "A Millennial's View: ICBMs Are Ridiculous."

"Noah Mayhew's piece brings a thoughtful generational analysis to the debate over the cost and strategic value of one leg of the US nuclear triad, land-based intercontinental ballistic missiles," said John Mecklin, the Bulletin's editor-in-chief. "This is a powerful piece that speaks to and for a younger generation and is therefore exactly the kind of work the Rieser Award means to encourage."

Mayhew has interned at the International Atomic Energy Agency and has been a graduate research assistant at the James Martin Center for Nonproliferation Studies and the Monterey Initiative in Russian Studies. In addition to the Bulletin, he has been published in *Arms Control Today*, *Inkstick Media*, *Pass Blue* and *Nonproliferation Review*. He holds master's degrees in nonproliferation and terrorism studies from the Middlebury Institute of International Studies at Monterey, California, and in international relations from the Moscow State Institute of International Relations. Mayhew received a bachelor's degree in public relations from the University of Tennessee in Knoxville.

Mayhew opened his frank and well-documented article by saying: "The international community is increasingly prioritizing the voices of young experts in nuclear nonproliferation and related issues. This generation—my generation—is facing the simultaneous pressure to pursue higher education to be successful and, at least in the United States, the burden of taking on gargantuan amounts of student debt...I find it absolutely incomprehensible why the United States puts the kind of money it does into military spending (\$778 billion in 2020)—and more specifically into the



obscene budget for the nuclear modernization project, which will cost taxpayers an estimated \$1.2 trillion to \$1.7 trillion over 30 years."

The Rieser Award, named for former Bulletin board chair Leonard M. Rieser, is the capstone of the non-profit's Next Generation Program. That program was created to ensure new voices have a trusted platform from which to address existential challenges posed by nuclear proliferation, climate change, and disruptive technologies. The Bulletin's NextGen program includes the "Voices of Tomorrow" column where Mayhew's article appeared. The award includes a \$1,000 prize and the opportunity to speak at the Bulletin's marquee event: Conversations Before Midnight.

Rieser was the Bulletin's Board Chair from 1984 until his death in 1998. He was a graduate student at the University of Chicago when he worked on the Manhattan Project and went on to a distinguished academic career as a professor and provost of Dartmouth College. Rieser championed emerging scientists and policy leaders and believed in their ability to play a critical role in the resolution of persistent global security problems. The Bulletin continues to work with his family, and other longtime friends and donors, to extend his legacy.

Bulletin launches Board Fellows Program

Rising leaders recruited

The Bulletin welcomed April Arnold and Haneen Khalid as the first participants in its Board Fellows Program, designed to offer rising leaders an opportunity to experience the responsibilities of a governing board.

The one-year program, created in partnership with Women of Color Advancing Peace, Security and Conflict Transformation (WCAPS), is a professional development opportunity in organizational leadership, positioned to increase the skill-base and diversity of future leaders in the fields of nuclear risk, climate change, disruptive technologies, and not-for-profit journalism.

“We hope to make this a recurring program in future years to develop a diverse pool of promising candidates to serve on boards of directors,” said Rachel Bronson, president and CEO of the Bulletin. “The Bulletin created this program, a direct outgrowth of our work with Organizations in Solidarity, to provide next-generation leaders with meaningful experience in governance, finance, fundraising, and strategic oversight.”

Shalonda Spencer, WCAPS executive director, said the program aligns with her organization’s mission to “ensure that women of color receive equitable professional leadership opportunities

to advance peace and security because global perspectives are essential. Serving on boards is a vital element of having a voice and diversifying expert practitioners in the field.”

“We hope to make this a recurring program in future years to develop a diverse pool of promising candidates to serve on boards of directors.”

2021-22 Board Fellows



April Arnold is a senior communications adviser supporting the Department of Energy’s Office of Nuclear Smuggling Detection and Deterrence. She has advised the Office of the Secretary of Defense, the Department of the Navy, and the Department of the Army on various arms-control agreements. She is co-chair for the Foreign Policy for America’s Next Generation Defense and Intelligence Working Group and a 2021 PONI Nuclear Scholar and Pacific Forum Young Leader. She has a degree in international relations from the University of Delaware and is pursuing a Master’s in Sustainable Energy at Johns Hopkins University.



Haneen Khalid is a research and policy professional in international security. She is a PhD student in the Princeton School of Public and International Affairs. Khalid has worked on women’s affairs and advocated on issues of nuclear security and climate action at the National Assembly of Pakistan. Khalid was an Obama Foundation Scholar at the University of Chicago and has established youth-led initiatives for greater peace, security, and cooperation in South Asia and beyond. She will co-direct the Policy Speaker Series at the Centre for International Strategic Studies and focus on diplomatic and technical collaboration on security issues at Princeton.

Bulletin welcomes Editorial Fellows

Emerging leaders enhance coverage

The Bulletin also welcomed its inaugural class of Editorial Fellows, who write regularly in a new program that enhances the organization's editorial capacity and demonstrates its commitment to publishing a variety of voices and viewpoints. The seven fellows publish articles regularly on nuclear risk, climate change, and disruptive technologies—key areas in the Bulletin's mission to inform the public, policymakers, and scientists about man-made threats to human existence.

"We selected these seven writers because of their established record of publishing quality work or because they have been identified as emerging leaders in their respective fields—and often both," Bulletin editor-in-chief John Mecklin said. "We are excited to add their diverse perspectives to the broad range of international coverage the Bulletin already provides."

The Editorial Fellows Program rests on the understanding that science

is expected to advance more in the next 40 years than in all human history, raising political and ethical questions whose answers will shape the future safety and security of all the people on our planet. The disruptive technologies fellows are supported by Axiom Consulting Partners, a Chicago-based advisory firm integrating strategy, artificial intelligence (AI), and behavioral science.

2021-22 Editorial Fellows



Trenton W. Ford, a doctoral candidate in computer science at the University of Notre Dame, who researches misinformation and disinformation in online contexts. He writes about disruptive technologies.



Yong-Bee Lim, a fellow at the Council on Strategic Risks, who focuses on biosecurity, biodefense strategy, and emerging and converging technologies. He covers issues related to disruptive technologies.



Mark Magaña, founding president and CEO of GreenLatinos, a national network of Latino environmental and conservation advocates. He produces climate change articles.



John Morales, chief meteorologist at WTVJ-NBC6 in Miami. He covers climate change issues.



Angela Pashayan, a doctoral candidate at Howard University in Washington, DC, who researches policy, government, and security issues. She writes about disruptive technologies.



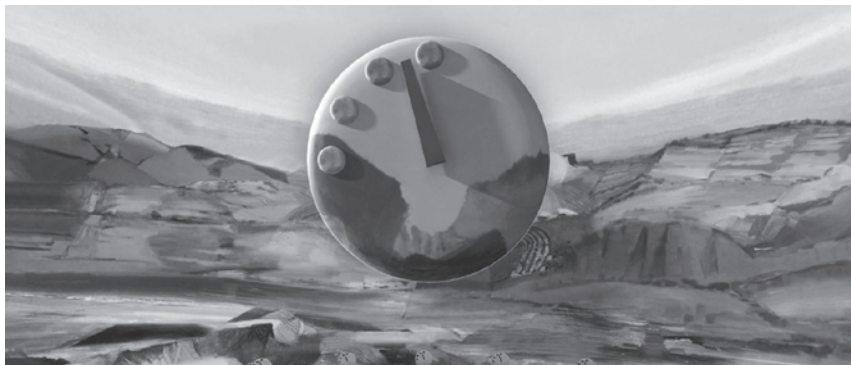
Urvashi Sarkar, a freelance journalist in Mumbai who has reported on nuclear policy and foreign policy. She covers nuclear risk issues.



