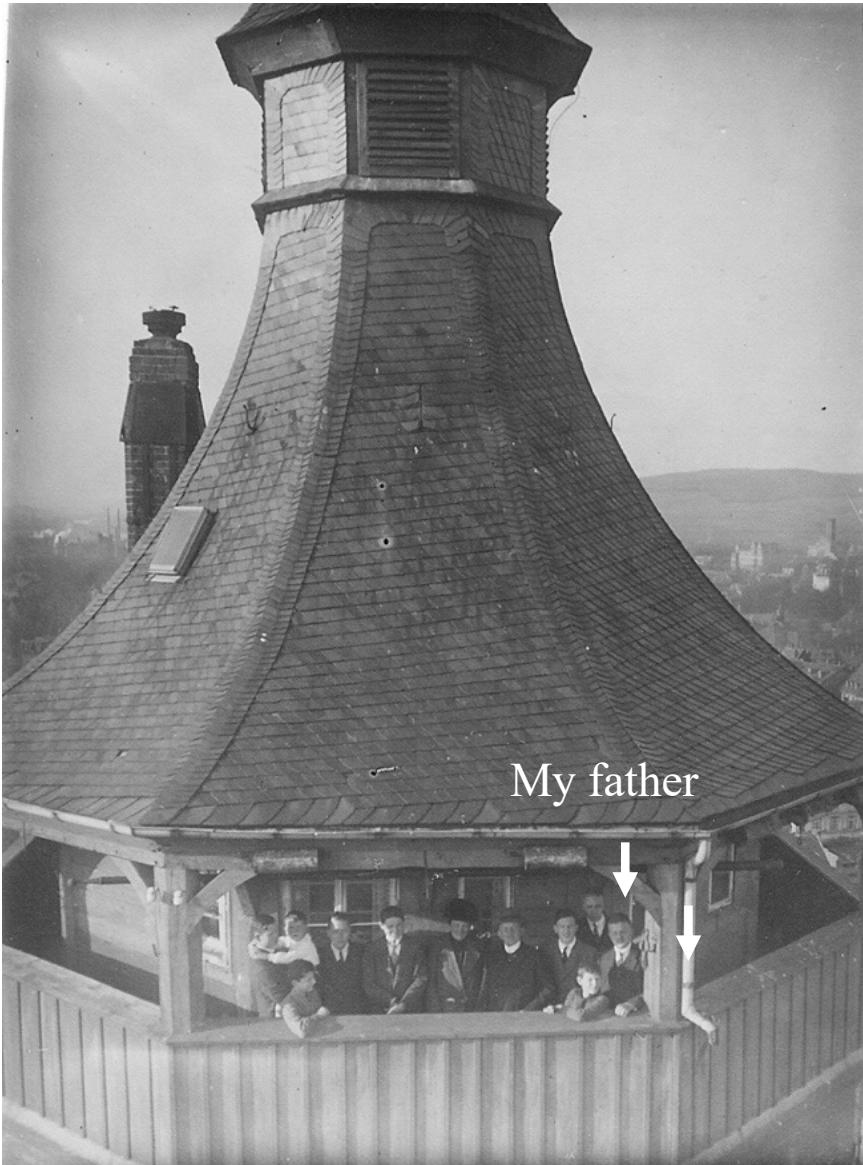


**We must complete the job of eliminating nuclear weapons.**

Frank Niels von Hippel  
Goettingen, March 15, 2025

# My family's roots are in Goettingen



**My mother**



**My mother's father, James Franck, and my older brother, Peter, en route to US, 1936**



## James Franck, Otto Hahn and chemical weapons

Franck, along with Otto Hahn and others, was recruited by Fritz Haber into Germany's World War I poison gas project as a way to break the stalemate of trench warfare. After the war, his friend, Niels Bohr, reproached Franck for his blind patriotism.



## James Franck and the Nuclear Arms Race

In 1933, after the Nazis demanded that all Jews be fired from the universities, Franck found positions for his Jewish assistants and then left for Copenhagen and then the US where, in 1938, he moved to the University of Chicago.

In 1942, the University of Chicago became the center of the effort to produce plutonium for the secret wartime nuclear-weapon program. Fermi oversaw the design of the plutonium-production reactors. Franck oversaw the design of chemical separation of plutonium from the reactors' uranium fuel.

