International Nuclear Controls: Their History and Key Premises

Part 3: Strategic Arms Control – A Topology

A presentation by Henry Sokolski Executive Director Nonproliferation Policy Education Center www.npolicy.org

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QUESTIONS TO BE ANSWERED

- I. Why bother with arms control?
- II. What have the key phases of U.S. strategic arms control been?
- III. What were the objectives of these different phases of arms control?
- IV. What might the future of strategic competition and arms control be given China's military build up?

SHORT ANSWER TO I

A. We need to be ready for good news. We weren't after WWI. We were after WWII. We weren't after the collapse of the Soviet Union.

B. Even in cold wars, arms control diplomacy is a tool to help win the competition.

SHORT ANSWERS TO QUESTION II

- I. 1945-49: Nuclear Disarmament; Baruch Plan
- II. 1950-60: Incremental Disarmament; Atoms for Peace, FMCT, Open Skies, Freedom of Space, Test Moratorium, Antarctic Treaty (NWFZ)
- III. 1960-77: Arms Control for Strategic Stability; LTBT, Outer Space Treaty, NPT, SALT I, BWC, ABM, SALT II
- IV. 1978-2008: Compete to Channel, Cap, and Eliminate Strategic Military Competitions; START, INF, CFE, CTR, CWC, SORT
- V. 2008-2016: Convergence, New START, N. Security Summits
- VI. 2016-Present: Competition to catch up with key revisionist powers

SHORT ANSWERS TO QUESTION III

The objectives of the key phases of American strategic arms control were as follows:

- I. 1946 49: Maintaining the U.S. nuclear monopoly until nuclear weapons might be eliminated under international controls
- **II. 1950 60:** Maintaining and strengthening U.S. nuclear superiority while preventing knockout blows and surprise attacks and pushing incremental arms control initiatives that would restrict Russia more than the U.S.
- III. 1961 -- 77: Modernizing U.S. strategic nuclear forces and negotiating arms control agreements to reduce the prospect either side could strike the other 1st & to ensure both sides could strike 2nd if ever attacked
- IV. 1978 08: Channeling, capping, and eliminating strategic military competitions to U.S. advantage
- V. 2009 -- 2016: Subordinating strategic competition to promote convergence with Russia and China
- VI. 2016 present: Compete militarily, economically, and diplomatically to catch up and constrain revisionist states (Russia, China, Iran, N. Korea)

SHORT ANSWER TO QUESTION IV

What might the future of strategic competition and arms control be given China's military build up?

- Reduce the vulnerability of America's strategic weapons systems,
- secure access and control of space,
- use AI and cyber to turn adversaries inward,
- leverage strategic arms control proposals against Chinese and Russian fears and weaknesses

II. WHAT HAVE THE KEY PHASES OF U.S. STRATEGIC ARMS CONTROL BEEN?

I. 1945-1949: NUCLEAR DISARMAMENT & AMERICAN NUCLEAR MONOPOLY

1946-1949: U.S. BACKED INTERNATIONAL CONTROL OF ATOMIC ENERGY

DEAN ACHESON

Undersecretary of State



DAVID E. LILIENTHAL

Chairman Tennessee Valley Authority

BARUCH

U.S. Rep., UN Atomic Energy Commission



TRUMAN INITIALLY CURBED AMERICAN NUCLEAR ENTHUSIASM

GLOBAL NUCLEAR WEAPONS INVENTORIES, 1945-1953

YEAR	UNITED STATES	RUSSIA
1945	2	
1946	9	
1947	13	
1948	50	
1949	170	1
1950	299	5
1951	438	25
1952	841	50
1953	1,169	120

Poland falls January 1947 Czechoslovakia falls February 1948 Hungary falls May 1949 People's Republic of China created September 1949 East German Communist government formed 1949

RUSSIA'S FIRST NUCLEAR TEST PUTS AN END TO THE BARUCH PLAN

August 29, 1949



II. 1950-1960: INCREMENTAL DISARMAMENT, PREVENTING SURPRISE KNOCKOUT BLOWS WHILE MAINTAINING US MASSIVE RETALIATORY CAPABILITY

AFTER 1949, NUCLEAR "KNOCKOUT **BLOWS" WERE THE WORRY**

Vol. 31



NSC 68: THE "KNOCKOUT BLOW" THREAT April 14, 1950

FOREIGN AFFAIRS **IULY 1953** No. 4 ATOMIC WEAPONS AND AMERICAN POLICY By J. Robert Oppenheimer T IS possible that in the large light of history, if indeed there is to be history, the atomic bomb will appear not very different than in the bright light of the first atomic explosion. Partly because of the mood of the time, partly because of a very clear prevision of what the technical developments would be, we had the impression that this might mark, not merely the end of a great and terrible war, but the end of such wars for mankind. Two years later Colonel Stimson was to write in Foreign Af-

fairs, "The riven atom, uncontrolled, can be only a growing menace to us all. . . ." In the same paragraph he wrote, "Lasting peace and freedom cannot be achieved until the world finds a way toward the necessary government of the whole." Earlier, shortly after the war's end, the Government of the United States had put forward some modest suggestions, responsive to these views, for dealing with the atom in a friendly, open, coöperative way. We need not argue as to whether these proposals were stillborn. They have been very dead a long, long time, to the surprise of only a few. Openness, friendliness and coöperation did not seem to be what the Soviet Government most prized on this earth.