Lauren Sukin, a MacArthur Nuclear Security Postdoctoral Fellow at Stanford University's Center for International Security and Cooperation and an incoming assistant professor of international relations at the London School of Economics and Political Science. She produces articles related to nuclear risk.

Conversations before midnight

300 guests join annual event



Nearly 300 international guests joined the Bulletin's sold-out Conversations Before Midnight marquee event on November 9. The evening provided participants direct access to more than two dozen leading analysts and policy makers in nuclear risk, climate change, disruptive technologies, and biosecurity during small-group discussions.

Rose Gottemoeller, former deputy secretary general of NATO, and Sharon Squassoni, incoming co-chair of the Bulletin's Science and Security Board, provided a keynote conversation on recent weapons-program developments in China, the deteriorating arms control landscape, and the future of NATO.

"We need to keep a sharp eye on developments [in China] ... technologically, they seem to be surging ahead with hypersonics for example," said Gottemoeller, currently the Frank E. and Arthur W. Payne Distinguished Lecturer at Stanford University's Freeman Spogli Institute for International Studies and its Center for International

Security and Cooperation. "We need to pay attention at all levels, but we don't need to panic."

For two 30-minute segments, table hosts welcomed provocateurs to breakout rooms with their guests. Among the experts were: **Luis Bettencourt**, inaugural Director of the Mansueto Institute for Urban Innovation at the University of Chicago, and professor of ecology and evolution at the College; **Alina Chan**, postdoctoral researcher at the Broad Institute of MIT and Harvard; **Robert Latiff**, retired US Air Force Major General, private consultant, and faculty member at the University of Notre Dame and at George Mason University; **William J. Perry**, 19th Secretary of Defense for the United States; **Ray Pierrehumbert**, Halley Professor of Atmospheric, Oceanic and Planetary Physics at the University of Oxford; **Valerie Plame**, former covert CIA officer and bestselling author; and **Camille Stewart**, global head of Product Security Strategy at Google.

2021 Sponsors

Platinum/Benefactor

Axiom Consulting Partners

Gold/Sustainer

Lee Francis and Michelle Gittler
The Crown Family
David Kuhlman and Martha Esch
William and Eleanor Revelle
Dawn Sinclair Shapiro and Benjamin Shapiro
University of Chicago Harris School of Public Policy

Silver/Patron

John and Carol Balkcom
Baum Family Foundation
Kennette Benedict and Robert Michael
Rachel Bronson and John Matthews
Catalyst Advisors LP
Misho Ceko
Kendal and Kenneth Gladish
Austin Hirsch and Beth Gomberg-Hirsch
Ania Labno and Carl Rogers
Robert D. LoPrete
Donald Maclean
Steve Ramsey and Ann Jones
Lowell Sachnoff and Fay Clayton
Garrett Sheridan

The evening also included remarks from Executive Chair Jerry Brown, who introduced the 2021 Bulletin honoree, Robert Rosner, outgoing Science and Security Board Chair and the William E. Wrather Distinguished Service Professor in the Departments of Astronomy & Astrophysics and Physics at University of Chicago, stating, "We all benefit from having this person with such knowledge and wisdom to lead board members each year to reach consensus and fulfill the profoundly important job of warning the world that we're seconds away from midnight."

Jake Tibbetts was also honored as the 2020 Leonard M. Rieser Award recipient for his article, "Keeping classified information secret in a world of quantum computing."

From left: Rose Gottemoeller, Robert Rosner, and Jake Tibbetts



More virtual programs offered

Connecting around the world

After initiating monthly virtual programs in 2020, the Bulletin continued to offer an array of online events to connect readers and supporters with some of our outstanding authors and well-known scientists. More than 5,400 individuals registered for at least one event. Participants were able to submit questions to speakers, prompting additional exchanges in the typical one-hour format.

The virtual programs also present opportunities to attract new followers and further engage current readers. Every registrant is added to the Bulletin's weekly newsletter. Program topics range from China's nuclear policies to media accountability to the AI era. Virtual event dates and speakers are recapped below.

Bulletin President and CEO Rachel Bronson also kept up with virtual engagements and podcasts.



Restricted Data: The History of Nuclear Secrecy

Alex Wellerstein, author and historian of science at the Stevens Institute of Technology, was interviewed in July by Bulletin Science and Security Board member Lynn Eden, senior research scholar and associate director for research at Stanford University's Center for International Security and Cooperation.



Media Accountability in a World of Disinformation

Alan Miller, director/founder of the News Literacy Project, and Laura Lindenfeld, dean of the School of Communication and Journalism at Stony Brook University, moderated by Paul Cheung, then at the Knight Foundation, in June.



The AI Era: What will the future look like?

Board of Sponsors member Eric Horvitz and Missy Cummings discussed the National Security Commission on Artificial Intelligence's Final Report in May with Nadya Bliss. Missy Cummings is Professor in the Duke University Electrical and Computer Engineering Department. Bliss is the executive director of the Global Security Initiative at Arizona State University.



Under a White Sky: The Nature of the Future

Elizabeth Kolbert and Bulletin editor-in-chief John Mecklin discussed Kolbert's newest book in March. The book explores the hopes and hazards of geoengineering, and how it may be humanity's path forward. Kolbert is a staff writer for The New Yorker and past member of the Science and Security Board.



What does a global response to the climate change crisis look like?

Sivan Kartha, senior scientist at the Stockholm Environmental Institute and Anju Sharma, program lead for locally led action at the Global Center for Adaptation, were in conversation with Bob Berwyn of *Inside Climate News* in October, discussing the United Nations Climate Change conference.



The origin of COVID: Did people or nature open Pandora's box at Wuhan?

Science journalist Nicholas Wade and Bulletin editor-in-chief John Mecklin were in conversation in June with Bulletin president and CEO Rachel Bronson, reviewing Wade's groundbreaking article and how this defining story came to be and why it sparked renewed investigations of a possible lab-leak.



Nuclear Disaster Compensation: A Call for Action

Also in March, as the 10th anniversary of the Fukushima disaster approached, Northwestern University and the Bulletin partnered on a virtual program that highlighted the human toll of nuclear catastrophes worldwide as well as actions we can take to prepare for future nuclear accidents.



Is China's approach to its nuclear arsenal changing?

Duyeon Kim, adjunct senior fellow with the Asia-Pacific Security Program at CNAS and Bulletin columnist; Matt Korda, senior research associate for the Nuclear Information Project at FAS; and Tong Zhao, senior fellow at the Carnegie-Tsinghua Center for Global Policy, in conversation in September with Bulletin associate editor Susan D'Agostino, discussing the open-source discoveries of the new Chinese nuclear missile fields and offering insights into whether this move is indicative of a larger strategy shift or a negotiating card for future talks.



The United Kingdom's new nuclear posture

Federation of American Scientists' Hans Kristensen (at left) and MIT's Heather Williams in conversation last May with *The Guardian's* Julian Borger discussing the United Kingdom's decision to increase its nuclear stockpile limit.



Why is America getting a new \$100 billion nuclear weapon?

Katrina vanden Heuvel (center), editorial director and publisher of *The Nation*, moderated a February discussion between Thomas Countryman, board chair of the Arms Control Association, and Bulletin contributing editor Elisabeth Eaves about the reasons for the United States new intercontinental ballistic missile—the ground-based strategic deterrent, or GBS—which are historical, political, and to a significant extent economic. This followed Eaves' investigative report on the same topic, published in February.

The Bulletin brand

Extending the community



T-shirt design contest names a winner

Nathan Doyle's design, "Time is Running Out," was the winner of the Doomsday Clock T-shirt design contest hosted by Threadless.com. Doyle's design, at right, was chosen from 353 international submissions and incorporated into the book about the 75th anniversary of the Doomsday Clock. He also won \$1,000 and a \$250 Threadless gift certificate.