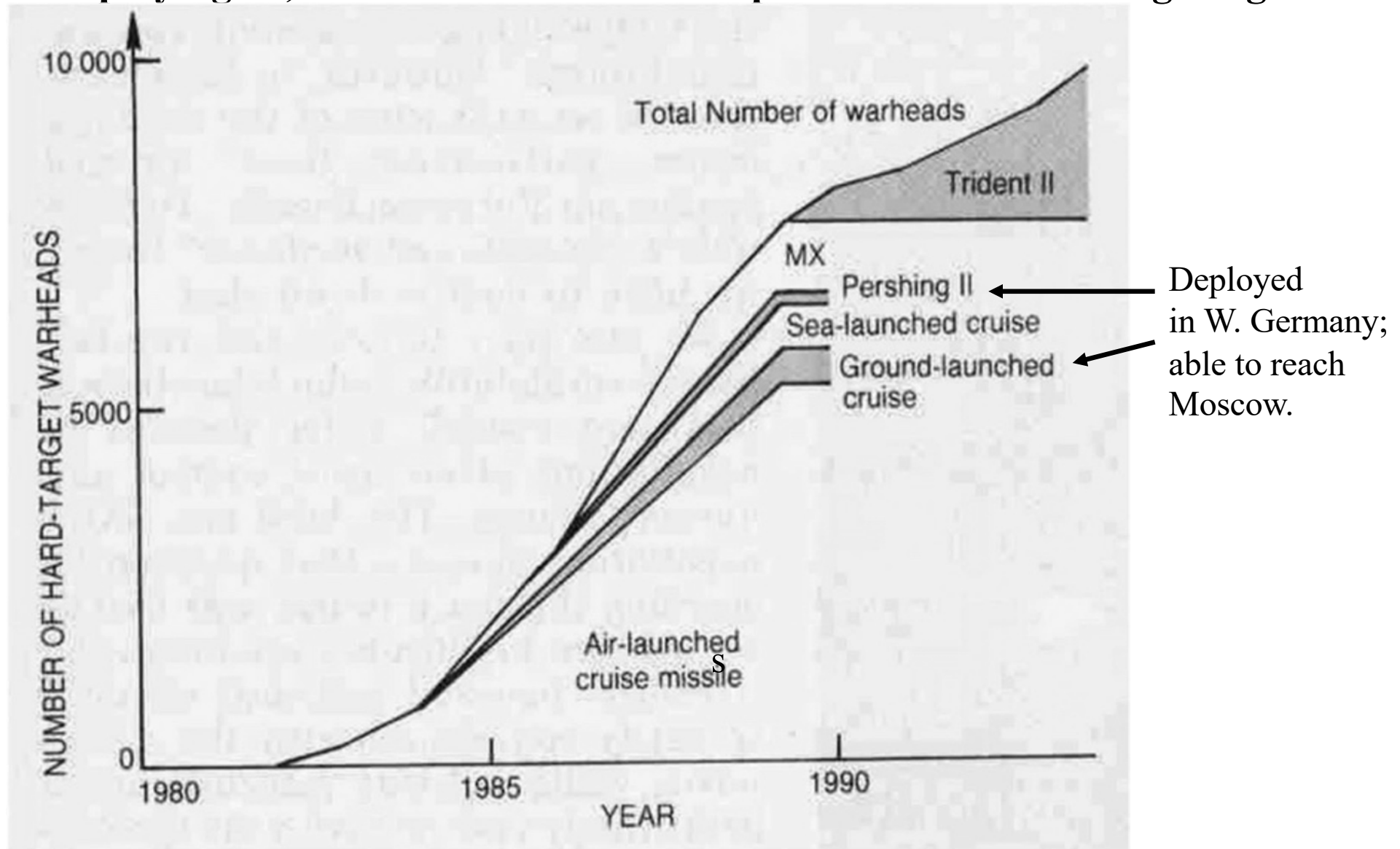
Franck agreed to do this on one condition: *if the time came when the U.S. had produced nuclear bombs and the Nazis had not, he would be allowed to give his views on their use to the highest level of the US government.*

On this basis, in June 1945, he organized the writing of the *Franck Report*.

*The report urged that the US not use nuclear weapons against Japan without consulting the United Nations. It warned that, if the US made the decision in secret, it would trigger a nuclear arms race with the Soviet Union.*

Shortly after the bombing of Hiroshima, Stalin launched the Soviet nuclear weapons development program on a crash basis.

I became involved with nuclear-weapon issues in 1974, in a debate over the deaths from a “limited nuclear war” in which nuclear weapons would be targeted only on each other, and then in 1981, when the Reagan Administration proposed deploying 10,000 accurate nuclear weapons for nuclear warfighting.



**Many people were alarmed. There were uprisings against the nuclear arms race in West Europe and U.S.**



**Bonn, 1981**



**New York , 1982**

**The uprisings convinced Reagan on 21 March 1983 to shift his rhetoric from offense to defense.**



**“I call upon the scientific community in our country...to give us the means of rendering these nuclear weapons [ballistic missiles] impotent and obsolete.”**

**That speech triggered a dialogue between the Committee of Soviet Scientists for Peace and Against the Nuclear Threat (CSS) and Federation of American Scientists (I was chairman of the FAS at the time.)**

**Open letter from the CSS. “Basing ourselves on the knowledge, which we as scientists have, we declare in all responsibility that *there are no effective defensive means in nuclear war.*”**

**Response from FAS (April 1983): “*We want the [1972 treaty limiting defenses against strategic ballistic missiles] strengthened rather than weakened...Without this Treaty, the arms race would soon speed up and become still more dangerous than it is even today.*”.**

**In November 1983, we went to Moscow for discussions with the CSS. The chairman of the CSS was *Evgeny Velikhov.***



**In March 1985, after Mikhail Gorbachev became General Secretary of the Soviet Communist Party, we learned that Velikhov was a Gorbachev advisor.**



(Velikhov died, December 5, 2024, aged 89)

# **Gorbachev's Unilateral Nuclear Test Moratorium**

Gorbachev wanted to end the nuclear arms race – because both the danger and also the huge economic burden it was putting on the Soviet Union.