It should not be beyond human ingenuity for us to devise less friendly proposals. We need not here detail the many reasons why they have not been put forward, why it has appeared irrelevant and grotesque to do so. These reasons range from the special difficulties of all negotiation with the Soviet Union, through the peculiar obstacles presented by the programmatic hostility and the institutionalized secretiveness of Communist countries, to what may be regarded as the more normal and familiar difficulties of devising instruments for the regulation of armaments in a world without prospect of political settlement.

1 "The Challenge to Americans," by Henry L. Stimson. Foreign Affairs, October 1947.

PANEL OF CONSULTANTS **ON DISARMAMENT DECEMBER 1952**

Deterrence and survival in the nuclear age (the "Gaither report" of 1957)

Printed for the use of the Joint Committee on Defense Production, Congress of the United States

United States, President's Science Advisory Committee, Security Resources Panel

> Reprints from the collection of the University of Midtigan Library

GAITHER REPORT November 7, 1957

EISENHOWER'S ATOMS FOR PEACE PROGRAM AIMED TO LIMIT GROWTH OF SOVIET'S WEAPONS STOCKPILE





Fissile Material Cutoff Treaty, proposed January 12, 1957

December 8, 1953, UN

OPEN SKIES, FREEDOM OF SPACE AIMED TO PREVENT SURPRISE ATTACKS





Contributing to the development of peace worldwide by the creation of an Open Skies regime for aerial observation.



July 1955



December 1958





IVY MIKE, BRAVO CASTLE, THE UNLUCKY DRAGON, AND NUCLEAR TEST BANS



Ivy Mike shot November 1952 & State Panel of Consultants



Bravo Castle nuclear test March 1, 1954



Japanese Lucky Dragon fishing boat





Lucky Dragon sailors contaminated by Bravo Castle radiation

WITH THE U.S. WAY AHEAD IN NUCLEAR TESTING, EISENHOWER AGREES TO 1-YEAR TEST MORATORIUM, JULY 1958



First underground nuclear test conducted in Nevada in 1957



Eisenhower and Strauss discuss Operation Bravo Castle

WANTING TO ASSURE SAFE PASSAGE OF U.S. AIRCRAFT CARRIERS, EISENHOWER AGREES TO ANTARCTIC TREATY





December 1, 1959

500 miles, Drake Passage

III. 1960-1977: AMERICA STRIVES FOR STRATEGIC STABILITY

RAND ARGUES U.S. SECURITY REQUIRES SECURING AN ABILITY TO RETALIATE AFTER BEING STRUCK

Selection and Use of Strategic Air Bases A. J. Wohlstetter, F. S. Hoffman, R. J. Lutz, and H. S. Rowen April 1954

R-266

(Second Printing June 1962)

A REPORT PREPARED FOR

UNITED STATES AIR FORCE PROJECT RAND

SELECTION AND USE OF STRATEGIC AIR BASES April 1954

WHITE HOUSE REPORT POPULARIZES RAND'S RESEARCH

Deterrence and survival in the nuclear age (the "Gaither report" of 1957)

Printed for the use of the Joint Consulties on Defense Production, Congress of the United States

United States. President's Science Advisory Committee, Security Resources Patel

> Reptote lines the collection of the University of Michigan Library

GAITHER REPORT November 7, 1957

CUBAN MISSILE CRISIS CONFIRMS AMERICAN FEARS OF BEING KNOCKED OUT



AFTER CUBAN CRISIS: THREE ARMS CONTROL AGREEMENTS



Aug. 5, 1963	Jan. 27, 1967	July 1, 1968
LIMITED TEST BAN TREATY	SPACE TREATY	NPT

ABM TREATY JUSTIFIED AS "STABILIZING" *May 26, 1972*



Soviet ABM-1 Galosh launcher







SO TOO WERE SALT I AND SALT II

May 26, 1972 and June 18, 1979







IV. 1978-2008: COMPETING TO CHANNEL, CAP, AND ELIMINATE STRATEGIC COMPETITIONS AGAINST THE SOVIETS

ASAT RIVALRY PROMPTS CARTER TO PROPOSE "DUAL TRACK" TALKS, 1977



SOVIET ASAT LAUNCH COMPLEX AT BAIKONUAR



PROGRAM 437 THOR



SOVIET IS ASAT



RUSSIANS TEST SS20 MISSILES AUGUST 10, 1979, ANNOUNCE IMMEDIATE DEPLOYMENTS



Soviet RSD-10 Pioneer missile



SOVIET EURO MISSILE DEPLOYMENTS PROMPT U.S.- NATO DUAL TRACK DECISION, 1979





NATO MINISTERS DUAL TRACK DECISION December 12, 1979

U.S. – NATO COUNTERS RUSSIAN INF DEPLOYMENTS



US BGM-109G Gryphon



US Pershing II missile

REAGAN SEES ARMS CONTROL AS KEY PART OF U.S. - RUSSIAN COMPETITION

COMMON SENSE AND THE COMMON DANGER

2

Policy Statement of the Committee on The Present Danger

1

Our country is in a period of danger, and the danger is increasing. Unless decisive steps are taken to alert the nation, and to change the course of its policy, our economic and military capacity will become inadequate to assure peace with security.