But wait, there's more!

The Bulletin expanded the offerings at its Threadless store to include more T-shirt and hoodie styles, totes, masks, blankets, and more featuring the Bulletin logo and Doomsday Clock.

Bulletin included in exhibition

From August to December 2021, the Bulletin participated in a well reviewed exhibition titled "Earthly Observatory" at the School of the Art Institute of Chicago. The exhibition explored "how we sense, portray, and engage our deep planetary entanglements," and invited more than 2,400 guests "to question the ways that we—as one among many earthlings—create our understanding of a manifold world."



Touches of whimsy

He writes, he designs, and he enjoys creating poems from snippets of news. Multimedia editor Thomas Gaulkin recently explained:

"Every so often, a story published on the front page of *The New York Times* is so well written, meaningful, and appropriate to the Bulletin's concerns that small snippets of it, properly chosen and arranged, produce something more than journalism, something that approaches ... poetry. That blessed coincidence occurred December 13, 2021."

The full poem, adapted from a story by Emma Goldberg, appears below.

Rosy Plans Fail, And Companies Put Off Returns

By EMMA GOLDBERG

At some point in time
some point in time is no
longer
in the past
postponed again
a new
promise to plan

Continued on Page A15

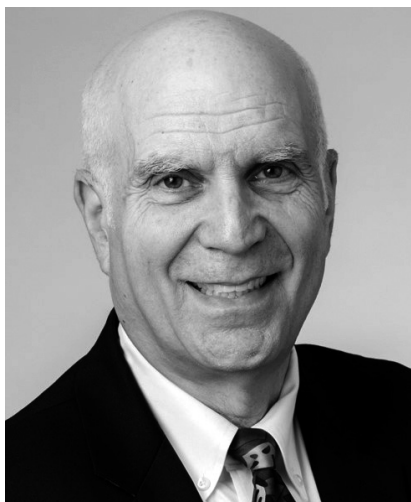
Accolades add up

Board and staff recognized



Governing Board welcomes new member, salutes another

Ania Labno, who joined the Governing Board in April, is a director at KKR Capstone where she works with the group's health care industry team. She was previously managing director and partner at the Boston Consulting Group's Chicago office. She has worked across all health care sectors with a strong focus on innovation including data analytics/AI, digital-driven innovation, and novel treatment modalities such as gene/cell therapy. Labno serves as an advisor to the Polsky Center for Entrepreneurship and Innovation at the University of Chicago and MATTER incubator. She holds a bachelor's of science degree in biology and physics from Massachusetts Institute of Technology and PhD in biophysics from UC Berkeley.



Longtime governing board member and treasurer **Austin Hirsch** was named to Crain's Chicago Business' 2021 Notable Nonprofit Board Leaders list. The organization annually highlights nonprofit board leaders who "have advanced the cause of a nonprofit organization and raised its profile in the community."

Hirsch, a partner in Reed Smith's global corporate group, has served on the Bulletin's board since 2010. He has worked tirelessly behind the scenes to help protect and advance the Bulletin's image and reputation.

"Austin's legal and financial expertise has helped us in numerous ways and when it mattered the most," said Bulletin president and CEO Rachel Bronson. "He advanced our reputation by protecting our globally recognized trademarks and negotiated a first-of-its kind publishing contract; provided guidance on our pursuit of a PPP loan during the pandemic; and helped us secure our largest single gift, among so many other meaningful contributions." Hirsch called his inclusion in the list "unexpected, satisfying, and humbling."



Staff member honors stack up

Executive Editor **Dan Drollette Jr.** was selected to participate in the Logan Science Journalism Program, a project of the University of Chicago and the Marine Biological Laboratory (MBL) in Woods Hole, MA. With a half-dozen other science journalists Drollette spent 10 days in the lab, getting a first-hand sense of how DNA extraction, sequencing, copying with PCR, and comparing to public databases is done — as well as gene-editing with CRISPR.



Thomas Gaulkin, the Bulletin's multimedia editor, won a 2020 Peter Lisagor Award for Best Design in a Specialty Publication. "The Bulletin has made an investment in new multimedia approaches to help inform the public about man-made threats to humanity," Gaulkin said. "These digital stories and online experiences wouldn't exist without the dedication of our staff and contributors, and it's an extraordinary privilege to be a part of it."

Giving for good

The impact of creative generosity



Jaan Tallinn, founding engineer of Skype

Board of Sponsors member makes unique award

In June of 2021, the Bulletin announced that it had received a \$100,000 award from the Founders Pledge on behalf of Jaan Tallinn, founding engineer of Skype and a member of the Bulletin's Board of Sponsors.

"For over a decade I have seen it as my mission to ensure that AI research would yield positive long-term outcomes for humanity," Tallinn said. "I'm delighted to provide this support for the Bulletin because it puts its considerable weight behind this issue, and I hope that I can help the Bulletin continue to be a beacon of sober scientific analysis."

In addition to Skype, he is a founding engineer of Kazaa and co-founder of the Cambridge Centre for the Study of Existential Risk and Future of Life Institute. Tallinn joined the Bulletin's Board of Sponsors in 2016. "We're pleased to have our work recognized by an ally of the Bulletin," said Rachel Bronson, president and CEO.

"I hope that I can help the Bulletin continue to be a beacon of sober scientific analysis."

MacArthur Foundation makes capstone grant

The Bulletin is among six organizations receiving part of a \$9.6 million allocation to support groups working to raise awareness and accountability of growing global nuclear risk. The grants are part of the foundation's Nuclear Challenge capstone project, created to mark its previously announced plan to exit the nuclear field by 2023.

Dieter Gruen approaches centennial milestone

The Bulletin rarely has the chance to recognize a generous donor and reader for reaching his or her 100th birthday. But in 2022, we intend to honor one of our own, Dr. Dieter Gruen, for marking that milestone. Born in 1922, Dr. Gruen left Nazi Germany for the United States at 14, where he attended Northwestern University. Shortly after his graduation, he began work on the Manhattan Project, where he created an entirely new chemical compound that allowed for the eventual extraction of uranium nitrate.

Following WWII, he helped form Oak Ridge Scientists and Engineers, a group dedicated to ensuring the future prevention of the use of nuclear weapons in war. Dr. Gruen joined the Argonne National Laboratory in 1947, becoming Senior Scientist and Group Leader in 1960 and Associate Director of the Materials Science Division in 1982. Dr. Gruen occupied this position until 2000 when he returned to full-time research. Dr. Gruen became an Argonne Distinguished Fellow, Emeritus in 2012.

Distinguished scientist Dieter Gruen



\$1 million gift for biosecurity coverage

The Bulletin received the largest gift in its history from an individual in December 2021. The generous donor made this \$1 million gift specifically to support the Bulletin's expansion plan to launch a biosecurity desk. The Bulletin is extremely grateful for this transformational gift.

Bulletin President and CEO Rachel Bronson called the gift "a game changer," saying that the donor has asked to remain anonymous. "For over 75 years, the Bulletin has served as an authoritative guide offering solutions to the world's most pressing problems—this opportunity is extraordinary and profoundly expands our editorial coverage in biosecurity."

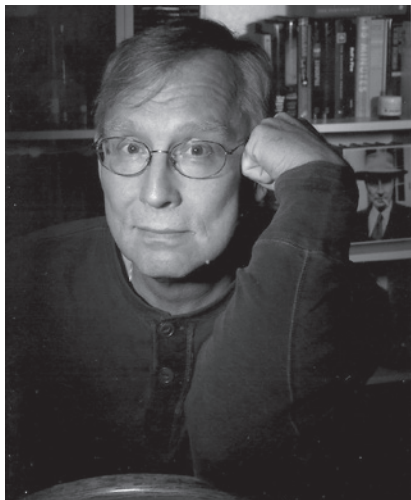
The contribution will advance the Bulletin's commitment to sustaining and increasing attention to biosecurity, with particular focus on man-made threats and the future risks of biotechnology.

