

THE ANCIENT Mesopotamians and Greeks thought that we face the past and back into the future. There is no better way to express U.S. nuclear weapons policy today. During the Cold War with the Soviet Union, the real danger we faced did not result from the number of nuclear weapons per se, but under what conditions they would be used. Both sides knew that despite having smaller options in their war plans, war games often led to the worst possible scenario—an all-out exchange. Although this was contrary to the intent of U.S. declaratory policy, which was “massive retaliation” from 1953-61 and “flexible response” from 1961 on, independent of what it was called, the war games did not indicate much flexibility.

Despite past instabilities in the command and control of nuclear weapons, the system worked and the world survived for more than 70 years after nuclear weapons were created without them being used again following the atomic bombing of Hiroshima and Nagasaki in World War II. We have been very lucky.

Prior to the advent of nuclear weapons, military force could be viewed, à la Prussian general and military theorist Carl von Clausewitz,

tripolar nuclear-armed world, with the People’s Republic of China (PRC) being the third major power. China is developing intercontinental ballistic missiles (ICBMs) that will improve its nuclear-capable missile forces significantly. PRC has begun building at least three solid-fueled ICBM silo fields, which cumulatively will contain hundreds of new ICBM silos. Clearly, China no longer is satisfied with having a minimal deterrent.

PRC also is developing and planning to deploy multiple independently targetable reentry vehicles, but it is unclear which ICBMs they would be placed on. The number of solid fueled CSS-10 Mod-2 (DF-31A), with a range greater than 11,000 km, capable of reaching most targets within the continental U.S., is unclear, as is how many warheads they could carry.

A recent Department of Defense report claims that with its expanded silo-based nuclear forces, PRC is planning to move to a launch-on-warning posture, what China calls an “early warning counterstrike,” where warning of a missile attack leads to a counterstrike before an enemy’s first strike can detonate. The launch would be based on warnings from

In the U.S., these land-based nuclear armed missiles could not survive a nuclear attack—even though attempts were made to assure their survival by the use of hardened silos and moving the command centers underground.

That meant that if the missiles were to be used effectively, they would have to be launched on warning of an attack, before nuclear detonations actually occurred on U.S. territory. When Navy SLBMs achieved the same or better accuracy than land-based missiles, their continued deployment became a matter of inter-service rivalry.

The U.S. has initiated the Ground-Based Strategic Deterrent program to begin the replacement of Minuteman III missiles in 2029. Replacing the Minuteman III missiles to maintain the land-based component of the triad would be a big mistake.

The policy of launch-on-warning, or under attack as it is sometimes called, is very, very dangerous because it relies on the accuracy of information received from satellites and radars. The U.S. and Soviet Union deployed satellites that could detect the launch of ballistic missiles and, in addition, both had radars that would detect incoming warheads.

BACKING INTO THE FUTURE

BY GERALD E. MARSH

“ . . . The cornerstone of U.S. strategic nuclear policy . . . is based on the ability to respond to any potential nuclear attack in such a manner that the costs exacted will substantially exceed any gains an aggressor might hope to achieve.”

as an extension of diplomacy by other means. Since then, the existence of nuclear weapons has set the stage upon which diplomacy is performed. Ironically, the bipolar world of the past lent a kind of stability to international relations that is rapidly being degraded.

Deterrence has been, and will remain, the cornerstone of U.S. strategic nuclear policy; it is based on the ability to respond to any potential nuclear attack in such a manner that the costs exacted will substantially exceed any gains an aggressor might hope to achieve. Thus, it is essential that the U.S. maintain nuclear forces capable of convincing the leadership of any country contemplating an attack on the U.S. that there can be no circumstance under which it could benefit by beginning a nuclear war at any level or of any duration.

Submarine launched ballistic missiles (SLBMs) provide a unique foundation for enhancing crisis stability. Their invisibility and mobility make them ideal platforms for the strategic nuclear mission; invisibility translates into survivability and mobility into flexibility. Most importantly, they do not have to be launched on warning of an attack.

