Revisiting
One World or None.

Sixty years ago, atomic energy was new and the world was still reverberating from the shocks of the atomic bombings of Hiroshima and Nagasaki. Immediately after the end of the Second World War, the first instinct of the administration and Congress was to protect the "secret" of the atomic bomb. The atomic scientists—what today would be called nuclear physicists— who had worked on the Manhattan project to develop atomic bombs recognized that there was no secret, that any technically advanced nation could, with adequate resources, reproduce what they had done. They further believed that when a single aircraft, eventually a single missile, armed with a single bomb could destroy an entire city, no defense system would ever be adequate. Given this combination, the world seemed headed for a period of unprecedented danger.

Many of the scientists who had worked on the Manhattan Project felt a special responsibility to encourage a public debate about these new and terrifying products of modern science. They formed an organization, the Federation of Atomic Scientists, dedicated to avoiding the threat of nuclear weapons and nuclear proliferation. Convinced that neither guarding the nuclear "secret" nor any defense could keep the world safe, they encouraged international openness in nuclear physics research and in the expected nuclear power industry as the only way to avoid a disastrous arms race in nuclear weapons.

William Higinbotham, the first Chairman of the Association of Los Alamos Scientists and the first Chairman of the Federation of Atomic Scientists, wanted to expand the organization beyond those who had worked on the Manhattan Project, for two reasons. First, he feared that, as the Manhattan Project wound down, many of the scientists would return to their pre-war academic institutions and the group's cohesiveness and effectiveness would be reduced. And, second, he felt that the issues of scientific freedom and transparency and the threat of nuclear weapons concerned a wider circle of scientists. Higinbotham thus opened membership in an expanded organization, the Federation of American Scientists, to all scientists. Some of the atomic scientists resisted the change, fearing that their special cachet of Manhattan Project experience would be diluted, and the Federation of Atomic Scientists continued to operate for some months as a distinct entity within the Federation of American Scientists before finally merging completely.

The public was hungry for technical information on how the bomb worked and its effects, and, just as importantly, what its political and military implication might be. Most people were certain that the new power of the atom would transform the world, they were just not sure how. The Federation's response was its first formal publication, *One World or None*, released in 1946. The paperback book cost one dollar and a hundred thousand copies were sold. It was widely discussed and reviewed, almost entirely favorably.

One World or None was, and still is, an astonishing little book. I believe that in the history of science, there has never been a collection of invited original essays by a more august group. Writing an introduction to essays by Albert Einstein, Robert Oppenheimer, and Niels Bohr among others is a humbling experience, indeed. This book also marked the beginning of an unprecedented period in which scientists spoke with a special moral voice, and were listened to.

Why should *One World or None* be reproduced today? Often older works that look into their future, that is, our present, are at best charmingly amusing. Science fiction of the time imagined commonplace manned space travel to Mars but almost completely missed personal computers, cell phones, the internet, and biotechnology. In contrast, *One World or None* is remarkably prescient in many ways. Eugene Wigner, the only one of the authors I have had the pleasure to know personally while I was a graduate student at Princeton, contributed a tutorial on how the bomb works that is as good as anything available today. Gale Young's forecast of the future of nuclear power, written when there were only four nuclear reactors in the entire world, lacked specifics because much was unknown at the time but the principles he lays out are still sound. Phillip Morrison's description of the effects of a "small" atomic bomb on New York City is more relevant today in an age of terrorist threats than it was during the Cold War. Louis Ridenour predicted the development of cruise missiles and accurately foresaw the immense technical challenge of a missile defense system.

The political predictions and prescriptions are more mixed. Harold Urey was right on target when he predicted the fear and secrecy that the bomb would induce in nations around the world. And Edward Condon's discussion of how modern technology will allow small groups or even individuals to wreak wildly disproportionate damage on a modern society is frighteningly relevant today. In contrast, Albert Einstein's suggestion for a supranational army has been discussed for decades but today the United Nations still does not have any readily deployable force and Leo Szilard's suggestions for arms monitoring by a supranational cadre of scientists seems naïve today given events in Iran and North Korea and the history of the Soviet Union. Indeed, the very title now appears quaintly anachronistic. World government is not necessary to address nuclear dangers and few today believe that world government is desirable for any reason.

Ironically, what makes *One World or None* particularly relevant today is its one great original weakness. None of the authors foresaw the great *bipolar* divide of the Cold War. When Russia is discussed at all, it is generally with some respect and sometimes sympathy and not at all as a potential enemy, despite early but clear signs of trouble ahead. The picture they seem to have was of an unstable pre-World War I, multipolar world of shifting alliances of wary nuclear great powers. They imagined nuclear deterrence to be much less certain and powerful than it seems to have been during the Cold War. They knew that nuclear weapons were a radical departure from all that had gone before but feared that civilian and military leaders would view nuclear weapons as just bigger bombs. In short, they imagined a world much more like the world today than the world of the Cold War that was about to descend on them.