The threats we face are more subtle and indirect than was once the case. As a result, awareness of danger has diminished in the United States, in the democratic countries with which we are naturally and necessarily allied, and in the developing world.

There is still time for effective action to ensure the security and prosperity of the nation in peace, through peaceful deterence and concerted alliance diplomacy. A conscious effort of political will is needed to restore the strength and coherence of our foreign policy; to revive the solidarity of our alliances; to build constructive relations of cooperation with other nations whose interests parallel our own—and on that sound basis to seek reliable conditions of peace with the Soviet Union, rather than an illusory detente.

Only on such a footing can we and the other democratic industrialized nations, acting together, work with the developing nations to create a just and progressive world economy—the necessary condition of our own prosperity and that of the developing nations and Communist nations as well. In that framework, we shall be better able to promote human rights, and to help deal with the great and emerging problems of food, energy, population, and the environment.

п

The principal threat to our nation, to world peace, and to the cause of human freedom is the Soviet drive for dominance based upon an unparalleled military buildup.

The Soviet Union has not altered its long-held goal of a world dominated from a single center — Moscow. It continues, with notable persistence, to take advantage of every opportunity to expand its political and military influence throughout the world: in Europe; in the Middle East and Africa; in Asia; even in Latin America; in all the seas.

The scope and sophistication of the Soviet campaign have been increased in recent years, and its tempo quickened. It encourages every divisive tendency within and among the developed states and between the developed and the underdeveloped world. Simulta-

•		THE WHITE HOU	SYSTEM II 91001 SE
		WAS-INGTON	
SECRI Natio Direc	<u>ET.</u> <u>SENSITIVE</u> nal Security Decision tive Number 15	Janua	cy 17, 1983 Declass .:diPcleased <u>7/16/</u> by D. Van Tasel, Nichon <u>1</u> , 22356 by D. Van Tasel, Nichon <u>1</u> , 2236 p(7)+111/2
	U.S. REI	LATIONS WITH T	HE USSR (S)
U.S. elem pres and outs	policy toward the sents: external resisure on the USSR to negotiations to elin tanding disagreement	Soviet Union w istance to Sov weaken the so minate, on the ts. Specifica	ill consist of three iet imperialism; internal urces of Soviet imperialism; basis of strict reciprocity, lly, U.S. tasks are:
ı.	To contain and over competing effective Union in all intern overall military b priority concern to the primary focus	r time reverse ely on a susta national arena alance and in o the United S of U.S. policy	Soviet expansionism by ined basis with the Soviet s particularly in the geographical regions of tates. This will remain toward the USSR.
2.	To promote, within process of change listic political a the privileged rul recognizes that So internal system, a therefore take int strengthen this sy aggression.	the narrow li in the Soviet and economic sy ing elite is c viet aggressiv and that relation that relation stem and its c	mits available to us, the Union toward a more plura- stem in which the power of rradually reduced. The U.S. reness has deep roots in the cons with the USSR should ther or not they help to apacity to engage in
3.	To engage the Sovi reach agreements w and which are cons reciprocity and mu the Soviet Union i succession. (S)	et Union in no which protect a sistent with th atual interest is in the mids	agotiations to attempt to and enhance U.S. interests a principle of strict . This is important when t of a process of political
In cle wou cle wou mig par the tin suc	order to implement t arly to Moscow that ild outweigh any gain ar to the Soviets th ild create the possibility the bring important is succession period, ne for external force ccessors. (S)	this threefold unacceptable ns. At the sa hat genuine re bility of an E benefits for t that this mes since this ma es to affect t	strategy, the U.S. must conv behavior will incur costs tha me time, the U.S. must make straint in their behavior ast-West relationship that he Soviet Union. It is sage be conveyed clearly duri y be a particularly opportune he policies of Brezhnev's
SE	CRET SENSITIVE	NULICCUL	ty 16 of 12 copies

NSDD 75 January 17, 1983

REAGAN SIGNS (INF) TREATY, VIEWED AS U.S. VICTORY

December 8, 1987



A YEAR LATER, THE BERLIN WALL FALLS



U.S. NUCLEAR ARSENALS IMMEDIATELY SHRINK

U.S. Nuclear Arsenal Shrinks, Nuclear States Still Emerge

The U.S. has 80 percent fewer nuclear weapons than it did in 1987. Since then, Pakistan and North Korea have become nuclear powers, and Iran has aggressively sought to develop nuclear weapons.