*He called the Soviet military-industrial complex, “an insatiable Moloch”* after the Middle Eastern god who required child sacrifice.

On 6 August 1985 (Hiroshima Day) Gorbachev announced a unilateral halt of Soviet testing.

Presidents Eisenhower/Kennedy, and Premier Khrushchev, had tried for a Comprehensive [Nuclear] Test Ban Treaty, but, because of Soviet paranoia about in-country inspections, in 1963, the two sides agreed to ban tests everywhere but underground.

The Reagan Administration was not interested in joining Gorbachev's test moratorium. It had many new warheads under development.

*One Administration statement questioned whether Soviet testing had really stopped.*

## **Nuclear Glasnost (Openness)!**

In November 1985, I met Velikhov in Copenhagen. He suggested the Gorbachev might be willing to have a private group come in and verify that the Soviet Union was not testing.

We organized a meeting in Moscow six months later and it was agreed that the US Natural Resources Defense Council (NRDC), would recruit some US seismologists to monitor the Soviet test site in Kazakhstan. They arrived with portable seismometers two months later.



## House of Representatives Reacted by Voting for US to Join the Testing Moratorium

But the Senate did not, and it took six more years, until, *in 1992, the Senate too voted for a moratorium*. That laid the basis for multinational negotiations in Geneva that produced the 1996 Comprehensive Test Ban Treaty.

That Treaty has not come into legal force due to the lack of ratification by 7 of the 9 nuclear-weapon states, but, *since 1998, only North Korea has tested*.



## More Nuclear Glasnost: Visit to a Soviet Plutonium City

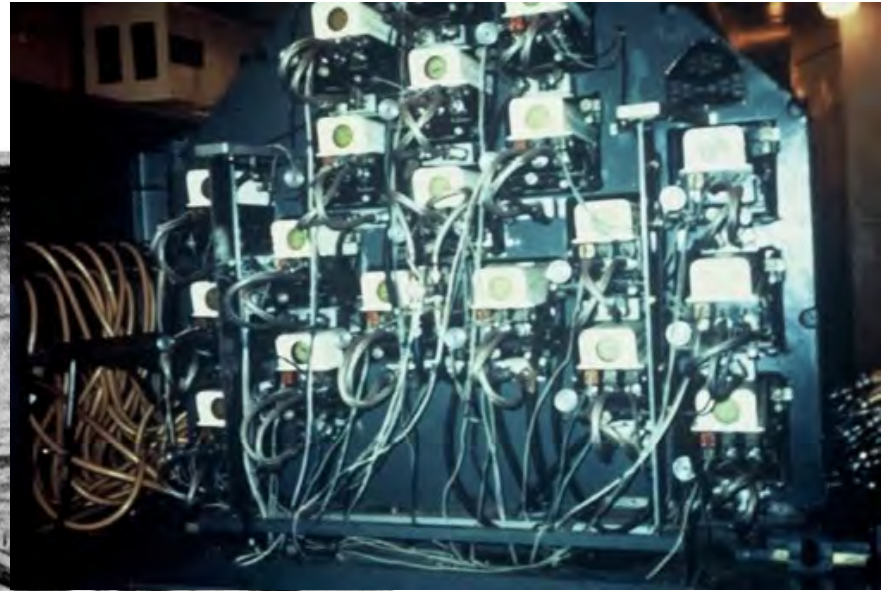
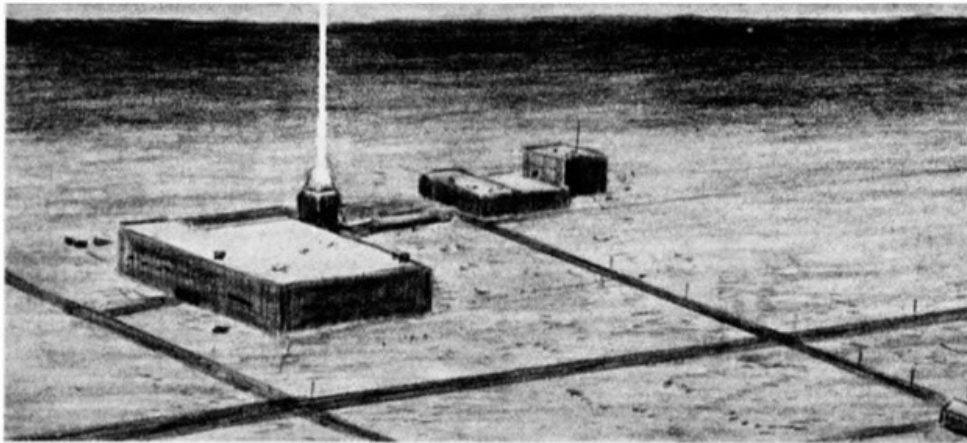
Velikhov and the NRDC cooperated on four other nuclear glasnost efforts. I went along on three:

We visited the Soviet Union's first plutonium city – a secret city not even shown on Soviet maps. We attracted attention since we were the first foreign visitors. We visited the oldest plutonium-production reactor, which had been shut down, and were told of plans to shut down the rest.



