Dr. Strangelove is MAD or:
Why Mutual Assured Destruction is Worrying

"Deterrence is the art of producing in the mind of the enemy the fear . . . to attack."

Dr. Strangelove

*Dr. Strangelove or: How I Stopped Worrying and Learned to Love the Bomb* parodies the madness of the Cold War nuclear standoff. At the core of this 1964 film comedy by Stanley Kubrick is the grim strategic doctrine of Mutual Assured Destruction (MAD). MAD logic led to the “arms race,” where both the Soviets and the Americans developed the nuclear "overkill" capacity to obliterate the other many times over. This overkill capacity ensured that the enemy could not get away with a sneak attack "first strike"—for there would always be enough bombs left over for a massive retaliatory "second strike." Under MAD, a rational enemy would never attack, for it was assured that doing so would lead to its own destruction. Nuclear war between rational adversaries was illogical, and so we should “. . . stop worrying and learn to love the bomb.”

MAD logic originates from basic game theory. Indeed, much of the early research in game theory was sponsored by the US Air Force through its funding of the RAND Corporation ("Bland" corporation in the movie). John Nash and other top game theorists worked on strategic games of conflict at the RAND Corporation.¹ The MAD

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strategy is essentially a form of Nash equilibrium in which neither adversary, once
armed, has an incentive to disarm or attack. However, the prevention of war which
MAD is supposed to ensure depends on both sides having a "credible deterrent."

The key subplots in the film, Plan R and the Doomsday Machine, are about the
Americans and the Soviets seeking to develop credible deterrents. The following
explanation provided to the US President Merkin Muffley (in minute 29) describes the
logic and flaw in deterrent Plan R:

General "Buck" Turgidson: "Plan R is an emergency war plan in which a lower echelon
commander may order nuclear retaliation after a sneak attack if the normal chain of command is
disrupted. You approved it, sir. You must remember. Surely you must recall, sir, when Senator
Buford made that big hassle about our deterrent lacking credibility. The idea was for plan R to be
a sort of retaliatory safeguard."

President Merkin Muffley: "A safeguard?"

Turgidson: "I admit the human element seems to have failed us here. But the idea was to
discourage the Russkies from any hope that they could knock out Washington, and yourself, sir,

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Economic Genius, explains that Von Neumann used game theory to convince the US Secretary of State John Foster
Dulles of the necessity of a nuclear first strike against the Soviet Union in 1954. Von Neumann argued that the US
should strike before the Soviets had developed a good first or second strike capacity. However, Dulles was unable to
convince President Eisenhower to launch a first strike. It was Dulles who later coined the term Mutual Assured
Destruction.
as part of a general sneak attack, and escape retaliation because of lack of proper command and control.”

The flaw in Plan R is that it allows the "psychotic" lower echelon commander, General Jack D. Ripper, to launch a nuclear attack under the pretext that the higher echelon command structure had been destroyed. Ripper's orders were irreversible because he was supposedly the remaining senior commander. General "Buck" Turgidson relates Ripper's last communication (in minute 27):

Turgidson: "The duty officer asked General Ripper to confirm the fact he had issued the go code and he said, 'Yes gentlemen, they are on their way in and no one can bring them back. For the sake of our country and our way of life, I suggest you get the rest of SAC (Strategic Air Command) in after them, otherwise we will be totally destroyed by red retaliation. My boys will give you the best kind of start, fourteen hundred megatons worth, and you sure as hell won't stop them now. So let's get going. There's no other choice. God willing, we will prevail in peace and freedom from fear and in true health through the purity and essence of our natural fluids. God bless you all.'"

"Natural fluids" aside, there is a strange logic to Ripper's craziness. Turgidson (minute 34) urges the President to follow through as Ripper suggests because Ripper has effectively forced the President's hand:
Turgidson: "Mr. President, we are rapidly approaching a moment of truth both for ourselves as human beings and for the life of our nation. Now, the truth is not always a pleasant thing, but it is necessary now to make a choice, to choose between two admittedly regrettable, but nevertheless, distinguishable post-war environments: one where you got twenty million people killed, and the other where you got a hundred and fifty million people killed."