BUSH I GETS RUSSIA TO REDUCE CONVENTIONAL FORCES

CFE TREATY ENTITLEMENTS

	Belgtum	Canada	Denmark	France	Germany	Greece	Italy	Netherlands	Nonway	Portugal	Spain	Turkey	1.716	US
Tanks	334	77	353	1306	4069	1735	1348	743	170	300	891	2795	1015	4006
Artillery	320	32	503	1292	2445	1920	1955	607	491	450	1370	3523	636	2742
ACV	1005	263	336	3820	3281	2498	3339	1040	275	430	2047	3120	3176	5152
Helicopters	46	13	18	374	280	65	142	50	24	26	80	130	356	396
Alectaft	232	90	106	800	900	650	650	230	100	160	310	750	900	784
	America	Azerbatan	Belarus	Bulgarta	Czech Rep	Georgia	Hangary	Kazakhisan	Moldova	Poland	Romania	Russia	Slovaka	Ultraine
Tacito	220	220	1800	1475	957	220	835	50	210	1730	1375	6350	478	4080
Artillery	285	285	1615	1750	767	285	840	100	250	1610	1475	6315	383	4040
ACV	220	220	2600	2000	1367	220	1700	200	210	2150	2100	11280	683	5050
Helicopters	50	50	80	67	50	50	108	20	50	130	120	855	40	330
Alecent	100	100	294	235	230	100	180	15	50	460	430	3416	100	1090



CONVENTIONAL FORCES EUROPE TREATY, NOVEMBER 1990

START I TREATY REMOVES NEARLY 80% OF EXISTING STRATEGIC WEAPONS

July 31, 1991


STRATEGIC OFFENSIVE REDUCTIONS TREATY (SORT) DROPS STRATEGIC WARHEADS EVEN FURTHER

June 1, 2003



1,700-2,200 by end of 2012

V. 2009-2016: U.S. AS TOP POWER PUSHES CONVERGENCE AND THE GOAL OF ZERO NUCLEAR WEAPONS

CONVERGENCE PRESUMES LITTLE OR NO STRATEGIC COMPETITION







Francis Fukuyama THE END OF HISTORY AND THE LAST MAN

NEW START MORE STRATEGIC REDUCTIONS *April 8, 2010*



NUCLEAR SECURITY SUMMITS: A GLOBAL NUCLEAR THREAT REDUCTION EFFORT



Nuclear Security Summit Secul 2012

2012 Seoul Nuclear Security Summit

Beyond Security Towards Peace



Nuclear Security Summit 2014 The Hague, the Netherlands

VI. 2016 - PRESENT: GREAT POWER COMPETITION IN A MORE CHAOTIC WORLD

U.S. MUST COMPETE AGAINST RIVALS TO BE SECURE









U.S. FLEXES AND MODERNIZES ITS NUCLEAR FORCES TO COMPETE





B61s in Europe



US B-1 bombers fly near North Korean border



Al Udeid Air Base, Qatar, April 9, 2016



US SSN at Busan, South Korea



Yokosuka Naval Base in Kanagawa

TRUMP'S INITIAL STRATEGIC WEAPONS AGENDA WAS VAGUE



"...[Nuclear] proliferation is ... the biggest problem in the world... If we can do something to .. ideally get rid of them, maybe that's a dream, but certainly it's a subject that I'll be bringing up with [Putin]" *President Trump, News Conference, July 13, 2018*

PUTIN'S ARM CONTROL AGENDA DURING THE TRUMP ADMINISTRATION

- INF Treaty issues
- Extending New START
- Non-placement of weapons in space
- Upholding the Iran nuclear deal



TRUMP'S AGENDA

- Withdrew from INF Treaty
- Questioned extending START
- Promoted Space Force and the placement of weapons in space
- Withdrew from the Iran Deal



 Tried to pressure China into three-way arms control talks

BIDEN'S AGENDA

- Attempt to revive Iran deal
- Extend New Start
- Tried to engage China in any forms of threat reduction (AI controls hotlines, unconditional talks, etc.)
- Promote space rules of the road (kinetic ASAT testing bans)

IV. WHAT MIGHT THE FUTURE OF STRATEGIC COMPETITION AND ARMS CONTROL BE GIVEN CHINA'S MILITARY BUILD UP?

THE OBJECTIVES FOR SOUND ARMS CONTROL AND MILITARY SCIENCE ONCE WERE VIEWED TO BE THE SAME:

1. Reduce the probability of war;

2. Reduce the destructiveness of the wars that do occur; and

3. Reduce military expenditures

Source: Thomas C. Schelling and Morton H. Halperin, *Strategy and Arms Control*, New York: The Twentieth Century Fund, 1961.