## The Soviet anti-satellite laser that was not

We also visited what the Pentagon described as an anti-satellite laser. When he saw the pictures of the low-power lasers inside, a U.S. Army laser expert exclaimed “toys!”. He was working with a million-Watt laser.



*The directed-energy R&D site at the Sary Shagan proving ground includes ground-based lasers that could be used in an antisatellite role today and possibly a BMD role in the future.*

# We participated in demonstrations of Nuclear Warhead Detection (1989)



Gorbachev made available *Slava*  
(later *Moskva* sunk by Ukrainian cruise missiles, 14 April 2022)

Tip of supersonic cruise missile



Gamma-ray detector

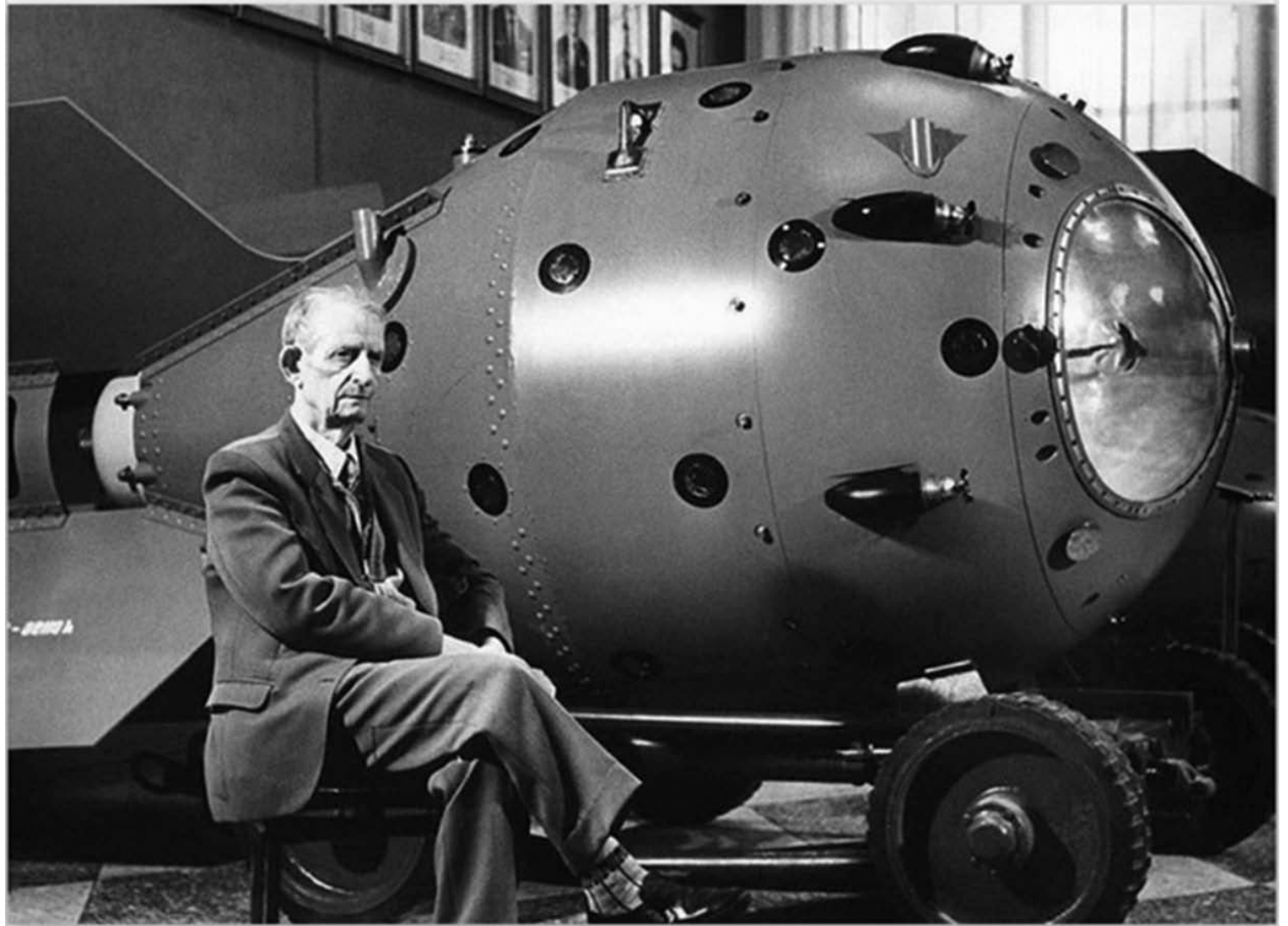


Neutron detector on helicopter



**Yuli Khariton** (the Soviet Union's Oppenheimer) later told me he had objected to allowing our measurement of gamma rays from the warhead but was overruled by Gorbachev.