At the end of the Cold War, both the United States and the Soviet Union, and then Russia, missed a truly historic opportunity to take giant strides toward global nuclear disarmament. The United States was explicitly cautious, following a foot-dragging policy of "hedging" against a "resurgent" Russia rather than seizing the opportunity to seek disarmament with a newly friendly Russia precisely *because* the relation might turn sour sometime in the future. Russia, faced with a wobbly conventional military, was hesitant to give up the only thing that left it at least a shell of a superpower: a vast arsenal of nuclear weapons.

Now the two former superpowers retain thousands of nuclear weapons, each dozens of times more powerful than the bomb that destroyed Hiroshima, mounted atop highly accurate, fast flying missiles on hair trigger alert. The United States also keeps many of its weapons continuously forward deployed on nuclear submarines, just minutes from their targets. The SORT or Moscow Treaty is essentially meaningless. Russia has hinted at future arms reduction talks but the United States seems quite satisfied with the status quo.

What is the mission for these thousands of nuclear weapons? If we ignore what the US administration *says* and look simply at how the weapons are deployed—the nuclear "posture" in the jargon of nuclear war planners—there is one and only one answer and it is obvious: U.S. nuclear forces were designed to, *and are still deployed to*, meet their most stressing mission, a disarming first strike against Russian central nuclear forces. This forces the Russians to maintain thousands of nuclear weapons in hopes that perhaps scores would survive a US first strike. The constant US threat encourages the Russians to keep a "launch-on-warning" doctrine, which is particularly worrying because of the dangers of launch by accident due to Russia's decaying early warning system. Russian nuclear weapons are the only threat in the world that could end the United States as a viable society. This incredible and dangerous situation persists almost two decades after the end of the Cold War because of political and institutional momentum and a heartbreaking failure of imagination and courage.

The overwhelming majority of the public is unaware of the vast size of the American and Russian arsenals. Polls indicate that the public thinks these horrible weapons somehow simply magically disappeared with the end of the Cold War, like battleships sent to the scrap yard after World War II. Public ignorance breeds political apathy so decisions about nuclear weapons and nuclear policy have fallen by default to a tiny nuclear priesthood.

During the Cold War, nuclear weapons loomed in the background over every security decision. They were there. They had to be taken into account. But in the end, the nuclear forces of the superpowers seem to have largely checkmated each other into practical impotence. With the end of the Cold War, the superpowers could have realized that the fundamental purpose of nuclear weapons is to counterbalance the other side's nuclear weapons, that their net effect is to simply put the entire world in greater danger

without enhancing the security of any one nation. The superpowers could have realized this and worked toward real nuclear disarmament, but they did not.

Indeed, the United States has gone in the exact opposite direction. During the Cold War, whatever hypothetical military utility nuclear weapons might have had was, in practice, nullified by the threat that the Soviets would make some comparable use of nuclear weapons. The result was four decades of nuclear stalemate. The current administration seems to believe that now, without the counterbalancing threat of Soviet nuclear use, nuclear weapons have entered a new renaissance. The Federation has documented how U.S. nuclear policy has shifted over the last several years in frightening directions, even to include preemptive first use of nuclear weapons against non-nuclear powers.

American plans for a so-called Reliable Replacement Warhead, plans to modernize the nuclear weapons production facilities, plans to keep the design and production base "warm" by building more warheads, and the ongoing deployment of thousands of highly accurate multi-hundred kiloton nuclear weapons on hair trigger alert indicate clearly that, when the administration looks into the future as far as it can, it sees a world with thousands of nuclear warheads.

The administration sees nuclear weapons as potentially useful and plausibly usable military tools. It talks about the dangers of proliferation but proliferation is seen as a problem of governments that they do not like, not a problem of nuclear weapons *per se*.

In short, the world we are moving into today it similar to the world that the authors of *One World or None* foresaw. Their predictions missed the development of two great superpowers and the resulting Cold War; but now, sixty years later, these essays once again have special resonance.

The mantra of the Manhattan Project scientists, that there is no "secret" to the bomb and no defense, is still true today. Even technologically middling nations like Iran can make a nuclear weapon given the time. The founders of the Federation of American Scientists saw one way out: To work toward global openness in the nuclear power industry so that secret weapon production would be impossible and then work toward a world without nuclear weapons, first by putting existing nuclear weapons under international observation, then under international control, and finally destroying them.

A program like this, working toward global disarmament, should be our goal today. We should treat nuclear weapons like we now treat chemical and biological weapons, that is, a threat when in the wrong hands but not a tit-for-tat weapon. Even if North Korea develops biological weapons, we gain nothing by developing our own biological weapons. Similarly, nuclear weapons have been replaced by modern conventional weapons in all but the most painfully contrived hypothetical situations. Nuclear weapons are not the best counter to nuclear weapons. And because conventional alternatives are available, nuclear weapons do not meet current standards of

discrimination, making their use immoral. The United States can afford to reduce its nuclear arsenal to dozens while working for a global ban on them. If the United States, along with Russia, made truly meaningful reductions in its nuclear arsenal, its credibility and prestige as the leader of a worldwide counter-proliferation effort would be immensely enhanced.

These cogent essays are a delight in themselves and fascinating history but it is with this new, somewhat unsettling, view of the post-Cold War world that we invite you to reexamine *One World or None*. We believe today's readers will find much wisdom in what follows.

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2007