Many now think we are headed towards a

radars and satellites. China has conducted exercises involving early warning of a nuclear strike and a launch-on-warning response.

Early warning systems are crucial for crisis stability and it often is claimed that Russia deploys an extensive early warning system, operated by its Aerospace Forces. The system consists of a network of early warning satellites that transmits to two command centers. Russia also operates an extensive network of ground-based radars across the country, as well as in neighboring Kazakhstan and Belarus, that are used for early warning of missile launches and to monitor objects at low-earth orbits. However, much of their early warning system is not functional. Perhaps the most serious threat to strategic stability today is this lack of Russian early warning capability. The situation as of 2017 was that, because Russia cannot see over the curved-earth horizon with space-based satellite sensors, it only can depend on line-of-sight radars. The warning time could be as short as 10 to 15 minutes.

The key problem we faced during the Cold War was the instability induced by the presence of land-based intercontinental ballistic missiles in both the Soviet Union and the U.S.

One might think that given these very different and redundant types of detection systems, relying on a launch-on-warning policy might not be so bad, but the information from both these systems must be brought together in a command center to assess whether an attack was really happening—and false alarms did occur. One happened when a training tape was left in the computer and somehow got activated. The information coming to the people on duty showed massive launches from the Soviet Union followed by confirmation by radar. Luckily, this was a period of low political tension, raising doubts about the attack with the people on duty. The error was caught. Similarly, the same sort of false alarm occurred in the Soviet Union. In September 1983, an automated surveillance system detected an incoming U.S. attack, but Soviet Army Lt. Col. Stanislav Petrov determined that it was a system malfunction. There also was another false alert in Russia on Jan. 25, 1995.

Does the U.S. have a launch-on-warning policy and, if so, what is wrong with it? In a letter to Sen. Pete Wilson (R.-Calif.) dated Jan. 26, 1989, Gen. John T. Chain, Jr., then commander in chief of the Strategic Air Command,

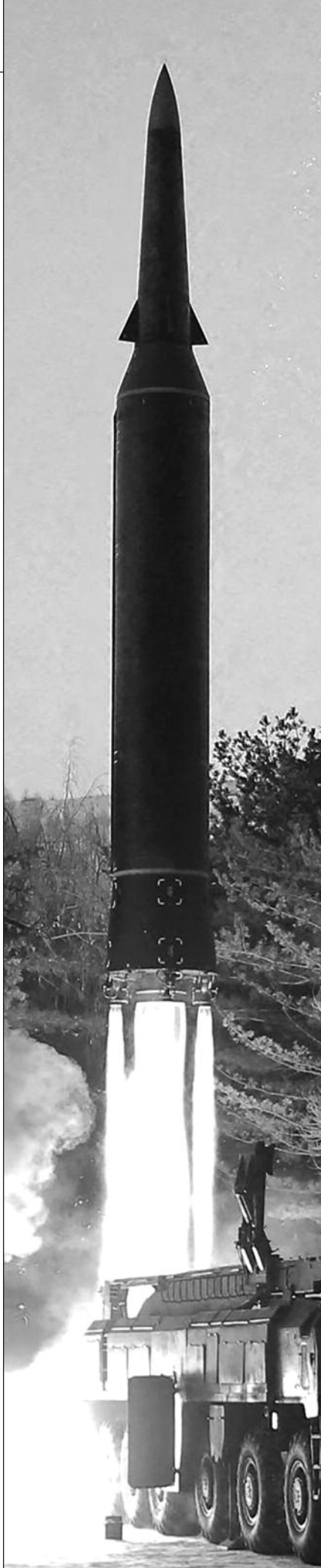
stated that the assumption that U.S. land-based missiles would not be fired until enemy missiles began hitting U.S. territory is “unrealistic.” This follows the testimony to Congress by Gen. Charles Gabriel, then Air Force chief of staff, “Obviously, if [the enemy] were going for our missile silos, there will be a period of time when we can see his weapons coming. We have sensors that tell us that. There are options that obviously do not make [our missiles] sitting ducks.” There are other such ambiguous public statements. So, the simple answer is, yes, we had and probably still do have a de facto launch-under-attack policy.