Khariton sitting in his laboratory's nuclear warhead museum with a copy of the U.S. Nagasaki bomb – the first one tested by the Soviet Union because they knew it would work. They were afraid they would be executed if their first test was a failure.





**In Feb. 1987, Velikhov and I organized a Scientists' Forum in Moscow as part of a larger Conference on Nuclear Disarmament. Was I asked to report the Forum's conclusions in the Kremlin because of my title: Chairman of the Federation of American Scientists?**



## **Some of the Recommendations from the Scientists Forum**

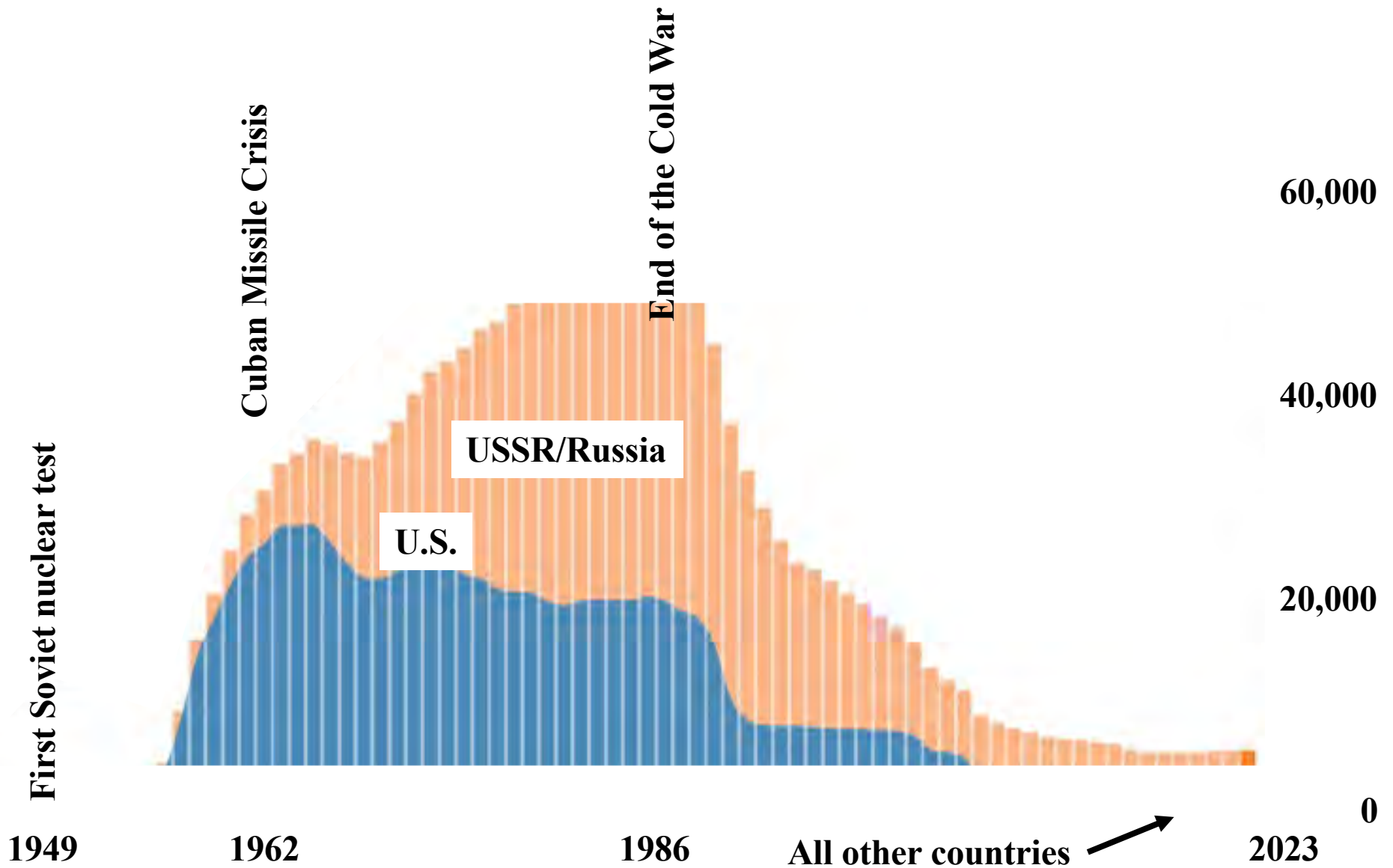
- Soviet and U.S. nuclear-warhead stocks could be reduced at least 90%..
- Battlefield nuclear weapons should be eliminated because they lower the threshold for nuclear war.
- Conventional military forces in Europe should be reconstructed to reduce their offensive capabilities such as tanks.

