

60 Years after Hiroshima: the New Nuclear Danger and What You Can Do About It

Good morning.

I very much appreciate your coming today. I'm going to talk about nuclear weapons and why we need to eliminate them. Many people find this topic depressing, and therefore seek to avoid it. So let me start with a quick question: how many of you knew that today's sermon would be about nuclear weapons and came anyway? You deserve special thanks! I hope that when I'm done you're energized rather than depressed. And for the rest of you, who saw the topic when you arrived and stayed anyway, thank you for staying .

I want to start by thanking Joanne and Steve Rovno, who introduced me to Katsukuni Tanaka about 18 months ago in Beck Hall. Katsukuni and his wife Kiomi were my wonderful hosts when I visited Hiroshima last year.

The part of the Hiroshima visit that I found the most moving was the thousands of paper cranes, folded by people, mostly children, from around the world who wish for peace. That's where I got the idea of having children in our congregation fold some paper cranes and send them to Hiroshima. Kiomi showed me how to fold a paper crane, and last week Diana and Caitlin Candee and I and some of your children folded the ones you see displayed here. So I also want to thank Diana and Caitlin and the kids.

As many of you know, yesterday was the 60th anniversary of the dropping of an atomic bomb on Hiroshima, and event that killed about 100,000 people and awed and horrified the world. Three days later, the US dropped a second atomic bomb on Nagasaki with similar results, and 5 days after that Japan surrendered. Thankfully no atomic bombs have been used since then. Still, reading the newspaper and listening to the news about North Korea, Iran, and terrorists, it is hard to feel very safe.

You probably deal with this problem the same way I do most of the time, and the same way as those who saw the sermon topic and stayed away -- by putting it out of your mind. In other words, denial. The trouble, and the reason I am speaking to you today, is that lately denial has not been working very well for me. Let me tell you why.

One option for denial is to say that nuclear weapons do not pose a very big danger. If that's what you are using now, I'm going to have some very bad news for you. In fact, even use of the term "Weapons of Mass Destruction" feeds into this kind of denial because it suggests that there is some kind of parity between chemical and biological weapons and nuclear weapons, which there is not. Nuclear weapons are in a whole different category of destructiveness and evil, at a level most of us cannot even begin to imagine.

Another denial possibility is to acknowledge that nuclear weapons pose a grave danger, but to defer to those in charge of dealing with this danger, since they are the experts and know what they are doing. Unfortunately, as most of you probably know, "Leave it to the experts, they know what they are doing," is a position that is morally and historically hard to justify. I hope to leave you with some discomfort about it being currently justified in this setting.

Finally, we can choose denial because of the fear that all of us have, that there's nothing we can do about it anyway. This is the one that my Unitarian Universalist faith has helped me the most with. If, as Margaret Meade said, a small group of committed people can change the world and abolish nuclear weapons, I want to be part of that group. I need to be. Somehow, I'm convinced that God wants me to be, even though I am not convinced that God exists.

As many of you know, I'm a linear kind of guy, and all my sermons and lectures have a little bit of "Tell 'em you're gonna tell 'em, tell 'em, and tell'em you told 'em" flavor. So I'll tell you now some things I want you to take away from this morning: a couple of quotes, 2 obscene numbers, 2 article sixes, some discomfort, and a positive vision.

Here's the first quote. Albert Einstein said, "Since the advent of the Nuclear Age, everything has changed save our modes of thinking and we thus drift towards unparalleled catastrophe." "...everything has changed save our modes of thinking and we thus drift towards unparalleled catastrophe."

The thing that is hardest for us to grasp with our old mode of thinking is the enormous amount of energy released by nuclear weapons. There is nothing in our every day experience that allows us to comprehend the vast amount of energy that can be released by a relatively small nuclear bomb.

Here is an example I came up when I spoke to Sally Seebode's chemistry classes at San Mateo High School last year. Probably the unit of energy we are most familiar with is the food calorie. For the purists in the group, it is actually a kilocalorie, but I'll use the more common term, "calorie." For example, a sugar cube has 17 calories of energy. If you are an active person who burns 2400 calories per day, a sugar cube has enough energy to keep you going for about 10 minutes.

But if instead of the chemical energy in the sugar cube we consider the energy in its mass, using Einstein's formula $E=mc^2$, the energy contained in a sugar cube is many times more. You might want to stop a minute and guess: how long would the energy in a sugar cube sustain you if all of its mass were converted to energy, as some mass is in a nuclear explosion? I'll give you a hint: the c in $e= mc^2$ is the speed of light, which is very, very fast.

The answer is about 138,000 years. If converted to energy, the mass in one sugar cube would be enough to sustain a person for 138,000 years. Do you see what I mean? Old mode of thinking, 10 minutes, new mode of thinking, 138,000 years. Kind of hard to get your mind around.