This year's Clock Statement noted that "The world is failing to recognize the multifaceted nature of the biological threat. Advances in biological science and technology can harm us as well as help us. Leaders must recognize that COVID-19 is not the last biological threat we will have to face in our lifetimes—or, perhaps, even this year."

Understanding these risks, the Bulletin will expand over the next several years to include a dedicated biosecurity editor, more coverage from leading experts, the commissioning of investigative pieces on biosecurity, the creation of new multimedia interactives to engage the public, and even greater depth among our leadership, according to Bronson.

Giving for good

Thoughtful planning to leave a legacy



David A. Wargowski, Legacy Society and Einstein Circle member

Legacy Society continues to grow

The Bulletin was honored to receive \$110,000 in legacy gifts in 2021, according to Chief Advancement Officer Colleen McElligott. “These donors provided for the Bulletin in their estate plans because they believed in what we have been doing for more than 75 years, and have seen the organization flourish and advance using new technology in innovative ways. They were confident that their planned gifts would make a difference and continue to open more channels between scientific and policy leaders and younger audiences all over the world for generations to come,” she said. “We could not be more grateful for their trust and convictions.”

McElligott emphasized she always encourages prospective legacy donors to consult with their financial advisors as

they consider their planned gift options. “They often discover that there can be additional advantages to providing for the Bulletin through their wills or other vehicles—tax savings, member benefits, and sharing personal values, but these gifts require careful analysis and expert guidance for each donor’s peace of mind,” she said.

Legacy Society and Einstein Circle member David A Wargowski, who is a scientist and student of nuclear history, recently described his reasons for making a legacy gift to the Bulletin.

“I believe the uninterrupted message contained within the Bulletin is essential to inform and educate all of humanity’s generations to the existing and emerging dangers that threaten the extinction of all life on Earth.”

Create your own legacy

The Legacy Society

Join the Legacy Society—your planned gift will make a difference and continue to open more channels between scientific and policy leaders and younger audiences all over the world for generations to come.

The Legacy Society

A legacy gift makes a significant impact that costs you nothing in your lifetime. Consider including the Bulletin in your will or trust, or by naming the organization as a beneficiary of your life insurance, IRA, or other financial vehicle. Our Legacy Society was established to recognize and honor friends who have provided for the Bulletin’s future through their estate plans. Join the Legacy Society and help advance the Bulletin’s belief that advances in science and technology should make life on earth better, not worse.

The Einstein Circle

Members of the Einstein Circle have unparalleled passion and commitment to help the *Bulletin*.

Einstein Circle

The Bulletin recognizes leadership gifts of \$1000 or more with membership in the Einstein Circle, which celebrates and honors those who offer their financial support at the highest level. Einstein Circle members make a personal statement about their belief in the inherent value of evidence-based research and education to address the most pressing challenges facing our planet and its inhabitants. Members receive access to special briefings, exclusive invitations, and personalized communications.

In memoriam

Giving and leadership legacies



Priscilla McMillan

Priscilla Johnson McMillan, noted historian of the nuclear age and supporter of the Bulletin of the Atomic Scientists, died in July at 92.

McMillan's lifetime work made an impact on the world, and her legacy now continues through a major planned gift for the Bulletin included in her trust and estate plans. "Priscilla was generous with her time and intelligence. She was astonishingly knowledgeable about Russia as it emerged from the Cold War and equally modest. She will be greatly missed," said Kennette Benedict, a senior advisor to the Bulletin and former executive director and publisher for the organization.

McMillan briefly worked on Capitol Hill for Sen. John F. Kennedy before embarking on a reporting and writing career. She was known for her expertise on the Cold War and nuclear policy. Her articles for the Bulletin included an obituary on physicist and Manhattan Project member Edward Teller.

McMillan was also known for her books *The Ruin of J. Robert Oppenheimer* (2005) and *Marina and Lee* (1977) which traced the story of President Kennedy's assassination through interviews with Marina Oswald, widow of Lee Harvey Oswald. She was the only person to know both Kennedy and Lee Harvey Oswald, the president's assassin.



Joshua Goldberg

The Bulletin is grateful for the planned gift received in 2021 from the estate of the late Joshua Goldberg, a longtime Bulletin donor. Goldberg was a graduate of the University of Rochester in 1949, following a stint in the U.S. Navy from 1944 to 1946. He received a PhD in physics from Syracuse University in 1952, then conducted research in General Relativity at Armour Research Foundation in Chicago and at Wright-Patterson Air Force Base in Dayton, Ohio. He continued his research as an influential professor of physics at Syracuse University from 1963 until his retirement in 1995, where he was widely admired as a mentor and teacher.

In 1962, Goldberg and his collaborator Ray Sachs found a property of the Einstein equations now known as the Goldberg-Sachs Theorem. This theorem was integral to the discovery of the Kerr metric, the solution of Einstein's equations that describes all black holes in the universe, from the black holes formed by exploding stars to the giant "supermassive" black holes lurking in the center of galaxies.



Steven Weinberg

"Whatever the final laws of nature may be, there is no reason to suppose that they are designed to make physicists happy," renowned theoretical physicist Steven Weinberg once wrote.

Despite this assessment, Weinberg, who passed away in July at the age of 88, appears to have been a physicist who lived a happy—or at least deeply meaningful—life. Weinberg, who served on the Bulletin of the Atomic Scientists Board of Sponsors from 2009 until his death, was a recipient of the 1979 Nobel Prize in physics.

Unusual for scientists of his stature, Weinberg worked to ensure that science was not only accessible but enthralling and entertaining to nonexperts. His 1977 book, *The First Three Minutes: A Modern View of the Origin of the Universe*, described the universe's evolution within minutes of the Big Bang. "The effort to understand the universe is one of the very few things that lifts human life above the level of farce and gives it some of the grace of a tragedy," he wrote.

He was the author of hundreds of scholarly articles and numerous popular books. He held anyone who was curious about science, including nonexperts, in high regard. "You have to keep in mind that you are writing for people who are not mathematically trained but are just as smart as you are," he said.



Sissy Farenthold

Frances T. Farenthold, “Sissy” to her legion of friends, was an advocate for nuclear disarmament, women’s rights, lawyer, politician, and great friend to the Bulletin. She is pictured above left, with her cousin, Patricia Dougherty, who is a generous Bulletin donor, and longtime Bulletin supporter Tim Rieser, at the 2019 Annual Dinner. Farenthold died at 94 in September.

“Sissy was a force of nature, and we at the Bulletin were so touched that she shared a little bit of that force with us,” said Rachel Bronson, president and CEO. “She was a remarkable woman who in recent years would always fly to Chicago to support our annual event. When she cared, she seemed to put her body and soul into it.”

Farenthold served two terms in the Texas House of Representatives where she “helped improve legislative transparency in the wake of a government stock-fraud scandal and spearheaded the passage of a state equal rights amendment,” according to *The New York Times*.

She also became the first chairwoman of the National Political Caucus in 1973 and the first woman to serve as president of Wells College in Aurora, N.Y. She was a two-time candidate for the governor of Texas.



Linda Rothstein

Linda Rothstein was many things during her 16 years with the Bulletin, including editor-in-chief, managing editor, associate editor, and formidable table-tennis opponent. Rothstein died in October at 82.

“She was a huge part of the Bulletin and a key reason why it survived through the Cold War,” said Stephen Schwartz, former Bulletin executive director and publisher. “She believed strongly in its mission.”

Rothstein left her mark on the Bulletin in many ways, including facilitating its transition into a full-color magazine, launching its website, digitizing its archives, and creating a “Plutonium Memorial” contest to create the best picture, painting, model, or design plan for disposal of the radioactive material.