There are many things wrong with such a posture, including that the warning time for submarine-launched ballistic missile attack may be as short as five to 10 minutes, forcing the president to pre-delegate authority to arm and launch silo-based forces or otherwise “wire in” the response to an attack. Pre-delegating authority to launch nuclear forces to the military is not unprecedented. It was done by Pres. Dwight D. Eisenhower and Pres. Lyndon Johnson.

What should be done? We now have a historic opportunity to enhance the stability of the inevitable coming of the tripolar nuclear-armed world. Negotiations should be initiated with China. What we should negotiate for is an agreement not to place long-range ICBMs, such as the solid-fueled CSS-10 Mod-2 (DF-31A), with a range greater than 11,000 km or any other ICBMs capable of reaching most targets within the continental U.S.

Why might this be of interest to PRC? Chinese national security interests center on protecting overseas investments, increasing energy and resource security, stabilizing their western borderland regions, and generally increasing their security environment in the present world. China almost certainly does not view the U.S. as a primary security threat. Despite some increasing tensions at this point, we are highly dependent on each other with regard to manufactured exports to the U.S. and the more than one trillion dollars worth of U.S. debt held by China. It would take the U.S. quite some time to find other sources for the goods imported or to build up comparable manufacturing capability. Despite China’s mercantilism, rapid military modernization, and illiberal approach to human rights, we are bound closely together and will almost certainly continue to cooperate with each other.

In return, the U.S. would agree to phase out its land-based Minuteman III ICBMs (whose range is 13,000 km) that are capable of targeting the planned silo fields. This is in the best interest of both the U.S. and PRC. In addition, it would not compromise U.S. ability to strike all targets both in China and Russia. The reason that this likewise should appeal to Russia, now and in the near future, is because the Russians would find it very much in their interest to reduce the number of ICBMs needed to satisfy their own deterrence requirements. The U.S. would continue to



have more than adequate capability with the ballistic missile submarines alone. Eliminating the land-based Minuteman III missiles means that they no longer would be targets, ones associated with widespread radiation from fallout over the U.S. when attacked.

The reason the U.S. would not lose any capability against PRC and Russian targets as a result of eliminating the land-based Minuteman III and cancelling modernization plans has to do with what is known as the burst height compensating fuse. Consider the following: The circular error probable or CEP of a missile is defined as the radius of a circle around an aim point within which half of the warheads aimed at a target are expected to impact. The cross-range CEP is unaffected by the reentry angle of the warhead into the atmosphere, but this is not true of the down range error that increases with decreasing reentry angle. The CEP is projected to an elliptical shape on the ground surrounding the target. What the burst height compensating fuse does is compensate for this elliptical shape so that the full accuracy of the missile becomes available. The down-range error becomes effectively the same as the cross-range error. This means that the number of warheads assigned to a target to achieve a given kill probability is reduced dramatically.

The burst height compensating fuse has given a revolutionary increase in the accuracy of SLBMs. Since 2009, this fuse has been incorporated into the Navy’s W76-1/Mk4A (100-kT) warheads as part of a life-extension program. It is thought that all warheads deployed on U.S. ballistic missile submarines now have this fuse. This means that the submarines on patrol carry greater than three times the number of warheads needed to destroy the entire fleet of Russian land-based missiles in their silos with 100 kT warheads, freeing up the higher yield W88 (475 kT) warheads for other targets. Also, keep in mind that SLBMs aboard submarines can each carry many more warheads than they currently do.

The deployment of this fuse effectively has transformed the U.S. nuclear force into one that many would think capable of surprise attacks and fighting and winning a nuclear war. While this surely was not the intention of U.S. planning or policy, it nevertheless constitutes a serious threat to deterrence as we have known it. Given the deficiencies of Russian early warning systems—as well as the unpredictability of Vladimir Putin in his war with Ukraine—and the overwhelming superiority of U.S. nuclear forces, we are now relying on only the intrinsic deterrence of nuclear weapons. ★

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