How Nuclear War *Can* Happen:

War By Accident

Nuclear war *can* happen. Most probably it wouldn't come as a "bolt out of the blue" without warning. In all likelihood, an actual strike would be preceded by a period of rising tension, probably related to some existing armed conflict. However, nuclear war triggered by a mistake is a constant threat. As weapons become increasingly sophisticated, more people and nations have access to them, and as we become increasingly reliant on computerized military systems which are subject to failure, the risk grows. Nuclear war can happen because accidents can happen. But where weapons of mass destruction are involved, the consequences of such a mishap would be catastrophic.

Accidental Firings and Explosions

Over the past 30 years, a variety of nuclear weapons accidents have occurred. Some warheads have been blown off the top of intercontinental missiles; others have sunk to the crushing depths of oceans in submarine accidents; still others have been lost in rocket launch attempts at high altitudes. The Pentagon has acknowledged fourteen accidents involving nuclear weapons, the most spectacular of which was the release of four unarmed nuclear bombs from a B52 following its collision with a jet tanker in Palomares, Spain, in 1966. Two bombs burst on impact scattering radioactive debris and necessitating the removal of some 1600 tons of radioactive soil. In 1980, at an ICBM missile base in Arkansas, a wrench accidentally dropped by a technician punctured a Titan II missile, igniting and exploding the liquid fuel. The blast blew a 740 ton cover off the silo, one man was killed and the missile's 9 megaton warhead was hurled 200 yards away.

The immediate results of such an accident is a localized disaster. This in itself may not lead to nuclear war. Although American nuclear bombs and missiles are loaded with safety devices so the chances of one going off accidentally are small, the improbable can happen. Moreover, since the safeguards cannot be so elaborate as to interfere with missiles' firing, there is a limit to the protection they can afford. In addition, most nations developing nuclear weapons—given the expense of such safeguards—may not be as safety conscious as the United States. As the vast number of nuclear weapons grows, the likelihood of an accidental detonation increases.

Major American Nuclear Weapons Accidents, 1960-1980

1) Mars Bluff, South Carolina, 1958: a B-47 bomber drops a nuclear weapon over a farmhouse.

2) McGuire Air Force Base, New Jersey, 1960: fire destroys a nuclear missile.

3) Thule, Greenland, 1960: a radar malfunction warns NORAD of a massive missile attack from the Soviet Union.

4) Straits of Taiwan, 1960: a Matador missile flies aberrantly from Taiwan toward China, crashing at sea.

5) Yuba City, California, 1961: a B-52 bomber, with two nuclear weapons aboard, crashes.

6) Goldsboro, North Carolina, 1961: a B-52 is forced to jettison a 24-megaton bomb, which loses five of its six interlocking safety devices in the fall.

7) North Pole, 1962: at the height of the Cuban Missile Crisis a U-2 pilot takes a reading from the wrong star and flies toward Moscow.

8) Hotline, 1964-66: accidental interruptions occur at least six times between Washington and Moscow.

9) Palomares, Spain, 1966: a B-52 accidentally drops four unarmed nuclear bombs over Spanish territory.

10) Cuba, 1967: A Mace missile accidentally flies over Cuba.

11) Thule, Greenland, 1968: a B-52 crashes, and the explosive components of four nuclear weapons contaminate the area with plutonium.

12) Atlantic Ocean, 1968: the US nuclear attack submarine *Scorpion* sinks, and six months are required to determine that foul play was not the cause.

13) SECT, 1971: submarine buoys emit false signals that US subs have been sunk by enemy action.

14) NORAD, 1971: an operator accidentally transmits an emergency message that shuts down all radio and TV stations for 40 minutes by apparent "order of the President."

15) Eighth Coast Guard District, 1972: 22 Coast Guard units are alerted by a hoax message that the President has been assassinated and Vice President Agnew has declared the start of World War III.

16) NORAD, 1979: a computer accidentally misreads a war games tape as an actual massive attack by the USSR.

17) Mt. Hebo, Oregon, 1979: a low-orbit rocket body generates a false launch and impact report.

18) Kuril Islands, USSR, 1980: four Soviet SLBMs generate an unusual pattern during a test, which touches off a threat assessment conference with the Chairman of the Joint Chiefs of Staff.

