Arms Control Implications of China's Underground Great Wall

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IMPLICATIONS OF AMERICAN ENTROPY:

CHINA’S STRATEGIC ROCKET FORCE

"UNDERGROUND GREAT WALL"

• For 45 years China has been building a large underground tunnel complex for protection of its nuclear weapons and delivery systems;
• Starting in 1985 this became a National project called the “Underground Great Wall” and claimed to have 5,000 kilometers (3,000 miles) of tunnels;
• While various Chinese publications have referenced this project since the mid-1990s, it was only formally announced by the PLA in Dec. 2009;
• There is evidence (shown on PRC TV and media) of an extensive effort, including extremely large tunnels with strategic missiles and “missile trains;”
• This tunneling raises significant Arms Control questions for the US;

-- World Without Nuclear Weapons vs. unverified and potentially large stockpile of hidden PRC nuclear weapons;
-- Continued viability of the US-RUS INF Treaty without PRC constraint;
-- Strategic Stability via START if the PRC introduces ICBM MIRV coupled with potential of unknown Tunnel deployment.
Project 816
Reserve Nuclear Reactor
Tunnels = 21km
Lin Piao’s Project 6501
“中国地下长城”
“Underground Great Wall of China’ internal layout of China's Underground Nuclear Second Strike Capability Insurance”

Underground Sub Base
(probably *Jianggezhuang* – home of all Han-class Type-091)

Early Silo Deployment

2nd Artillery Underground Great Wall
Referenced in Chinese Military Literature

Annual number of Articles referencing "Underground Great Wall"
Tunnels 1985-1995
Tunneling 2007
In 2007, Colonel Zheng's regiment was tasked to build the first strategic missile site in Tibet. Without providing much information about the new strategic missile site, the documentary mentions that the missile site is located in a mountainous area at an altitude of over 4,000 meters.

Tibet's harsh environment and scarcity of oxygen at a high altitude posed a major challenge to the missile site project. In light of the situation, Colonel Zheng first built a well-equipped work camp, an oxygen generation station and a water purification station. Oxygen was piped down to the project's work sites deep into a mountain.

In April 2007, the missile site project started and had continued for 200 days till it was completed. The planned missile site was carved out of a hill through layers of perennial frozen soils. The project utilized an array of modern tunnel boring machines. The smoothing blasting techniques were successfully applied, which eventually sped up the entire project.

The documentary indicates that upon the completion of the project, the engineering regiment quickly pulled out, thus allowing immediate missile deployment operations.

Deployment of 2\textsuperscript{nd} Artillery Missiles to Tibet
“the” Revelation of 2009

“Second Artillery has 5,000km of Underground Tunnels”
Above photo: Main Missile Bay with double track rails looking south from north entrance floor.
Missile TELs (Transporter/Erector/Launchers) in New Tunnels
Missile Deployment
Areas of Reported Tunneling Stages

Second Artillery Brigades and Bases

Underground Stages:

1967-1984
Infrastructure

1984-1995
ICBM Silos, SR/MRBM Tunnels

1995-2009
DF-21 IRBM Tunnels

2005-2009
DF-31 ICBM Tunnels

2010-2020
Rail/Road DF-41 ICBM

DF-31A ICBM
Nanyang Tunnel Complex
Chinese photo of “DF-31 Underground Deployment”

**Kunming ICBM Tunnel Complex**

24°33’01.73”N  102°35’10.54”E

Valley of Tunnels
24°33'01.73"N 102°35'10.54"E

2 Door Tunnel Portals = 32
3 Door Tunnel Portals = 4

Two Door Tunnel Portals (total = 32 positions)
“Declaration of War signals”
CCTV exposure of DF-31A intercontinental ballistic missiles

Text claims DF-31A ICBM deployment in Shaoyang and Hunan provinces

Animation of DF-31A ICBM Deployment from Tunnel to pre-surveyed firing position

ICBM Rail Transport/Launcher
During the Cold War the U.S. Missed 20,000 Soviet Nuclear Weapons

How Small is China’s Nuclear Arsenal?