“The quality of the magazine visually and editorially during the years she was around was a testament to her skill,” Schwartz said.



Ron Miller

Longtime Bulletin supporter and advocate Ron Miller died in September at 89. Miller was a well-known lawyer in Chicago for more than six decades.

The Chicago Tribune quoted a friend who said, “His mind was brilliant, but it was his heart and his energy that set him apart, transforming a poor kid from Albany Park into one of the leaders of the Chicago legal community.”

Miller was drawn to debate and ideas, leading him create to the Public Affairs Roundtable and, over nearly three decades, it was a forum for his lifelong commitment to civic engagement and his intellectual curiosity, said the *Tribune*.

Speakers over the years included Barack Obama and other leading politicians, Nobel Prize winners, senators, journalists, architects and educators. Bulletin leaders were honored to speak at these lively events.

Long time Bulletin supporter and emeritus board member Lowell Sachnoff said of his friend: “Ron created a remarkable space for exchanges about so many crucial issues of our time with the best experts. He stimulated many wide-ranging discussions at those Roundtable lunches.”

Thanking donors and partners

January 1 - December 31, 2021

With gratitude for our donors

For more than seven decades, a dedicated network of board members, advisors, foundations, and donors have sustained the Bulletin of the Atomic Scientists.

We extend our deepest gratitude to the board leaders, individuals, and institutions who made contributions between January 1 and December 31, 2021.

Their names are listed here, with our sincere thanks for making everything we do possible.

The Bulletin

In-Kind Contributors

Axiom Consulting Partners
Google AdWords
The University of Chicago's Harris School of Public Policy
Pentagram
Reed Smith LLP

\$100,000+

Anonymous (2)
Carnegie Corporation of New York
Holthues Trust
John D. and Catherine T. MacArthur Foundation
Jaan Tallinn*/Founders Pledge

\$50,000 – 99,999

Axiom Consulting Partners
Ploughshares Fund
William and Eleanor Revelle*

\$25,000 – 49,999

Donald Edwards*
Steve Ramsey and Ann Jones*

\$10,000 – 24,999

Anonymous (3)
Gregory and Jennifer Baldwin*
John and Carol Balkcom*
Bernard Crain*
The Crown Family
Joshua† and Gloria Goldberg†
Austin Hirsch and Beth Gomberg-Hirsch*
David Kuhlman and Martha Esch*
Anna Labno and Carl Rogers*

Robert D. LoPrete and David Germaine*
Stefan and Anjali Maus*
The New-Land Foundation, Inc.
Toby Ord*/Centre for Effective Altruism
Nancy and Mark Ratner*
Valentine and Min-Myn Schaffner*/Schaffner Family Foundation
Dawn Sinclair Shapiro and Benjamin Shapiro*/Earl and Brenda Shapiro Foundation
Robert Socolow*
Anne Terry Straus*
Stephanie Woodson*

\$5,000 – 9,999

Anonymous
Alvin H. Baum Family Fund
Kennette Benedict and Robert Michael*
Marjorie Craig Benton*
Virginia Berkeley and Thomas Dietvorst*
Catalyst Advisors LP
Misho Ceko and Tara Swords*
Mimi Frankel*/Frankel Family Foundation
Kendal and Kenneth Gladish*
Melissa Harris and Eric Lomonaco*
The University of Chicago's Harris School of Public Policy
Alan Heinrich*
Lloyd A. Fry Foundation
Donald Maclean*
Robert and Eleanor Levin Meyers*

Judith and John D. Reppy*
Thomas Richardson and Barbara West*
Thomas Rosenbaum and Katherine Faber*
Garrett Sheridan*
Stewart R. Mott Foundation

\$1,000 – 4,999

Anonymous
Petros and Nita Argyres*
Robert Atcher*
Susan and Stephen Baird*/Susan M. and Stephen W. Baird Foundation
Jack and Natalie Blumenthal*
Rachel Bronson and John Matthews*
James Cairns*
David Callahan and Terri Abruzzo*
Benjamin Cass*
Joseph Cirincione and Priscilla Labovitz*
Alexander Dessler*
Marilyn and Terry Diamond*/Diamond Family Foundation
Lynn Eden and Ruth Schoenbach*
Rodney Ewing and Helga Fuchs*
Steve and Marie Fetter*
Constance Fisher*
William and Judith Greffin*
Joseph Gretsch*
Carol Gross*
Ambassador Fay Hartog-Levin and Daniel Levin*
Alexander Hasha*
Martin Hellman*
Peter and Nancy Hildebrand*
Jay Hormel*
John Mark Horton*
Jenna Hughes*
Ralph Kahn*
Harriett Kelley*
Joseph Lach*
François Lacoste*
Denny Lane*
Suzanne Langsdorf*
Leaves of Grass Fund
Ellen Lederman*
Charles Lewis and Penny Sebring*
J. Randal and Carol Long*
George Lopez and Deborah Harrison*
Tanera Marshall*
Catherine Marshall*
Lisa and Jim McCabe*
Colleen McElligott*
Helen H. Mills*
James and Pat O'Connor*
Mary and Benjamin Page*
John Peoples Jr.*
Joan and Avner Porat*
Irene Pritzker*
Carolyn Revelle*
Alan Robock*
Anne Rorimer*
Robert and Marsha Rosner*
Lowell Sachnoff and Fay Clayton*
Scott Sagan and Bao Lamsam*
Ellen and Richard Sandor*/Richard and Ellen Sandor Family Foundation
Deb Sawyer*
Terri and Paul Schroeder*
Joan and James Shapiro*/Joan and James Shapiro Foundation

Aimee Shoemaker*
Alexandra and F. Wells Shoemaker*
Sara Shoemaker*
Adele Simmons*
John Sirek*
John and Trish Strauss*
Sally Thompson*
Joel and Elizabeth Ticknor*
Janine Tollestrup*
Frank N and Patricia von Hippel*
David Wargowski and Pamela McMullin*
Robert and Elinor Williams*
Roger Howell Williams*

\$500 – 999

Anonymous
Len Ackland
Porter Anderson Jr.
Dr. James Richard Bennett
Joel Berman and Natalie Schmitt
Carla Berry
Eamon Brand
Richard and Evelyn Bronson
David Drake
Gavin Eadie
Brian and Lisa Fabes
Asha M. George
Robert and Ruth Goldston
Dieter Gruen
Donald Hall
Siegfried and Nina Hecker
David and Arlene Holloway
Thomas Hudson Jr.
Jenna Hughes
Michael D. Jones
Gerald Jones and Sheryl Coombs
Judy and Bob Kemp
Edward and Adrienne Kolb
Bill Kuhlman
Frederick and Susan Lamb
Don Lamb and Linda Gilkerson
Brian Lane and Donna Cohen
Michael and Valerie Lewis
Terrie Liberman
Brad Lich
Alan Luntz
Thomas and Mariann Moore
Sanford and Monica Sabo
Morganstein
Thomas Stevenson Pattison
Elizabeth and Ross Posner
Emily Pulitzer
Mary Rabinowitch
Alexander and Janet Rabinowitch
Peter Rabinowitch
Don and Carol Reeder
Leonard Rieser
Timothy Rieser
Richard and Jean Roberts
Timothy Paul Russell
Scott Sachnoff
Roald Sagdeev
R. Pito Salas
Elaine Scarry and Philip Fisher
Schwebel Company
Tomer Seifan
James Sherrard
Paul Sievert and Penelope Rosemont
Elske Smith
Claudia Tellez
James and Hildegard Vary
Melissa Walker and Christine Heim