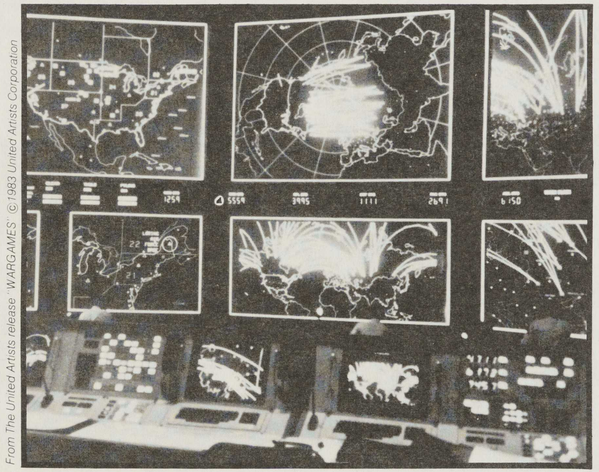
19) SAC Command Post, 1980: a faulty 46¢ integrated chip malfunctions, reporting that the USSR has attacked the US with SLBMs and ICBMs.

20) Damascus, Arkansas, 1980: a Titan II missile explodes in its silo, killing a mechanic and injuring 21 others.

Sources: "Recent False Alerts from the Nation's Missile Attack Warning System," Report of Senators Gary Hart (D-CO) and Barry Goldwater (R-AZ) to the US Senate, October 9, 1980. Jerome D. Frank, *Sanity and Survival in the Nuclear Age*, Random House, New York, 1967; Louis Rene Beres, *Apocalypse*, University of Chicago Press, Chicago, 1980; Lloyd J. Dumas, "Human Fallibility and Weapons," *Bulletin of the Atomic Scientists*, November 1980; Lloyd J. Dumas, "National Insecurity in the Nuclear Age," *Bulletin of the Atomic Scientists*, May 1976; Arthur Macy Cox, *Russian Roulette*, New York Times Books, New York, 1982.

False Alarms

There have been all manner of malfunctions in military computers serving the early warning systems as well as the command systems. During one eighteen-month period, the North American Air Defense Command (NORAD) reported 151 false alarms labeled "serious" and 3703 lesser alarms. Four resulted in orders for B52 bomber crews to start their engines and placed missile crews and submarine commanders on a higher state of readiness. Two such alerts, which actually confirmed that Soviet ICBMs had been launched, resulted from the failure of a computer chip that cost 46 cents. The record of publicly reported false warnings spans at least two decades. For example, twice in 1981 American Polaris submarines *accidentally* transmitted a properly coded message indicating that they had been sunk by enemy action. In 1975, infrared sensors in a US spy satellite reported a sudden burst of heat in Northern Siberia near the Soviet land-based ICBMs. It appeared to be a missile launch. In fact, it was a fire in a nearby gas pipeline. On other occasions, notably during the tense Berlin Crisis, our radar interpreted a flight of migrating geese as *incoming missiles*. Fortunately, in that era we could survive false alarms because there was time to ascertain the error *before* a command to launch our missiles was given. In the future, there will be no time.



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The Danger of Computer War: Launch on Warning

Nuclear technology is rapidly advancing to a point where it can no longer be controlled by man. Given the speed of the new missiles, decisions about whether to launch nuclear weapons will soon be made by computers. Neither the US or Soviet Union may want to launch a nuclear attack but with the deployment of a new round of nuclear weapons, the risk of war by miscalculation will increase from *possible* to *probable*.

We have already begun to deploy both cruise missiles in England and Sicily and Pershing II ballistic missiles in West Germany. These new missiles have first-strike capability because they can reach their targets with such speed, accuracy and power. Both are capable of destroying Soviet command, control and communications systems. To protect their own missiles and command centers the Soviets may have no other recourse but to institute a "launch on warning" system. In plain English, *this means they would launch their own missiles, without waiting for verification, at the first suspicion of attack. "Use em or lose em"* is the way the military sometimes describe this policy. Whether this system would be activated by a radar message that missiles are on the way or by sensors on their space satellites, or whether a signal would be initiated by malfunction, is irrelevant—the response would be triggered automatically and instantaneously. The Soviets would have no choice but to rely on computers. There would be no time for human intervention.

Soviet electronic and computer equipment is the weakest component of Soviet technology. Their early warning system is far inferior to ours. The Soviets had 2½ hours to check on Korean Air Lines flight 007 and were unable to verify that it was a slow-moving civilian 747. Given a Pershing II warning time of six to eight minutes, what would they do in a hair-trigger crisis if the computers mistakenly registered an attack? And there is an additional peril: without adequate warning time, the Russians may decide to go one step further—to anticipate when they would be attacked by the U.S. and to launch a pre-emptive strike.

Right now, off the American coastline Soviet missiles on nuclear submarines are only a few minutes from their respective targets. In a few years, the Russians will have their own accurate cruise missiles. General Vessey, Chairman of the Joint Chiefs of Staff, has testified that with the deployment of the MX, the U.S. may adopt a launch-on-warning system; once that is done, both nations will be hostage to the other nation's computers. As Under Secretary of Defense Fred Ikle has conceded, "The more we rely on launch on warning (or, for that matter the more the Soviets do), the greater the risk of accidental nuclear war."