CHINA: A NEW ARMS CONTROL HEADACHE

- China's strategic arsenal is growing
- China and Russia are strategic partners
- China and Russia's strategic objectives may eventually clash
- Three-way talks have pluses and minuses

1985-2021: US REPEATEDLY ESTIMATED PRC HAD ROUGHLY 200 TO 300 WARHEADS



2010: DOD CONFIRMATION OF 3,000 MILES OF MISSILE TUNNELS RAISED THE SPECTER OF LARGER NUMBERS



2021: COMMERCIAL IMAGERY REVEALED PRC IS BUILDING 350 NEW MISSILE SILOS, RAISING LAUNCH ON WARNING CONCERNS





2019-21: PRC REVEALED IT'S RAMPING UP ITS PLUTONIUM PRODUCTION CAPACITY NEARLY 10-FOLD



1st PRC 200 tHM/yr plant under construction to be on line by 2025



2nd PRC 200 tHM/yr reprocessing plant to be on line before 2030



PRC 50 tHM/yr Pilot plant: ~100 bombs worth of plutonium/yr, initial operation 2010

2019-21: PRC CONFIRMED IT'S EXPANDING ITS SUPER-WEAPONS-GRADE PLUTONIUM-PRODUCING FAST REACTOR CAPACITY 60-FOLD

China Experimental Fast Reactor, 20 Mwe, initial operation 2010



Fast Reactors under construction, first 600 Mwe reactor to begin operation in 2023, second plant to begin operation in 2026



NOV. 2021: DOD PROJECTS PRC WILL ACQUIRE "AT LEAST 1,000" NUCLEAR WARHEADS BY 2030. NOV. 2022, OCT. 2023, DOD PROJECTS "1,500 BY 2035." CITES NPEC STUDY.







MILITARY AND SECURITY DEVELOPMENTS INVOLVING THE PEOPLE'S REPUBLIC OF CHINA 2021

ANNUAL REPORT TO CONGRESS

Office of the Secretary of Defense

bereinse approximately \$185.00 2020 - 2021. This leaf "The PRC is constructing the infrastructure necessary to support this force expansion, including increasing its capacity to produce and separate plutonium by constructing fast breeder reactors and reprocessing facilities...the PRC likely intends to use some of this infrastructure to produce plutonium for its expanding nuclear weapons program. A Western think tank publication indicated that the PRC could field more than 1,000 nuclear warheads by the end of the decade, judging from the amount of plutonium that could be produced from reactors under construction."

Pg 92

https://media.defense.gov/2021/Nov/03/2 002885874/-1/-1/0/2021-CMPR-FINAL.PDF

WHAT TO DO: CURRENT POPULAR IDEAS

If China has X number of nuclear warheads, we should have at least X times X as much. Frank C. Miller, 3000-3500 warheads, April 21, 2022.

https://www.wsj.com/articles/outdated-nuclear-treaties-new-start-treaty-russia-putin-china-xi-heighten-risk-nuclear-warmissile-test-ukraine-deterrence-11650575490. Matthew Kroenig, June 16, 2021. https://www.atlanticcouncil.org/in-depthresearch-reports/issue-brief/the-special-role-of-us-nuclear-weapons/.

Don't build more: Focus U.S. nuclear targeting against cities. Lieber and Press, May 2023 <u>https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/us-strategy-and-force-posture-for-an-era-of-nuclear-tripolarity/</u>. Glaser, Acton, Fetter October5,2023 <u>https://www.foreignaffairs.com/united-states/us-nuclear-arsenal-can-deter-both-china-and-russia</u>

Build no more nuclear warheads, consider conventional ICBMs.

https://www.rand.org/blog/2021/10/the-us-doesnt-need-more-nuclear-weapons-to-counter.html

Add reserve warheads to existing ICBMs and SLBMs, actively and passively defend our nuclear forces, fortify nuclear C3I. Livermore Report, March 2023 https://cgsr.llnl.gov/content/assets/docs/CGSR_Two_Peer_230314.pdf. Congressional Commision on the Strategic Posture of the United Stateshttps://cgsr.llnl.gov/content/assets/docs/CGSR_Two_Peer_230314.pdf

THESE VIEWS IMPLICITLY RECOGNIZE THAT DEPLOYMENT OF NEW US ICBMS AND SLBMS WILL BE NEITHER CHEAP NOR QUICK



Ground based strategic deterrent, 400 missiles with 50 spares, \$100 B to acquire, \$264 B for full lifetime cost, to enter service by 2029 and be fully operational by 2036

ALSO THAT US BALLISTIC MISSILE SUB PROGRAMS ALSO SLIPPING

New US nuclear-missile submarines hobbled by billions in growing costs and delays. By TONY CAPACCIO ,BLOOMBERG • June 8, 2022. https://www.bloomberg.com/news/articles/2022-06-08/new-us-submarineshobbled-by-billions-in-added-costs-and-delays 12 boats 112 b dollars 2031

Navy Will Have 'Challenges' Meeting Submarine Delivery Schedules, Admiral Tells Senate, By: <u>John Grady</u>, April 20, 2023 6:50 PM. <u>https://news.usni.org/2023/04/20/navy-will-have-challenges-meeting-submarine-delivery-schedules</u>



RECOGNIZES ENERGY DEPARTMENT EFFORTS JUST TO MAINTAIN FIELDED WARHEADS ARE SLIPPING

NNSA Has No Reliable Schedule, Cost Estimates For Pits, GAO Says, Defense Daily, By: Dan Leone, January 11, 2023



US plutonium pit production at Los Alamos 30 pits/year by 2026



Planned Pit production plant at Savannah River, Georgia 50 pits/year by 2035

UNCLEAR IF PLANNED TRITIUM PRODUCTION CAN DO MORE THAN REPLENISH EXISTING STOCKPILE

Initial production at Watts Bar 1 encountered difficulties that set production back