This type of thinking was exemplified in reality by Herman Kahn of the RAND Corporation, among other analysts (and was echoed in the popular slogan, "Better dead than Red"). Kahn argued that a first strike was thinkable even after the Soviets had developed the second strike capacity to kill millions of Americans. General "Buck" Turgidson was likely modeled on General Curtis LeMay, an avid anti-Communist and the "father of Strategic Air Command".2

The President refuses Turgidson's advice and instead adopts the strategy of being transparent with the Soviets. He calls Soviet Premier Kissoff on the "hot line" and relays the coordinates of the American aircraft to Soviet air command. All of the US aircraft are either shot down or recalled, except for one B-52 Stratofortress bomber.

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2 These comparisons are made by Dan Lindsey (2009), "What I learned since I stopped worrying and studied the movie: A Teaching Guide to Stanley Kubrick's Dr. Strangelove". [http://nd.edu/~dlindley/handouts/strangelovenotes.html#N_3](http://nd.edu/~dlindley/handouts/strangelovenotes.html#N_3)
The Soviet Ambassador relates (in minute 43) to a horrified President that the Soviets have been secretly working on a credible deterrent of their own, a Doomsday Machine:

Ambassador: "The fools, the mad fools."

President: “What’s happened?”

Ambassador: "The Doomsday Machine."

President: “The Doomsday Machine? What is that?”

Ambassador: "A device which will destroy all human and animal life on earth."

President: "All human and animal life? ... I’m afraid I don’t understand something, ... Is the Premier threatening to explode this if our planes carry out their attack?"

Ambassador: "No sir. It is not a thing a sane man would do. The Doomsday Machine is designed to trigger itself automatically."

President: “But surely you can disarm it somehow.”

Ambassador: "No. It is designed to explode if any attempt is ever made to untrigger it."

President: “Automatically? ... But, how is it possible for this thing to be triggered automatically, and at the same time impossible to untrigger?”

Strangelove: "Mr. President, it is not only possible, it is essential. That is the whole idea of this machine, you know. Deterrence is the art of producing in the mind of the enemy... the fear to attack. And so, because of the automated and irrevocable decision-making process which rules
out human meddling, the Doomsday Machine is terrifying. It’s simple to understand. And completely credible, and convincing."

Turgidson: "Gee, I wish we had one of them doomsday machines, ..."

President: "But this is fantastic, Strangelove. How can it be triggered automatically?"

Strangelove: "Well, it’s remarkably simple to do that. When you merely wish to bury bombs, there is no limit to the size. After that they are connected to a gigantic complex of computers. Now then, a specific and clearly defined set of circumstances, under which the bombs are to be exploded, is programmed into a tape memory bank. ... Yes, but the... whole point of the Doomsday Machine... is lost... if you keep it a secret! Why didn’t you tell the world, eh?

Ambassador: "It was to be announced at the Party Congress on Monday. As you know, the Premier loves surprises."

Against all odds, the B-52 bomber gets through Soviet air defences and delivers its nuclear payload on target. The Doomsday Machine explodes, covering the earth in a shroud of radiation for 93 years. The Cold War begets a global "nuclear winter" wasteland; human protocols and elaborate machine designs fail to make MAD failsafe.

Dr. Strangelove holds out strange hope. He urges the President to authorize the selection of several hundred thousand perfect human specimens for the creation of an underground society. Housed in deep mineshafts, well away from the radioactive fallout, they are to lustfully breed and re-emerge to renew the war in 93 years.
Humanity is lucky to have survived the MAD world of the Cold War. However, a quiet nuclear standoff remains between Russia and America. Meanwhile, other countries are accumulating scores of nuclear bombs. It’s a MAD world after all!

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