David Weinberg and Jerry Newton
John Weiser
Robert Wolfe

\$250 – 499

Anonymous (5)
Roy Adams
Pamela Allen
David Alley
Warren-Bud Anderson
Bryan Bacon
James Balkcom
Carl Benson
Eileen Betley
Peter Bowie
Joseph Carvin
Shiu-Kai Chin
Dorothy Ciarlo
Marvin Cohen and Jane Richman
Nancy Connell
Dolores Connolly and Dan Casey
Mary Lou Dauray
Amar Dave
Bob DelBoca
Leslie Dewitt
Van Eden
Harvey Fernbach MD
Henry and Priscilla Frisch
Joan Gomberg and Paul Bodin
Ed Gray
Howard and Stephanie Halpern
Patricia Hamlin
Julie Hamos and Judge Alan Greiman
Dick Heiser
Rush Holt and Margaret Lancefield
Daniel Holz
Lisa Humphrey
John Hurley and Linda Wetzel
Devrie Intriligator
J. S. White & Associates, LLC
Gary and Rosemary Jones
David Kamen and Eileen Hsu
Angela Kane
Phillip E. King, Jr.
Jeff Lande
Louise Lansberry
David Lee
Candy Lee and Joe Ward
Ken and Lucy Lehman
Karen Lewis
Jenifer Mackby
John and Jane Mather
Tom and Ann McMahon
James Miropol
Lauri Ora
Lauri Pajunen
Richard Partlow
Sarah Pattison
Robert Phelps
Esther Phillips
Mr. Jordan and Dr. Beth Posner
Helen and Dan Quinn
John H. Reppy
Stuart Rice and Ruth O'Brien
Enid Rieser
Joel Romines
James Rosenblum
Ricardo and Laura Rosenkranz
Bettylu and Paul Saltzman
Douglas Shaw
Colette Shulman
Norman Sissman
Eugene and Winifred Skolnikoff

Frances Stewart
Felix Tapia
Kip Thorne and Carole Winstein
John Toohey-Morales
Lydia Veliko and John Thomas
Matthew David Wachsmann
John Warnock
Esther Ruth White
Joan Winstein
Linda Young

Under \$250

Anonymous (76)
Frederick Abbott
Neil Abrahams
Claire Adamson
Roger Aiken
Michael and Christiane Albrow
Hope Alexander
Abdul-Qadir Ali
AmazonSmile Foundation
Janet Andersen
Kathy Andersen
Alan Anderson
Thomas Andrieux
Snyder Arthur
Inder Arya
David Aston
David Atwood
Raymond Babb
Susan Bader
Hansang Bae
Roger Barnard
Jonathan Bartnik
Michael Bauermeister
Rebecca Beckmann
Tristan Beckwith
James Bedient
Brandon Bee
David Belian
John A. Beltrami
Charles Benedict
Nelson Lee Beneze
Wayne and Susan Benjamin
Joseph Berkson
Peter Berman
Ralph Bertonaschi and Barbara Barstow
Henry and Leigh Bienen
Eduardo Bigornia
Milbra Billings
Roger Bishop
Norman Bishop
James Bjorken
Andrew Blake
Ruth Blizard
Thomas and Anne Blog
Dan Bloomberg and Irene Beardsley
Aldo Bocanegra
John and Carolyn Boitnott
Karen Bonime
Kelley Bowen
Deena Bowman
Helene and Joel Boyer
Clare Brady
Virginia Braid
Debra Breger
Scott Brinkerhoff
Charles and Mary Brown
Andrew Brown
John Browne
Brooke and Antoine Bruguier
Robert Bryan

Sally Bryan
William Buckheit
David Bufe
Cory Buott
Celeste Butler
Anne Cahn
Steven Calender
Jonathan Callender
Larry Campbell
Rong Cao
Patrick Capone
Sue Carlson
John Carlstrom and Mary Silber
Claudia Carpenter
Lincoln Castro
A. Charles Catania
Cheryl Chapman
Dylan Chivian
Lincoln Christensen
Charles and Jennifer Clark
Bernard Cleyet
Steven Colan
Genevieve Diane Colborn
Kenneth Colburn
David Cole
Marcus Collins
Scott Connors
Maryteresa Conrad
Pamela Cook
Donald Cook
Donald Cooper
Thomas Corcoran
Don and Susanne Corrigan
Brian Cronly
Nicholas Cropper
Sea Cummins
Susan D'Agostino and Esteban Rubens
Thomas Daldrop
Dorinda G Dallmeyer
Chuck Dana
Thomas Dandekar
Jan Dash
Michael Davis
Donald Davis
Jerry Dawson
Alberto Delgado
Gordon Dewey
Susanne DeWitt
Shari and Stewart Diamond
Heather Douglas
Alfred Doyle
James Doyle
Joanne Drake
Scott Drassinower
Michael Driscoll
Robert and Louise Dudley
Dennis Duffy
Michel Duguay
J. Stephen Dycus
Stephen Ellis
Richard Evans
Joseph and Christine Evelyn
Daniel Everett
David Fagen
Linda Faller
Vincenzo Fazzi
William Fickinger
Norma Field
Dianne Foster
Michael Fraser
Jon Fred
Joshua Freeman

Jerome Friedman
Sharon Friedman
Alan Frolich
Karen Fygi
Jesse Gaige
Richard Gammon
Judah Garber and Rebecca Eisenberg
Jean Garren
Anthony Garvin
Richard Garwin
Alden Gaudreau
Charles and Jolanda Gaulkin
Peter Geiser
Jack Gentile
Hal Gershowitz
Subrata Ghoshroy
Anne Gienapp
Douglas Gies and Rebecca Bays
John Gifford
Nick Gillert
Richard Gnaedinger
Joseph Goldman
Richard Goodwin and Judith Bell
Indukumar Gopinathan
Robert Gould
Phillip Greenberg
Ron Gribble
Rod Groomes
Kenneth W Gross
Michael and Georgia Guhin
Jennifer Gundlach
Jonathan Gunther
Richard Gustafson
Peter Haak
Barry Halewood
Chia Hamilton
Joshua Handler
Gary Harmon
Hal Harris
Richard Haskell
Alan Hawk
Robert Heineman
Otto and Grete Heinz
Michael Hellmann
Christopher Herlinger
Dudley and Georgene Herschbach
Carl Hintz
Rendon Holloway
Scott Holstad
Joan Holt
Marcus Hoover
Peter Hovde
Robert Howell
Ke Chiang and Shigeko Hsieh
Benjamin Huberman
Donald and Dorothy Hughes
David Inouye
Ronald Israel
Charlotte Jacobs
Andrew James
Shirley Jenkins
Pierre Joanin
Gregory Johnson
Robert Johnson
Dick Johnson
Kenneth Johnson
Tony Johnson
Josephine Anne Jones
Ryan V Jones
Sharon Jordan
Alan Joy
Henry Kagey
Ronald Kaiserman

Thanking donors and partners

January 1 - December 31, 2021

Ajit Kamath
Justin Kazak
Thaddeus Keefe
Martha Kelly
Ralph Kelsey
Craig Kennedy
William Kerr
Robert Kieronski
Rev Howard Lee Kilby
William Kinsella
Cliff Kirchmer
Gary Kirsh
Artur Kivilaht
KLA Foundation
Fay Klein
Judith E. Klein
Greg Kochanski
Arieh Konigl
D'vora Kost
Thomas Kotynski
David Kreisman
Peter Kuznick
Ethan Lacey
Randy Lake
W. C. Lamkins
Burton and Maureen Langer
Marshall Lapp
George Lawrence
Jon Anthony LeDuc
thomas lee
Benita Lee
Albert Lenny
Tony Levell
Stephen Levick
Jay Levin
Marc Levy
Barbara-Ann and Roy Lewis
Fan Liang
Robert Jay Lifton
Kenneth and Michelle Lifton
Bert Lindler
Michael Lippitz
Daniel Little
Henry Lowendorf
Sallee Lowery
Josh Lowitz
Desiree Lowney
Wenqin Luo
Richard and Helen Lynn
Robert Macartney
Joe Macinnis
Jill Mackie
Mark and Jenny Maiello
Paul Malmsten
Gregory Mansfield
Dolly Martin
Debra Martin
Robert Martinez
Delilah Marto
Edward Matala
Michael Mauel
Thomas Mayer
Charlene McAllister
Toni McClory
Kathleen McCroskey
John and Barbara McFarland
Alan McGowan
Patrick McGuire
Paul McKean
Marcia and Craig McKenzie
Bertha McKinley
Bill McNally
Allison McNaught