Production at Watts Bar 1 had to be doubled with Watts Bar 2 to meet current weapons tritium requirements

Unclear how major additional requirements would be met



WHAT ALL CURRENT VIEWS IGNORE

Nonnuclear PRC intercontinental missiles

The future role of space systems in America's strategic structure

The need for advanced cyber and AI to win the coming cool information campaigns

Any new, competitive arms control initiatives











WHAT MIGHT BE DONE

RATHER THAN PROLIFERATE WEAPONS, INCREASE THEIR POSSIBLE LOCATIONS & LAUNCHERS, DRIVING UP WHAT MUST BE TARGETED



ICBMs in silos, LOW or LUA



Boeing 777



Rotary missile launcher

Versus









Mobile ICBM Concepts

RATHER THAN SEEK NUCLEAR QUANTITATIVE SUPERIORITY, SECURE US-ALLIED SPACE ACCESS AND CONTROL



US DEVELOPING DISTRIBUTED MILITARY AND COMMERCIAL SATELLITE CONSTELLATIONS THAT MIGHT HELP







US DARPA's Blackjack demonstration Program

Elon Musk's Starlink Internet, 4408 satellites

Keiper, Amazon 3,236 satellites

"PEACEFUL" RENDEZVOUS SATELLITES WILL BE NEEDED TO SERVE AS BODYGUARDS



NASA's proposed Restore-L



Japanese Sky Perfect JSAT Corp



ESA's e.Deorbit



MEV (Mission Extension Vehicle)



Japan's KIKU-7 "Chaser" & "Target"



Japanese Astroscale Satellite

CHEAP, QUICKLY REUSABLE HEAVY LIFT WILL BE NEEDED TO ASSURE US-ALLIED SPACE ADVANTAGE



SpaceX Starship



Starliner



New Glenn Crew

NEED TO TRANSITION FROM STATIC TO DYNAMIC MILITARY MOVEMENTS IN SPACE AS DONE IN THE AIR LAST CENTURY









RATHER THAN USE AI AND CYBER TO "KNOCKOUT" HARD TARGETS, USE THEM TO TURN ADVERSARIES INWARD

Cool Wars — information campaigns — require AI and cyber to break firewalls and to establish pathways for messaging in and within hostile states

Aim is to get our adversaries to spend more time and effort to deal with spotlighted domestic issues than causing problems outside of their borders

Hold lines of communication from those who rule over those that are ruled at risk as part of strategic deterrence

RATHER THAN RELEGATE STRATEGIC ARMS CONTROL DIPLOMACY TO MAINTAINING LEGACY AGENDAS, MAKE IT MORE COMPETITIVE

- Leverage Chinese fears of US nuclear weapons redeployments to RoK and Japan to spotlight need for Beijing to freeze plutonium weapons production
- Propose agreements not to target cities with nuclear weapons (China and Russia are more urbanized than the US).
- Propose legal and diplomatic ways to deter additional states from leaving the NPT (something China may fear RoK and Japan might do)
- Tie agreeing to due-regard rules of keeping a safe distance from others' satellites to access to commercial space-related insurance
- Clarify Protocol I guidelines on targeting power reactors (something China is worried about)
TO DETER, US CAN'T OUT MUSCLE, BUT CAN OUT SMART AND DISABLE IF IT CAN THREATEN BLOWS TO THE HEAD





ADDITIONAL SLIDES

CONNECTING OUR NUCLEAR POSTURE WITH ARMS CONTROL, THOUGH, IS REQUIRED BY LAW

Public Law No: 115-91, December 12, 2017: National Defense Authorization Act, Fiscal Year 2018

Sec. 1671. Nuclear Posture Review (NPR)

(a) SENSE OF CONGRESS.—It is the sense of Congress that the *nuclear posture* review should...

(3) consider input and views from all relevant stakeholders in the United States Government... on *issues pertaining to nuclear deterrence, nuclear nonproliferation, and nuclear arms control.*

PAIR BOOST PHASE INTERCEPT WITH **NPT-BASED MISSILE LAUNCH LIMITS**

Propose a UN resolution where nations that violate the Nuclear Nonproliferation Treaty may not launch nuclear capable missiles outside of their air space and if they attempt to do so, these missiles may be neutralized within their airspace

National Review

What to Do about Pyongyang

Nuclear nonproliferation is on the ropes. Does the U.S. have the will to act?

By Henry Sokolski April 2, 2009

PAIR U.S. INF MISSILE PROGRAMS WITH NEW U.S.- RUSSIAN INF MISSILE LIMIT TALKS

Work with Russia on an agreement to prohibit INF missiles in the European theater but allow conventional ones in Asia.