Between 1995-2010 the announced length of 2nd Arty tunnels doubled from 2,500km to 5,000km.
Reported Nuclear Capable Missile Increases
including “Dual” Tactical Systems
and deployment of new ICBM

Addition of 1,000 DF-11/DF-15 SRBMs at rate: 100 per year since ’99
and assumes approximately 5 reloads per tactical launcher
but NO reloads for new mobile solid fuel DF-21 IRBM or DF-31 ICBM

Chinese Statements of Nuclear Warheads

not clear whether these numbers represent Cumulative Production or Current Inventory


Warheads

100 300 - 400 2,350 3,500


“中国目前拥有2,350核弹头？ [China currently has 2,350 nuclear warheads?]” Baidu blog, (2010.06.22), at <http://tieba.baidu.com/?ct=335675392&tn=baiduPostBrowser&sc=9311399299&qz=733745887> [accessed 4 May 2011; translated by IP-1011]; and

Is “No Nuclear Growth” Plausible?
there be as many as 3,000 nuclear warheads

“Absence of Evidence is not Evidence of Absence”

Carl Sagan

<table>
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<th>Warheads</th>
<th>Tunnel kilometers</th>
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SAC DEVELOPMENT

Missiles

Nuclear Warhead Growth?

Tunnel Growth

Missile Growth

Nuclear Warhead No Growth?
Chinese Nuclear Capable
Tactical & Theater Missile Systems

“Once everything is stored underground, and given that China tends to decouple warheads from the missiles, it will be next to impossible to quantify China's entire nuclear arsenal. Not only would 5,000km of storage allow for a greatly expanded arsenal, but transport capabilities within the tunnel could allow for the launch of nuclear weapons from a number of locations along the tunnel. Any substantial increase in its arsenal would mean that Beijing's limited deterrent is (or could become) far greater than what we have come to expect. If this were to materialize, the entire strategic balance in Asia would be shaken and would inevitably force the US, the sole security guarantor in the region, to reassess how it calculates the risks and costs of intervention, such as during a crisis.”*
Impact

Megaton warheads = 20 urban areas
High altitude fallout west to east

PRC Counter-Value Strike Against US Cities: 2000
Impact

Kiloton warheads = 326 cities

Megaton warheads = 34 urban areas

High altitude fallout west to east

Counter-Value Strike Against US Cities with MIRV
China’s “Underground Great Wall”

Arms Control Implications

- It is real – actual size unknown but strong evidence that it is the largest nuclear underground complex ever constructed by anyone;

- At least half (1,500 miles) constructed in the last 15 years to accommodate solid-fuel missiles;

- It involves hiding ICBMs as well as Tactical and Theater TELS;

- We do NOT know what they are hiding in the Tunnels but evidence suggests much larger nuclear warhead & missile reload inventory;

- Underground Great Wall appears to be associated with introduction of MIRV ICBM and Strategic Trains;

- Continued Theater SRBM/IRBM expansion designed to “Deter the Deterrer,” if not reversed -- will threaten US-Russian INF Treaty;

- Failure to get China’s forces constrained via negotiation will produce major challenge to US counter-proliferation Nuclear Umbrella in Asia.
Chinese *DETERRENCE* Terminology

**KEY WORDS**

- **Dominate** 威 wēi  might, prestige
- **Afraid** 懦 shè  cower, scared, fearful
- **Shake** 震 zhèn  quake, symbol of thunder
- **Force** 逼 bī  make someone do something
- **Power** 力 lì  strength, influence
- **Capability** 量 liàng  capacity, quantity, amount
- **Nuclear** 核 hé  atom

**KEY CONSTRUCTS**

- **Deterrence** 威慑 wēishè  dominate thru fear, cower by force
- **Intimidate** 震慑 zhènshè  to be in awe, shake/tremor,
- **Compellence** 威逼 wēibī  threaten, coerce
- **Deterrent** 威慑力量 wēishèlìliàng  dominating power capability
- **Nuclear Deterrence** 核威慑 héwēishè  nuclear domination thru fear
- **Nuclear Deterrent** 核威慑力量 héwēishèlìliàng  nuclear dominating power capability
“Bathtub of Ignorance”*

"This is not an indictment of our intelligence system.... The flaw, instead, is in our decision-making process. Our system reacts positively only when confronted with hard evidence -- a photograph of fielded equipment -- and negatively to an intelligence community 'bathtub' projection. No one in Washington is willing to make a decision until shown a picture of a fielded system incorporating new technology; then there will be all sorts of doomsday and 'how could this have happened' reactions."

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Preproduction Estimates

Deployment in Units

Time

“Bathtub of Ignorance”*

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