**Gorbachev allowed Sakharov to return to Moscow. At the Scientists' Forum, he urged the Politburo to ignore President Reagan's infeasible ballistic missile defense program and agree on deep cuts.**

Later, I obtained a transcript of the recording of our talk made for Gorbachev by the KGB.



# Thanks to Gorbachev & the anti-nuclear-arms-race movement, Global nuclear-warhead stocks have been reduced 85%

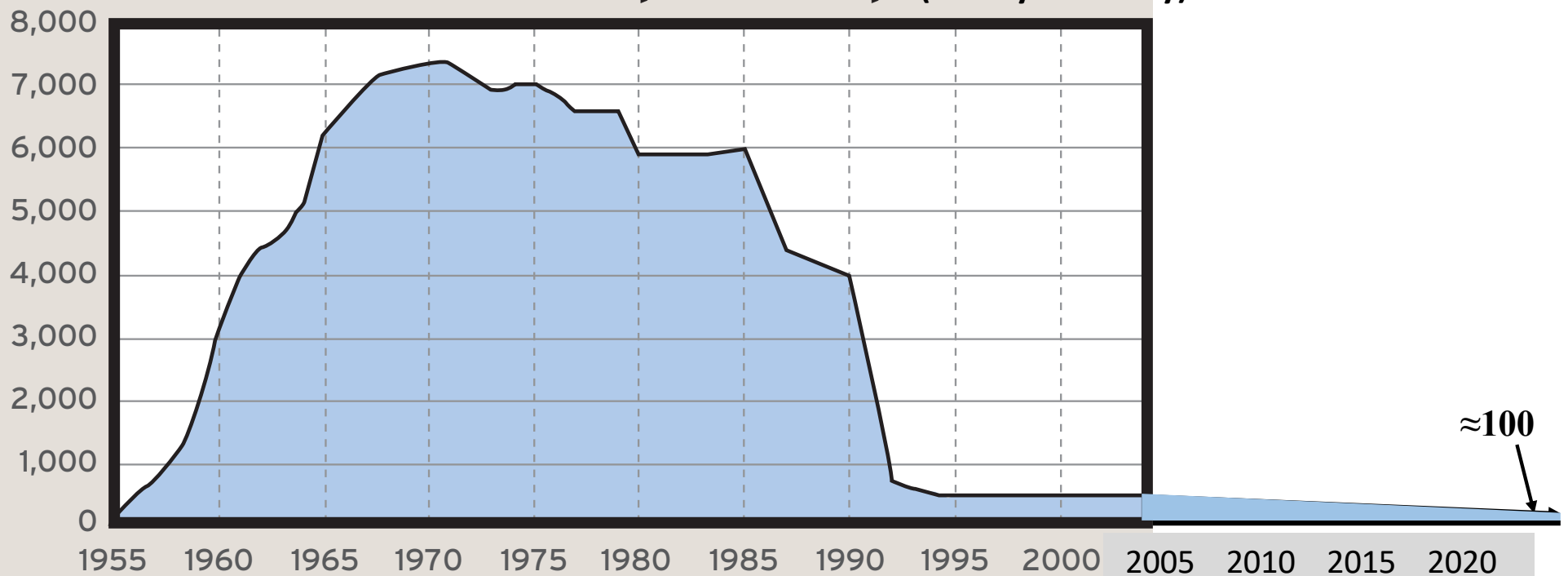


## We also achieved the 1990 Conventional Forces in Europe Treaty

52,000 battle tanks, armored combat vehicles, artillery, combat aircraft and attack helicopters were destroyed.

Most battlefield nuclear weapons were destroyed.