Future of the Intermediate Range Nuclear Forces (INF) Treaty

By Jim Thomas CSBA, July 16, 2014

PAIR MISSILE MODERNIZATION WITH TALKS TO LIMIT GROUND-BASED MISSILES

 Begin multilateral talks, starting with Russia and China, to ban all "nuclear missiles" – i.e., ground based nuclearcapable missiles beyond Missile Technology Control Regime Category I limits

<u>Globalizing Reagan's INF Treaty:</u> <u>Easier Done Than Said?</u>

By David A. Cooper The Nonproliferation Review, Volume 20, No. 1, 2013. The Security Threats Nuclear-Capable Missiles Pose and How to Best Control Them

By Alexander G. Savelyev Head of the Department of Strategic Studies, Institute of World Economy and International Relations (IMEMO), Russian Academy of Sciences

LIMIT HYPERSONICS PROLIFERATION

 Begin negotiations to limit the further spread of hypersonic technologies among the major developers of such technology – US, Russia, and China. Tighten MTCR controls on the

technology



Hypersonic Missile Nonproliferation

Hindering the Spread of a New Class of Weapons

Richard H. Speier, George Nacouzi, Carrie A. Lee, Richard M. Moore



https://www.rand.org/pubs/research_reports/RR2137.html

THE TRUMP ADMINISTRATION'S NATIONAL SPACE STRATEGY RECOGNIZES THIS

"We will strengthen U.S. and allied options to deter potential adversaries from extending conflict into space and, **if deterrence fails**, **to counter threats used by adversaries for hostile purposes.**"

America First National Space Strategy, Fact Sheet, March 23, 2018

AS WE MODERNIZE OUR SPACE SYSTEMS, PUSH SPACE RULES OF THE ROAD & AGREEMENTS TO PREVENT SPACE PEARL HARBORS

- Assert what we and our allies want to establish as "space keep-out zones" and what the right to self-defense entails
- Negotiate with Russia and China and other satellite faring states to allow each state only to transit near another state's key satellite assets for so long with so many satellites.
- Agree that if these limits are violated, the violated party could exercise their right to self defense
- Pair clarification of these rules with more traditional limits on ground-based ASATs

Strategic Studies Quarterly Brian G. Chow

<u>"Stalkers In Space:</u> Defeating the Threat" Summer 2017

<u>"Space Arms Control: A</u> <u>Hybrid Approach"</u> Summer 2018

WHEN NUCLEAR DETERRENCE FAILS: MISSILE DEFENSES?



US and Japanese planners take part in Integrated Air and Missile Defense Wargame







THAAD Deployment in S. Korea



US approves \$15 billion sale of THAAD missile launchers to Saudi Arabia

BUT FIRST, AMERICA WILL COMPETE



"We have more money than anybody else by far. We'll build it up until they come to their senses. When they do, then we'll all be smart, and we'll all stop." - October 20, 2018

UNSPOKEN INTELLECTUAL UNDERPINNING

SAMUEL P. HUNTINGTON

THE NEW YORK TIMES BESTSELLER THE CLASH OF CIVILIZATIONS and the Remaking of World Order

"Dazzling in its scope and grasp of the intricacies of contemporary global politics." –FRANCIS FUKUYAMA, *The Wall Street Journal*





TRUMP: LOOKED FOR "BETTER DEALS"

"I hope to be able to make a deal with [Iran]: a good deal, a fair deal, a good deal for them, better for them." - 5/10/18

"Perhaps we can negotiate a different [INF] agreement, adding China and others." – 2/6/19

"We stand ready to engage with Russia on arms control negotiations.... This would be a fantastic thing for Russia and the United States, and would also be great for the world." - 2/1/19

THIS POINT IS NOW GETTING LOST



THE LAST NPR OFFERS AN ARMS CONTROL MODEL

Indeed, U.S. pursuit of a SLCM may provide the necessary incentive for Russia to negotiate seriously a reduction of its non-strategic nuclear weapons, just as the prior Western deployment of intermediate-range nuclear forces in Europe led to the 1987 INF Treaty. As then Secretary of State George P. Shultz stated, "If the West did not deploy Pershing II and cruise missiles, there would be no incentive for the Soviets to negotiate seriously for nuclear weapons reductions."

MEDIUM-SIZED MINDS THINK ALIKE?

From: Henry Sokolski <henry@npolicy.org> Date: Tue, Jun 13, 2017 at 1:37 PM Subject: 2 points for the upcoming nuclear posture and arms control review To:

——I got to believe you're under a mountain of emails and other communications. We can talk about these matters later but just to answer the mail (you just sent) literally, the two simple points worth considering that I discussed with the are as follows:

1. Every policy worthy of its name has got to have a happy ending. We don't just compete to compete, we compete (as our president has emphasized) to win. Much of what's been written and that will and should guide the nuclear posture review is the need to be competitive in the realm of nuclear strategic activities and programs. That means modernizing existing forces. Fair enough. The ultimate question, however, is how might our efforts to catch up and compete in this realm end. In the Carter -Reagan years, we understood that the deployment of INF systems was slaved with talks to eliminate them. What we ended up with was an agreement not to deploy that helped discredit the Soviet military, which, in turn, helped bring down the Soviet union. It maybe too early to specify publicly what the happy endings might be to any military efforts we undertake now but it's not too early to start off line thinking about this as no expensive long-term military modernization effort is likely to be sustainable without it. One thing is certain: after every Republican administration there's a Democratic one and if we don't have a positive narrative about arms control, they will substitute theirs for ours. What I'd like to talk to you about is what those positive narratives might look like.