To measure energy in this range, we needed a new unit, and the kiloton was born. A kiloton is the amount of energy released by 1000 tons (that's 2 million pounds) of TNT explosive. If all of the mass in a sugar cube were converted to energy, it would be about 21 kilotons -- the size of the Nagasaki bomb. The Hiroshima bomb was about 13 kilotons. Just for comparison, the Oklahoma City explosion was about 2 tons, or two one-thousandths of a kiloton. The total explosive power of all of the bombs dropped during World War II, including Hiroshima and Nagasaki, was about 3000 kilotons.

Now we get to the first obscene number. Current nuclear arsenals, held mostly by the US and Russia, are about 11,000 MEGAtons, or 11 million kilotons, about 3700 times the total from World War II. Or, if you prefer, another way to express this first, totally creepy, obscene number is that current nuclear arsenals amount to almost 2 tons of TNT for each of the 6 billion people on the planet.

Why so much? This obscene number is the product of previous generations adopting the strategy I mentioned earlier: "Leave it to the experts, they know what they are doing."

Unfortunately, this obscene number of existing nuclear weapons is not the whole problem, or even the scariest part of it. One of the biggest dangers facing us is nuclear terrorism.

We could be victims of nuclear terrorism if terrorists either got a hold of an existing bomb or if they built one of their own. Although either of these is possible, building their own bomb seems more likely, as existing nuclear

weapons are very tightly guarded. Unfortunately, this has not been the case for highly enriched uranium and plutonium, the materials needed to make a nuclear bomb. Once terrorists get a hold of this fissile material, it is not very difficult to make an atomic bomb. In fact, in 1972, John Aristotle Phillips, then a Princeton undergraduate, designed a plutonium bomb for his senior thesis. His professors concluded his design would probably work and turned his thesis over to the government, which promptly classified it. And this was before the World Wide Web.

The amount of fissile material, the material that can be used to atomic bombs is about 3800 tons. This brings us to the second obscene number: enough fissile material exists to make about 300,000 Hiroshima-sized bombs. Of course, the big danger is not that so many bombs will be made it is that the amount needed for a single bomb is only one 300 thousandth of the total, and keeping track of such a huge amount of dangerous stuff with that level of accuracy is very, very difficult.

I can't impress upon you enough how dangerous this bomb-grade material is, and how important it is to keep track of it. Graham Allison, Dean of the Kennedy School of Government, in his frightening book "Nuclear Terrorism" writes: "In the first 3 years after the fall of the Soviet Union, the German government reported more than 700 cases of attempted nuclear sales, including 60 instances that involved seizure of nuclear materials." I'll just share one.

We know a lot about this case because the perpetrator was actually interviewed on Frontline on PBS. Yuri Smirnov worked in a nuclear production plant in Podolsk, about 25 miles south of Moscow. Between May and September of 1992, he stole about 3 pounds of highly enriched uranium, an ounce or two at a time in a little lead vial, and stored it in on his balcony. This theft was not detected until he decided to go to Moscow to find a buyer. On the way, he met some neighbors who were sharing some vodka at the train station. Yuri joined them for a drink, and then all were arrested on the train platform, because as it turned out, the neighbors were accused of stealing batteries from a factory where they worked. Yuri was searched, the uranium vial was found, and he had to tell them what was in it, lest they open it up and contaminate him and the whole police station. How many similar thefts have gone undetected? We don't know.

Why is there so much of this fissile material out there, why hasn't it been guarded better, and why do we keep making more of it? Because, "leave it to the experts, they know what they are doing" has not been a very good strategy so far.

Maybe you are starting to feel some of the discomfort I promised you. But there is more.

What frightens me the most is that to secure all of this fissile material, which currently exists in 40 different countries, will require an extraordinary level of international cooperation, with strict, enforceable international treaties. And I'm concerned that the current administration's attitude towards international cooperation and international treaties will make this vitally important task more difficult.

There are many examples of this, but perhaps the most important example is the Nuclear Nonproliferation Treaty, the NPT. The NPT divided the world into countries that already had nuclear weapons and those that did not. The "have nots" promised not to try to develop nuclear weapons. In return, the "haves" promised to supply the "have nots" with technology for nuclear power and to negotiate to abolish their own nuclear weapons. This brings us to the first article VI I promised you. Article VI obligates the nuclear weapon states to "pursue negotiations in good faith" towards nuclear disarmament.

The administration claims to support Article VI of the NPT, but there are some disturbing trends in the opposite direction. Many of you may have read that the 5-year review of the NPT held in New York in May, 2005 ended in frustration and disarray. The US wanted to focus on the danger posed by Iran and North Korea, while non-

nuclear states wanted the US and other nuclear states to fulfill their promise to disarm. At the NPT conference in 2000, parties to the treaty had agreed upon 13 practical steps towards implementation of article VI. The US no longer supports these steps.