**U.S. nuclear weapons in Europe (mostly Germany)**



## **But we did not finish the job!**

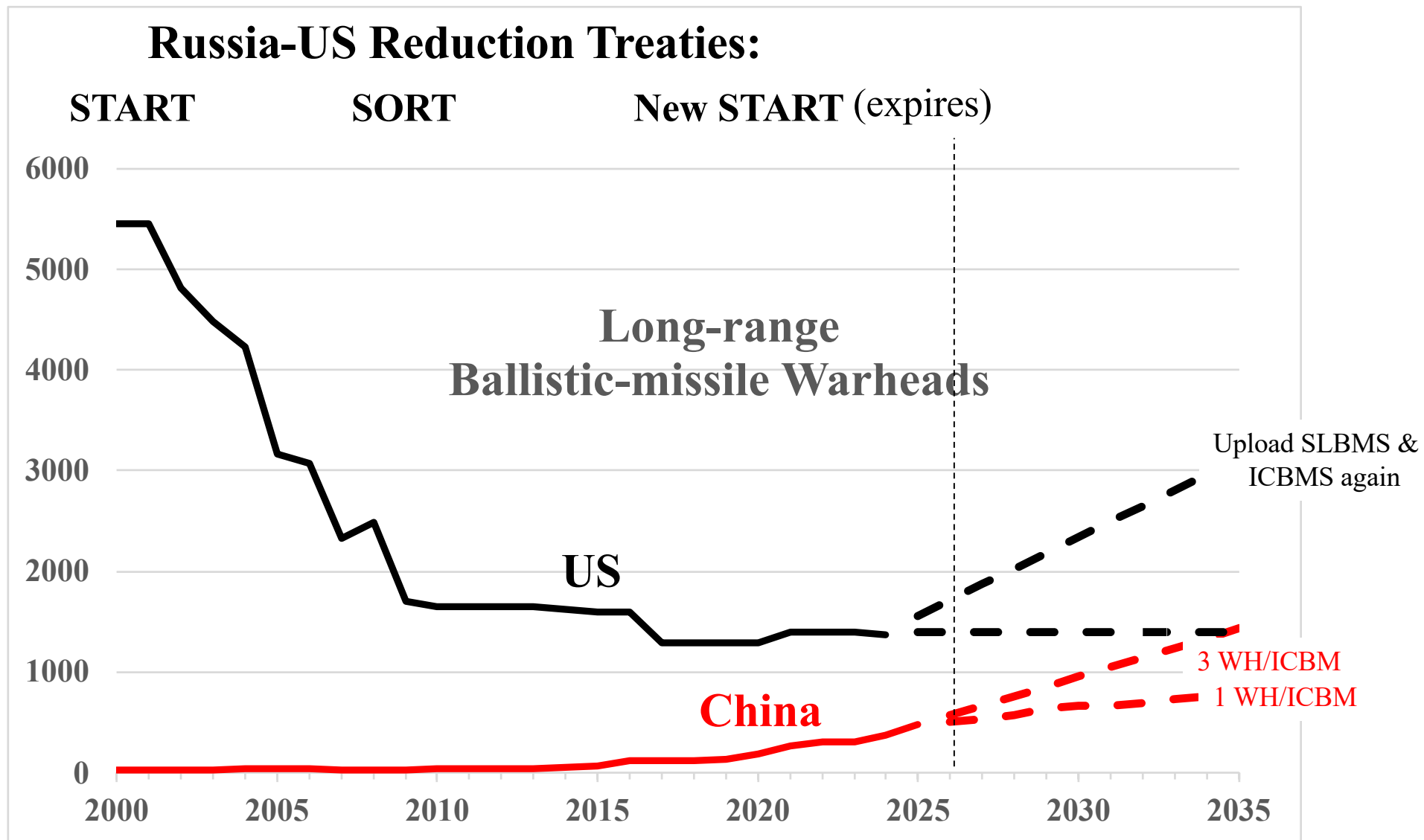
With the end of the Cold War, the anti-nuclear-arms movement demobilized. Over next two decades, most of the members of Congress we educated retired. Representatives and Senators with nuclear bases, nuclear-weapons laboratories, & manufacturers of nuclear missiles, ballistic missile submarines and bombers, i.e. **the nuclear military-industrial complex**, in their districts and states, **regained control**.

George Bush Jr. decided to end the US-Russia treaty limiting ballistic missile defense because of the expected missile threat from the “Axis of Evil:” Iraq, Iran, and N. Korea. This inspired Russia and China to develop new types of nuclear “delivery vehicles” to bypass US interceptors.

### **The international situation turned darker again:**

- **Putin** began his war on Ukraine in 2014. After invading again in 2022, he made nuclear threats against NATO if it intervened.
- **Xi Jinping**, who became the authoritarian leader of China in 2013, claimed the South China Sea and **began to prepare for the seizure of Taiwan**.