William Mendelsohn
Ron Merkord
Peter Metz
Raymond C. Meyer
Howard Mielke
Eliot Milbourn
Kerry Millan
John Miller
Lee Miller
Paul Mittermeyer
Pamela Moore
Sandra and Kevin Moore
Granger and Elizabeth Morgan
Robert and Sandra Morgan
Jim Morris
Lauren Morse
Mark Moulton
Peter Moyer
Mark Muhich
Timothy and Bonnie Mulligan
Clare Muñana
Gianluca Mura
Mary Murphy
Pamela Murphy-Young
David Muschler
Stephen Nelson
Edward Nichols
Renee Nunan-Rappard
Paul Nyhuis
Michael Obadia
Daniel O'Connell
David Oesper
Lynn and James Olson
Paul Olson
Kathleen O'Neill
Peter Orris
Raisa Otero-Cesario
Margaret Panofsky
Richard Panofsky
Terri Parkin
Kathleen and Robert Patrick
Michael Patterson
Walter Payne
PayPal Giving Fund
Claudio and Maria Pellegrini
Oliver Penrose
Carl Peridier
Robert Pero
Barbara Wareck Perrow
Donald and Marilyn Pet
Claire Peter
Mark Petnuch
Elizabeth Phillips
Peter Phippen
Fred Piderit
Judith Pieper
Alex Pirie
Thomas Plate
Pavel Podvig
Alex Polissky
John Scott Poucher
Jonathan Prentice
Robert Prentky
Pamela Puskarich
Susan Rabinovitz
Jaakko Ranta
David Ranz
Maridale Ray
Colin Reckord
Karen Reimer
Elisabeth Rekker
Avis Renshaw
Alex Resnik

David Richman
Frank Rier
Michael Rieser
Lynda Riley
Elizabeth Riley-Baker and David Baker
Joseph Robinson
Judy Robinson
Jeffrey Rogart
Renate Rose
Jonathan and Joy Rosner
Robert Roth
Laila Rothstein
Charles Roussel
Benoit Roy Lavigne
Ben Rusek
Lynn Sableman
Chris Salaz
Hal Salzman
Sheldon and Morjean Samuels
Priyanka Sarkar
Ethan Scarl
Nina Scheinkman
William Schmidt
Lawrence Schmutz
Judy Schramm
Michael Scott
Martin Scurr
John Selby
William Severe
Syd Sewall
Frederick Seward
Noirin Sheahan
Cori Sherman North
Daniel Shively
Melvyn and Sheila Shochet
Lynn Shoemaker
Barry and Marcia Silverberg
Robert and Deborah Silvey
Harnek Singh
Alan Skillman
Matt Slavik
Richard Smith
Colin Smith
Don Smith
Peter Somssich and Kathleen Pohlman-Somssich
Jeff Sopchak
Jerold Sorbel
David Spence
Sharon Squassoni
Julie Stagliano
James Stehr
Cynthia Stengel
Ralph Stone
Christopher Straus
Mary B. Strauss
Nick Strauss
Bertram and Lynne Strieb
Alan and Susan Stultz
Tanya Sugarman
Thomas Sumpter
Chris Sussmilch
Christopher Tassava
Sean Terry
Lucrezia Terzi
Alfred Theobald
Jean Francois Thions
James Thomas
Lee Thomas
Lew Thorson
Thomas Tiernan
Kevin Todd

Charles Tomlinson
Andrea Tondelli
Elizabeth and Lionel Traubman
Paul Turinsky
Michael Turner and Barbara Ahlberg
Reg Tydell
Edward Tymchatyn
Anthony Tyson
Rebecca Tyson
Allen Upward
Leo Uribe
Davinder Vacher
John Vaughey
Irene Venegas
Aviel Verbruggen
Juan J. R. Villarias-Robles
John Waldron
Cheryl Walker
Wayne Wallis
Myron Warsaw
Barbara Waugh
Carolyn Jean Webb
John and Sandra Wefel
Robert Weisman
Leonard Weiss
Andrew West
Nick White
Sharon Wilensky and David Bigeleisen
John Wilks
Larry Willhite
Roger Williams
Herman Winick
Roger Witherspoon
Edward Wolpow
Wanda Woodworth
John Woodworth
Elizabeth and Jeffrey Worline
TJ Worthington
Daniel Wright
Zhaoxun Yun
Bernard and Jeanne Yurke
Daniel Zimmer
Petar Zivkovic
Rhyann Zweifler

* Einstein Circle
▪ Legacy Society
† Deceased

Tribute Gifts

In honor of Helen C. Allison:
Catherine Marshall
Tanera Marshall

In honor of Kennette Benedict:
Linda Fallor
Lynn Eden and Ruth Schoenbach
Stanley Center for Peace and Security

In honor of Marjorie Benton:
Marvin Cohen and Jane Richman
Michael and Valerie Lewis
Joan and James Shapiro

In honor of Matthew Bisner:
Patrick McGuire

In honor of Rachel Bronson:
Fay Klein

In honor of Ben and Kevin Brown:
Harriet Kelley

In honor of Dr. Helen Caldicott:
David Drake

In honor of Eric Chivian and
Constance Jacobson:
Dylan Chivian

In honor of Kendal Gladish:
Elizabeth Riley-Baker and David
Baker
Judy and Bob Kemp
Barry and Marcia Silverberg

In honor of Howard Hintz:
Carl Hintz

In honor of Austin Hirsch:
Joan Gomberg and Paul Bodin
Helene and Joel Boyer

In honor of Jane Hirt:
Melissa Harris and Eric Lomonaco

In honor of Prof. Art Hobson:
James R Bennett

In honor of Prof. Charles Lawrence:
Maridale Ray

In honor of Andrew Leifer:
Anonymous

In honor of Wenliang Li:
Zhaoxun Yun

In honor of Robert J. Lifton:
Kenneth and Michelle Lifton

In honor of Rob LoPrete:
Myron Warshaw

In honor of Nick Metropolis:
Nick Strauss

In honor of Margaret A. Nichols:
Paul Mittermeyer

In honor of Victor Ocampo:
Elizabeth and Jeffrey Worline

In honor of Ron Oikawa:
Benita Lee

In honor of William J. Perry:
Michael Lippitz

In honor of Steve Ramsey:
Jeffrey Rogart

In honor of Judith Reppy:
Gregory and Jennifer Baldwin
Elizabeth Phillips
John H. Reppy

In honor of Bob Rosner:
Bryan Bacon
Kennette Benedict and Robert
Michael
Dorinda G Dallmeyer
Harris School of Public Policy
Daniel Holz
Arieh Konigl
Frederick and Susan Lamb

Sharon Squassoni
Michael Turner and Barbara Ahlberg
Lydia Veliko and John Thomas
Joan Winstein
Linda Young