The Bush administration's policies call, if anything, for an increasing role of nuclear weapons in the US defense strategy. Let me give you just 3 examples:

First, the administration wants to build a "Modern Pit Facility" to resume production of plutonium pits, to allow us to make up to 400 new nuclear weapons per year.

Second, the administration seeks to design new, more flexible and usable nuclear weapons, including so-called mininukes, and the Robust Nuclear Earth Penetrator, or "bunker buster," to be used against hardened enemy targets.

Finally, rather than using nuclear weapons solely to deter a nuclear attack, the administration has indicated that they might be used against nonnuclear states in response to a chemical or biological attack on the US or its allies, or might even be used pre-emptively, in response to the threat of such an attack.

If you think this increasing role for nuclear weapons is counter to our obligations under Article 6 of the NPT, you may be interested in the second Article 6 I promised you. That would be Article 6 of the US Constitution, which states:

"This Constitution... and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every state shall be bound thereby..."

So negotiating in good faith for nuclear disarmament according to Article 6 of the NPT is not only a good idea, it is the supreme law of the land, which all of our elected officials have sworn to defend and uphold.

This brings us to the vision thing. Part of the vision is the rule of law. People who swear to uphold the constitution should do so. Treaties should mean something. As Paul Meyer, Canadian Representative to the 2005 NPT conference put it, "If governments simply ignore or discard commitments whenever they prove inconvenient, we will never be able to build an edifice of international cooperation."

I think Physicians for Social Responsibility, of which I have been an active member for 25 years, has the right idea. They call it SMART security. SMART stands for a Sensible Multilateral American Response to Terrorism. SMART security has 3 simple parts:

- Strengthen international institutions and support the rule of law
- Renounce the development of new nuclear weapons and strengthen international disarmament treaties
- Change budget priorities to reflect real security needs, such as funding for international development and alternative energy sources

PSR's SMART security platform is not just a political and a health issue, it is a religious one as well. It was recently endorsed by the National Council of Churches, representing 100,000 congregations with 45 million members. You'll get a chance to support PSR when we pass the collection plate this morning, and you can pick up some literature about SMART security from the table in the Hemingway lounge as you head out of the service for coffee.

This brings us to our second quote. Senator Everett Dirksen, senate minority leader in the 1960s, put it very well. He said, "When I feel the heat, I see the light." We need to turn up the heat on our elected officials, to

strengthen international institutions and the rule of law, renounce new nuclear weapons and change budget priorities to reflect real security needs.

So, let's review the take home messages:

Einstein said, "Since the advent of the Nuclear Age, everything has changed save our modes of thinking and we thus drift towards unparalleled catastrophe," and Dirksen said, "When I feel the heat, I see the light."

The two obscene numbers were current nuclear arsenals equivalent to almost 2 tons of TNT per person on the planet, and enough fissile material to make 300,000 Hiroshima sized bombs.

The first article VI was Article 6 of the NPT, which requires us to pursue negotiations towards nuclear disarmament, and the second was Article 6 of the constitution, that states that such treaties are the supreme law of the land.

The promised discomfort is from threats from terrorists, loose fissile material, and an administration whose approach is to embrace nuclear weapons rather than international cooperation and nuclear disarmament, and the vision is SMART security.

When I talk to doctors, this is about where I stop. But let me finish up with a little more on the vision thing, going beyond SMART security proposed by PSR. Much of what I've said up to now has been about my fears for my own safety and yours. And make no mistake, fear is a powerful motivator. But there is something unsatisfactory to me about implying that the main reason why we need to abolish nuclear weapons is so we will be safer. Especially in a religious community, we need to confront the fact that these weapons are instruments of genocide.

Nuclear weapons are about the closest thing I can imagine to pure evil. They are god-damned instruments of genocide. How can any of us know what these weapons are and what they do, and how many thousands of them our country has, and threatens to use, without being overcome by disgust and outrage? How can we explain the existence of these instruments of genocide to our children without also saying, "and here is what my friends and I are doing about it." Just as it diminished all who lived in the US when it tolerated slavery, so it diminishes all of us to acquiesce to live in a country that threatens genocide with nuclear weapons.

That is why this is a religious issue. I want and need to live in a world where evil is confronted, where there is a vision for a better world, and a hope that by working together we can bring it about. Part of my vision, like that kids around the world who fold paper cranes, is a world that does not contain nuclear weapons. I hope that is part of your vision, too.

May it be so.

Mario Savio quote, after 'Spirit of Life':

"There comes a time when the operation of the machine becomes so odious, makes you so sick at heart, that you can't take part; and you've got to put your bodies upon the gears and upon the wheels, upon the levers, upon all the apparatus, and you've got to make it stop."

--Mario Savio, 1964

1 The interview is available at: <http://www.pbs.org/wgbh/pages/frontline/shows/nukes/interviews/smironov.html>; accessed 7/18/05