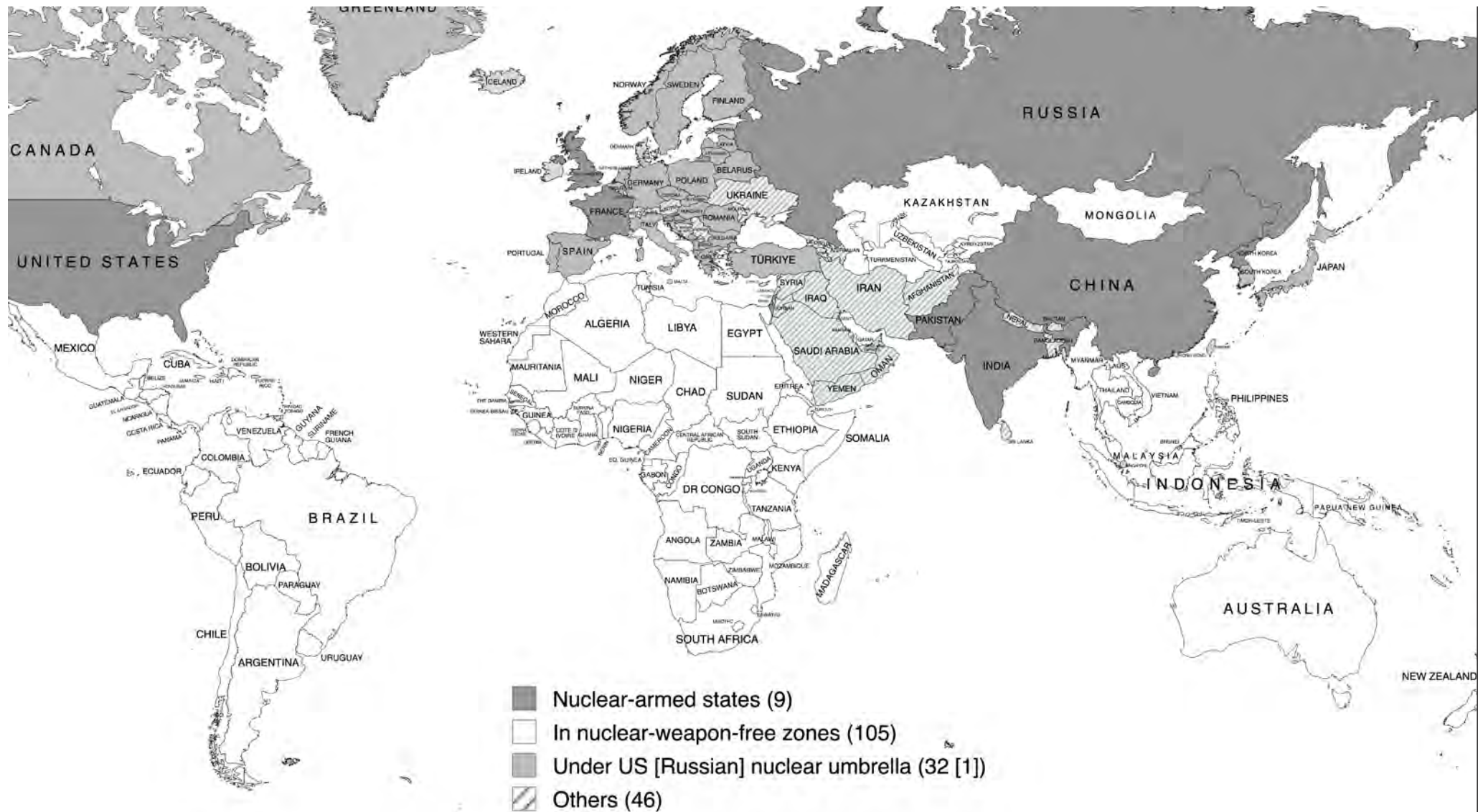
# China's Buildup and Possible US Responses



# The global divide over nuclear-weapon policy

Northern hemisphere mostly nuclear armed or under US “nuclear umbrella”

Southern hemisphere mostly nuclear-weapon-free zones





## **Treaty on the Prohibition of Nuclear Weapons (TPNW)**

Since 1970, almost all countries without nuclear weapons committed to verifiably not acquiring them in the Nonproliferation Treaty (NPT).

In exchange, the US, Russia, UK, France and China committed

**“to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament...”**

U.S., Soviet Union, UK and France did reduce at the end of the Cold War, but they and China have made little further progress on nuclear disarmament.

The non-weapon states could have responded by getting their own nuclear weapons. Only North Korea did, in 2003.

Starting in 2017, most of the non-weapon states have redoubled their commitment by signing the **Treaty for the Prohibition of Nuclear Weapons**.

Today, **73 have ratified**. They and representatives of other interested countries met at the UN last week for their third meeting.

# **Scientists' Movement for Nuclear Arms Control is Reviving**

In 1957, the same year, German scientists spoke out in the *Goettingen Manifesto* against Germany acquiring nuclear weapons, the international *Pugwash* conferences of scientists were launched on how to avoid nuclear war.

Now, the Pugwash movement is being revived by Goetz Neuneck and others.

Two days ago, in Bonn, at the annual meeting of the Deutsche Physikalische Gesellschaft, Goetz and I attended a meeting of the Arbeitsgruppe für Physik und Abrüstung. There is now a new generation of excellent young physicists in Germany working full time on nuclear disarmament.

In the U.S., we have recruited 1500 physicists to join a Physicists Coalition for Nuclear Threat Reduction to help educate the Congress.

**But we need a new public movement against nuclear weapons in the Northern Hemisphere!**

## We have been lucky



Franck & Born on their last meeting in Goettingen (1964). Franck is pulling out his watch to see "Do we still have time?"

It will soon be 80 years since Hiroshima and Nagasaki. Born, Franck and Hahn would be pleased to know that there has not been another use of nuclear weapons.

We have come close, however. We cannot assume our luck will continue to hold.

Nuclear weapons are not usable by sane men, but Vladimir Putin, Donald Trump and Xi Jinping all have control of nuclear weapons.

**We cannot go on like this!**

**We must finish the job!**

I thank you for the honor your award and for listening to this talk.



MAKE  
AMERICA  
SMART  
AGAIN

