

## *The Pentagon's Brain* by Annie Jacobsen (Sept 2015)

Reviewed by: [Robert Schaefer](#)

The U.S. Defense Advanced Research Projects Agency, DARPA initially designated ARPA, was created by Congress in 1958. Its stated mission is to create new weapons systems, with annual budget of \$3B, In [The Pentagon's Brain](#), author Annie Jacobsen ISBN-10: 0316371769 and ISBN-13: 978-0316371766 asks, "Is the world transforming into a war zone and America into a Police State, and is it DARPA that is making them so?" ... this review will, out of necessity, offer only a sampling of its contents.

DARPA's story began in the Cold War. Almost immediately, Jacobsen runs into fact-check issues, reporting that the first U.S H-Bomb was carried to its test site by airplane; the H-Bomb was in fact too massive to be carried by air and instead was brought to its test site by ship, as pointed out by a physicist Kenneth W Ford, in *Building the H Bomb: A Personal History*, reviewed at NYJB.

Given Jacobsen's inauspicious beginning there may be misrepresentations and contested facts throughout *The Pentagon's Brain*. One might blame the editors for insufficient fact checking but at 560 pages of reporting on a secretive organization, they might have been overwhelmed. Note also that Kenneth Ford in *Building the H Bomb* also skirts parts of the first H-Bomb test, in this case an aspect that Jacobsen does address: the first H-Bomb was *dangerously* underestimated and the explosion threatened the lives of scientists measuring the test miles away. This reviewer's curiosity becomes piqued as why those who were in the know might dissemble, while Jacobsen often appears to be too credulous.

Politically, the cold-war era was fun times for believers in the end times. For one, there was the political credo of Mutually Assured Destruction (MAD) stated as, if you nuke me, I'll nuke you back, which led to belief for a need for a second strike, or if you nuke me first, I'll still nuke you back. The second-strike capability was named Nuclear Utilization Target Selection (NUTS). As Jacobsen points out, "The scientists who created the hydrogen bomb had created a weapon against which there was no defense."

Surviving our political leaders' MAD NUTS depended on the presence of a "civil defense," which meant shelters in basements of public buildings with food, and water, not to mention filtered air, to survive the weeks after a nuclear holocaust while waiting for radiation to decline. Though Thomas K. Jones (later appointed Deputy Under Secretary of Defense for Research and Engineering, Strategic and Theater Nuclear Forces by President Ronald Reagan) stated, "If there are enough shovels to go around, everybody's going to make it."

Elementary schools had as part of civil defense regular drills where children ducked underneath their desks in preparation for a nuclear attack, though living through the era, I could never get an honest answer from my school teachers as to why we were practicing hiding under our desks. For our leaders, civil defense meant something more comfortable. Underground presidential bunkers were built at Raven Rock, finished in 1954 at the then cost of \$1B.

Fear of Soviet bombers were soon replaced by fear of Soviet Intercontinental Ballistic Missiles (ICBMs). Sputnik, launched by ICBM in 1957, may have been the first shot in the space race; however, it was just as much about nuclear tipped ICBM's and spy satellites.

Of more significance to the creation of DARPA in this year was the delivery of the secret Gaither Report to President Eisenhower. This report claimed that the Soviet Union was preparing for total nuclear war. Although the report was rejected by the president who was better informed, it was soon leaked to the

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press, and out of the bad public relations that followed, Eisenhower promoted the creation of ARPA. There was serious political pushback as ARPA would take research and development funding and control away from the individual military branches. President Eisenhower however overruled his own joint chiefs.

ARPA's charter was "to identify problems not now receiving adequate attention." As first order of business, President Eisenhower proposed a nuclear test ban treaty and charged ARPA to determine how to detect if such a treaty was being violated. ARPA did more, investigating 68 issues believed to be threatening the U.S., concurrently.

In ARPA's first years, most of its funding was for advancing anti-ballistic missile technology and early warning systems. ARPA study number one was called Project 137 or Operation Argus. a study for the first defensive missile shield that operated using the "Christofilos Effect." The Christofilos Effect was to use high-energy electrons trapped above the atmosphere in the Earth's magnetic field to fry incoming Soviet ICBMs. For this effect to take place, a large number of nuclear weapons had to be continually exploded in outer space, up to thousands per year.