WHAT EMERGING THREATS NEED TO BE ADDRESSED?

1: GROUND-BASED MISSILES









TODAY'S ACCURATE, CONVENTIONAL MISSILES CAN ACCOMPLISH STRATEGIC MISSIONS





September 14, 2019

HYPERSONICS, FRACTIONAL ORBITING MISSILES CAN EVADE MISSILE DEFENSES



Fractional Orbiting Missile

RESPONSE 1: NEW U.S. NUCLEAR MISSILES TO BALANCE RUSSIA AND CHINA





Low Yield Warhead, Poseidon Missile



Standoff weapon

RESPONSE 2: HYPERSONICS, INF MISSILES



HTV-2 Hypersonic



X51 hypersonic cruise missile



Common Hypersonic Glide Body 94

RESPONSE 3: MISSILE DEFENSE SYSTEMS









BUT THESE MILITARY RESPONSES WON'T SUFFICE

- Current U.S. missile defenses can be overwhelmed by numbers, low fliers
- Effective boost-phase intercepts are deemed extremely difficult and may entail violating international law
- Russia and China are developing advanced missiles and hypersonics too

WHAT MIGHT HELP MILITARILY

Organize current U.S. military programs to give them geographically focused narratives that would prompt China and Russia to spend more on defenses

- A "Prompt (Nonnuclear) Missile Initiative" (re: China and Russia)
- A "Regional (Nonnuclear) Missile Initiative" (re: North Korea/Iran)

Consider assisting allies in the development of long range missiles and sharing targeting information

WHAT MIGHT HELP DIPLOMATICALLY

- Announce U.S.-allied policies not to strike cities with nuclear weapons, seek agreements with Russia & China to reduce nuclear stockpiles' numbers and total yield proportionally
- Tie the right of non-weapon states to launch nuclear capable missiles to NPT adherence
- Encourage limits on long-range hypersonics and export controls on hypersonic technology

THREAT 2: "PEACEFUL" RENDEZVOUS SATELLITES COULD LOBOTOMIZE OUR MILITARY



ESA's e.Deorbit



Japan's KIKU-7 "Chaser" & "Target"



NASA's Proposed Restore-L



China's SJ-12 & SJ-06F Also Aolong-1



Russia's Olimp-K

THREAT 2 CONTINUED: GROUND-BASED LASER ASATS



U.S. AIRFORCE SODIUM LASER



RUSSIAN, MOBILE PERESVET LASER ASAT



CHINA WANTS TO DESTROY SPACE JUNK WITH GIANT LASERS

https://inhabitat.com/china-wants-todestroy-space-junk-with-giant-lasers/

STRATEGIC SATELLITES THAT ARE VULNERABLE INCLUDE



GPS



SBIRS



U.S. MIL-SAT



ESA Galileo Navigation Satellite



French Spot-6

RESPONSE: DISTRIBUTED, QUICKLY REPLENISHABLE SATELLITE SYSTEMS



US Airforce autonomous space shuttle X-37



SPACEX launch and reentry



DARPA BLACKJACK Program



Elon Musk's Satellite Internet

RESPONSE, CONTINUED: MANEUVERING, DEFENSIVE, STEALTHY SATELLITE SYSTEMS



DARPA RSGS: Robotic Servicing of Geosynchronous Satellites



US Airforce maneuvering satellite



Misty US Stealthy Satellite Program

BUT EVEN WITH SUCH SPACECRAFT, WE ARE STILL IN A BIND

None of these systems alone can prevent our legacy military satellites from being disabled for the next decade without public clarity on what an act of war in space is & what self-defense entails



U.S. MIL-SATs

WHAT MIGHT HELP MILITARILY & DIPLOMATICALLY

- Encourage new "rules of the road," clarifying space liability in the case of "conjunctions"
- Clarify what the U.S. believes are red line activities and zones in space and if it supports French space self defense zones and bodyguards
- Encourage verifiable limits on ground-based lasers
- Consider banning debris-producing kinetic ASATs



French Defense Minister Florence Parly, announces Space selfdefense zones and bodyguards, July 2019

WHAT MIGHT AN AMERICAN ARMS CONTROL AGENDA ENTAIL?

It should:

I. Support US strategic military objectives.

II. Be competitive: Exploit economic and technological trends that advantage the United States.

WHAT TO DO: FOUR SEMI-OFFICIAL ANSWERS

Target enemy weapons but be "prepared to inflict intolerable costs" if damage limitation fails to end war

- Hedge: Load up spare warheads in the next 24 months; build up nuclear mobilization base
- Increase ICBM and national command systems survivability (make ICBMs mobile, rely less on space-based c-cubed I systems)

Prepare for an "unconstrained environment"

China's Emergence as a Second Nuclear Peer https://cgsr.llnl.gov/content/assets/docs/CGSR_Two_Peer_230314.pdf