In honor of Lowell Sachnoff:
Scott Sachnoff

In honor of Christopher John Scott:
Michael Scott

In honor of Prof. Alan B. Taylor:
David Cole

In honor of Nicholas Wade:
Donald Davis

In honor of Paul Wendorf:
Peter Geiser

Memorial Gifts

In memory of Ruth Adams:
Joshue Handler

In memory of Tom Ammirati:
Jay Levin

In memory of Weldon G. Boggus, Jr.:
Rebecca Beckmann

In memory of Max Chretien:
Herman Winick

In memory of all those killed by
COVID:
John Gifford

In memory of Cathryn Cronin
Cranston:
Henry and Priscilla Frisch
Thomas Rosenbaum and Katherine
Faber

In memory of Mrs. Sohan Kaur Dave:
Amar Dave

In memory of Dr. Hugh Edgar DeWitt:
Susan DeWitt

In memory of Enrico Fermi:
Rashid Bhatti

In memory of Laura Fermi:
Sheldon and Morjean Samuels

In memory of Arne Johansson:
Inder Arya

In memory of Matthew Roy Francis
Jones:
Josephine Anne Jones

In memory of Sharon Karen:
Chris Salaz

In memory of Virginia Banning
Kenney:
Claudia Carpenter

In memory of Joseph Kimberg:
Toni McClory

In memory of Martyl Langsdorf:
Peter and Nancy Hildebrand
Suzanne Langsdorf
Robert and Sandra Morgan
Judith Pieper
Lowell Sachnoff and Fay Clayton
Christopher Straus

In memory of Martyl and Alexander
Langsdorf:
Wayne and Susan Benjamin
Irene Pritzker

In memory of Jakelyn Amei Caal
Maquin:
Aldo Bocanegra

In memory of Richard L. Meier:
Otto and Grete Heinz

In memory of Dennis Norwood:
Joseph Gretsich

In memory of Victor Ocampo:
Elizabeth and Jeffrey Worline

In memory of Antti Eero Ilmari
Pajunen:
Lauri Pajunen

In memory of Wolfgang KH Panofsky:
Margaret Panofsky

In memory of Charles Perrow:
Barbara Wareck Perrow

In memory of Eugene Rabinowitch:
Alexander and Janet Rabinowitch

In memory of Victor Rabinowitch:
Peter Rabinowitch

In memory of Virginia Ranz:
David Ranz

In memory of Leonard Rieser:
Enid Rieser
Tim Rieser

In memory of Linda Rothstein:
Eileen Betley

In memory of David A. Rothstein MD:
Laila Rothstein

In memory of Martin Schweig:
Terrie Liberman

In memory of Nancy Seese:
Bernard Cleyet

In memory of Martin Shwerwin:
Peter Kuznick

In memory of Sue and Carol:
Kathleen McCroskey

In memory of Jeremiah D. Sullivan:
Frederick and Susan Lamb

In memory of Leo Szilard:
Jack Gentile
David Wargowski and Pamela
McMullin

In memory of Alvin V. Tollestrup, PhD:
Janine Tollestrup

In memory of James C. Warf, PhD:
Susan Rabinovitz

In memory of Senator Paul David
Welltone:
Harvey Fernbach

In memory of Paul Wendorf:
Peter Geiser

Financial update

Moving to a new fiscal year

On January 1, 2021, the Bulletin changed its financial reporting from a calendar year to a new fiscal year.

This fiscal year better aligns with our programming cycle and the cadence of our annual fundraising.

The change has already created greater stability in our budgeting process. We expect this stability to be reflected in strategic choices around future programming and operations and to underpin more direct institutional impact. The decision to make this change was taken with considerable forethought. Readers of this report might recall that in our 2020 annual report, we indicated that this change was on the horizon and that we would not publish our short-year financials (January–June 2021) in this 2021 Annual Report.

We notified key Bulletin stakeholders throughout 2020 to ensure a complete understanding of the reasons behind this change. We consulted with our independent external auditors and tax consultants who aided in the transition and ensured we implemented the change effectively.

The Bulletin will present its new fiscal year (July 1, 2021–June 30, 2022) financials in its 2022 Annual Report. We have, and will be pleased to share, audited short year financials to any individual, foundation or corporation seeking them before that. For questions about the change, or any additional financial information, please contact finance@thebulletin.org.

Thank you for your generous and sustained support.



Rachel Bronson, PhD
President and CEO

Save the date!

Bulletin of the Atomic Scientists

2022 Annual Event Conversations Before Midnight

November 8, 2022



Leadership and staff

Executive Chair

Edmund G. Brown Jr.

Board of Sponsors

David Baltimore*
Paul Berg*
George Church
Jayantha Dhanapala
Gareth Evans
Jerome Friedman*
Richard Garwin
Sheldon Glashow*
Brian Greene
Dudley Herschbach*
Howard Hiatt
Roald Hoffmann*
Pervez Hoodbhoy
Eric Horvitz
Shirley Malcom
Ben Mottelson*
William Perry
Thomas Pickering
John Polanyi*
Lisa Randall
Martin Rees
Richard Roberts*
Roald Sagdeev
Brian Schmidt*
Jaan Tallinn
Frank von Hippel
Frank Wilczek*
Edward Witten

* Nobel laureate

Science and Security Board

Daniel Holz, co-chair
Sharon Squassoni, co-chair
Lynn Eden
Rod Ewing
Steve Fetter
Asha George
Sivan Kartha
Robert Latiff
Herbert Lin
Suzet McKinney
Steven Miller
Raymond Pierrehumbert
Robert Rosner
Scott Sagan
Robert Socolow
Susan Solomon
Jon Wolfsthal

Governing Board

David Kuhlman, Chair
Lee Francis, First Vice Chair
John Balkcom, Second Vice Chair
Austin Hirsch, Treasurer
Steve Ramsey, Secretary
Virginia Berkeley
Misho Ceko
Cyndi Conn
Melissa Harris
Ania Labno
Robert LoPrete
William Revelle
Stephanie Woodson

Staff

Rachel Bronson, President and CEO
John Mecklin, Editor-in-Chief

Susan D'Agostino, Associate Editor
Dan Drollette Jr, Executive Editor
Robert K. Elder, Chief Digital Officer
Matt Field, Editor, Disruptive Technologies
Thomas Gaulkin, Multimedia Editor
Delilah Marto, Advancement Services Manager

Lisa McCabe, Chief Financial Officer
Colleen McElligott, Chief Advancement Officer

Jessica McKenzie, Associate Editor
Halley Posner, Program Manager
Brandon Powell, Advancement Services Coordinator

Gayle Spinazze, Assistant Director of Digital Operations
Sarah Starkey, Social Media and Analytics Coordinator
Dawn Stover, Contributing Editor, Energy, Environment, and Climate
Lorene Yue, Director of Media Relations

Kennette Benedict, Senior Advisor
Elisabeth Eaves, Contributing Editor
Sabrina Fields, UChicago Liaison
Stephen Schwartz, Nonresident Senior Fellow

Acknowledgments

Design: Gabe Smoller, Pentagram
Production management: Kendal Gladish

Photo credits

Page 5
Hector Retamal/AFP via Getty Images

Page 6
Mobilus In Mobili. CC BY-SA 4.0.

Page 7
Missile carrier: Alf van Beem via Wikimedia Commons
Chernobyl: Banda

Page 8
Anders Hellborn via Wikimedia Commons

Page 9
Chemical tanks: Glasshouse images
Oil refineries: Louis Vest via Flickr; CC BY-NC
Tornado: OAR/ERL/National Severe Storms Laboratory/Flickr

Page 12-13
US Air Force photo by Senior Airman Clayton Wear

Page 20
Jaan Tallinn by Annika Metsla

Page 22
Joshua Goldberg: Courtesy of Syracuse University Archives, Special Collections Research Center

Bulletin of the Atomic Scientists



1307 E 60th Street
Chicago, IL 60637
773.834.3779

thebulletin.org
[@BulletinAtomic](https://twitter.com/BulletinAtomic)