Instead of thousands, a total of three nuclear warheads were exploded in space as part of Operation Argus, and much of the information is still classified. According to the author, the first test's EMP effect was only of limited in intensity and lasted for a little while. But by Googling it is easy to find more information.

"Starfish Prime" was the code name for one of the tests, and according to Wikipedia the EMP blast was larger than expected, and knocked out the very first U.S. telecommunications satellite, Telstar 1, and also that it caused electrical damage in Hawaii almost 900 miles away. Again, Jacobsen's interviewees may not have been as forthcoming as they could have been, or she should have checked alternate sources for information.

Perhaps because of the adverse consequences of Operation Argus, there was a treaty to halt to above ground nuclear testing soon after. But not too soon after, for during the Cuban Missile Crisis, there were four (four!) nuclear detonations in space, two by the U.S. and two by the Soviets. Exploding nuclear weapons in the middle of a nuclear crisis shows how insane the world was in the 1960s. For more information on these tests, do not look to *The Pentagon's Brain*, instead Google "Operation Fishbowl," "Checkmate," and "Bluegill Triple Prime."

ARPA was initially led by William Godel who was later replaced for embezzlement. Godel was in charge of psychological warfare and counter-insurgency programs, inventing the term "brain washing" and the concept of counterinsurgency. The concept of "winning hearts and minds" was part of this program and first used during the Vietnam War.

The Vietnam War was a laboratory of new technologies and methods developed to fight communist "insurgents." One of these new technologies was the herbicide Agent Orange, created under ARPA in a project approved by President Kennedy. Nineteen million gallons of Agent Orange were indiscriminately sprayed in Vietnam. The telling side effect of Agent Orange was that it caused nerve damage in humans (and its primary ingredient is in Monsanto's herbicide Roundup).

In her reporting, Jacobsen skips lightly over the consequences of the spraying of poison over the Vietnamese population, the most ironic of which to Americans may have been that Admiral Elmo

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Zumwalt, who ordered the herbicide's use, may have poisoned his son, a lieutenant commanding a patrol boat in Vietnam, who later died of cancer.

ARPA in Vietnam also explored the concept of "rural pacification" or moving peasants out of their homes in the countryside to better-protected camps. The process of rural pacification did not go well. Farmers resented being moved against their will, away from their farms, and forced to work building hamlets. Widespread disaffection caused the opposite effect of what was intended, losing the support of the "good" Vietnamese. ARPA sociologists wrote an unclassified report to this effect but the report was reclassified secret and distributed with an official rebuttal.

Associated with, but not part of ARPA was a secret organization that called itself the "Jasons." These were a self-selected group of patriotic scientists with security clearances. The Jasons formed in the early 1960s, though by 2014, the advisory board with the most influence on DARPA has been the Defense Science Board (DSB), whose majority members are defense contractors.

But does it matter who advises ARPA? During the Vietnam War, the Jasons recommended using tactical nuclear weapons on the Ho Chi Minh Trail, recommending exploding 10 tactical nukes per day to make the Trail unusable for 3000 years, and advising that if this was untenable then as an alternative to spread nuclear waste instead. Their report remained classified until 2003. If the reader were to Google one of the Jason's leaders, physicist Marvin Goldberger and the interview titled "Always Called Murph," those readers would discover that Goldberger thought up the idea of launching decoy missiles to overwhelm anti-missile defenses, helping push the arms race that much further along.

Among the projects offered up, the ARPA project McNamara's electronic fence was implemented, consisting of acoustic sensors, seismic sensors, infrared sensors to be dropped as an anti-infiltration barrier along the Ho Chi Minh Trail. Costing \$1B in then U.S. dollars, the project was the single most expensive high-tech project of the Vietnam War.

Though it did not achieve its aim of cutting off enemy supplies and had little effect on the war's outcome, the fence did have success as a concept. The Vietnam era technologies were continually improved over time and evolved into laser-guided bombs, smart-weapons, drones carrying sensors and weapons, and the GPS for weapon's targeting for future wars.

As the Vietnam War was incredibly unpopular with the young adults who were to fight in it, and it became known that ARPA was funding universities to work on weapons projects, to no surprise anti-war protests broke out on college campuses. Extremely bad publicity from a protest at the University of Illinois at Urbana-Champaign had serious consequence for ARPA.

Congress enacted the Mansfield Amendment of 1969, which separated general academic research from military funding unless that funding had a direct relationship to a military program. As part of this amendment the "pure" research MIT Haystack Observatory was spun off from the defense funded MIT Lincoln Labs. ARPA's star was fading. ARPA moved out of the Pentagon in 1970 and in 1972 changed its name to DARPA.

The reader would not be too surprised to learn that anti-war protests led ARPA to research weapons to use against demonstrators. These projects were kept secret, and moved to Thailand, where they were run by Battelle Labs. Research and development proceeded on non-lethal poison gas, blistering agents, nerve agents, and delivery systems that included liquid stream projectors, grenades, poison darts, using

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lasers to blind, and microwaves to burn skin. These projects led to programs and SWAT team tactics sponsored by the U.S. Department of Justice.

The chapter on biological warfare includes declassified information of spies, defectors, and a wild Soviet plan to weaponize smallpox and place it onto MIRVed ICBMs despite having cosigned a biological weapons treaty with the U.S. in 1972. Acknowledged by Russian President Yeltsin in 1992, the Jasons became involved in protecting against biological weapons threats in an ARPA program in 1997. A simulated bioterror attack in the U.S. called Operation Dark Winter exposed our lack of any biological weapon defense, which in turn led to the creation of early warning technology.

In 2001, DARPA biosensors falsely reported detecting Botulinum toxin at the White House. Between 2003 and 2008, the biosensor system, called BASIS, set up in more than 30 cities at a cost of \$30M per city, has reported to date more than 50 false alarms in public spaces. If readers Google the names and companies mentioned in *The Pentagon's Brain*, they will find claims and counterclaims of unpreparedness for bioterrorism—both as serious research and as a scare-tactic.

DARPA has also been interested in monitoring communications worldwide for counter-terrorism, having initiated in 2002 a data acquisition and mining project called Total Information Awareness (TIA). Run by John Poindexter (who was convicted of a felony in the Iran-Contra Affair), the program was earmarked \$145M for 2002 and \$183M for 2003 before Congress intervened.

When questioned by Congress on this program, Poindexter lost his composure, shouted at Senate staffers, and was forced to resign. He left DARPA and the TIA program supposedly shut down; however, the TIA program did not end; instead the program was renamed and transferred to other agencies and military services. TIA was folded into the NSA program PRISM, which was later exposed by Edward Snowden.

Continuing of “hearts and minds” program that was begun in Vietnam, DARPA embedded civilian sociologists and anthropologists with U.S. troops, in the Mapping the Human Terrain Program (MAP-HT). Twenty-six teams of social scientists and anthropologists in full battle gear and carrying weapons were sent to Iraq and Afghanistan to better understand the enemy. Jacobsen notes, “It was as if the Vietnam War produced amnesia instead of experience.”

Although the military gains value in understanding the culture of the people they fight, the American Anthropological Association sees MAP as a breach of trust. Though MAP member, staff sergeant, and anthropologist Paula Lloyd was murdered in Afghanistan in 2008, MAP continues. By 2014, the MAP-HT program has cost \$500M, with MAP teams operating all over the world.

The end chapters of *The Pentagon's Brain* address several of DARPA's most advanced programs, in particular, autonomous robots and bioengineering. At UC Irvine, Jacobsen asks Dr. David M. Gardiner, a scientist working on limb regeneration for DARPA's Wounded-Warrior Program, “Do you think the Defense Department will begin human cloning research?” To which Gardiner replies, “Ultimately needs to be a policy decision.”

*The Pentagon's Brain* is a fascinating, wide-ranging history of DARPA, filled with truths, half-truths, misstatements, and misdirection.

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