

Electromagnetics and the Mind

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The ultimate goal of all psychological operations, has always been to capture the 'hearts and minds' of those of the enemy. Forms of PSYOP have existed for nearly as long as war itself, but with the advent of information warfare, PSYOP is seen as a manipulation of the processor of information — the mind itself. Though these operations have traditionally been relegated to *presenting* information that produces a desired impact on the mind, only with recent advances in neuroscience have we begun to understand *altering* how that information processed. This alteration has come initially in hypnosis and psychoactive drugs, but more importantly, in certain forms of radiation and their interactions with the electrochemical brain. Where drugs and hypnosis can be considered 'invasive' techniques, requiring physical proximity, radiated energy can be applied over great distances, with less probability of detection.

What must first be understood from a military perspective, is the utility of this technology. Next, a foundation in the hard science and documented military research is necessary to understand the potentials and limitations. Finally, due to the potential national security, public health, and ethical ramifications associated with this research, much has been classified. This classification has lead to certain amount of conspiratorial speculation, which is worth some mention.

Non-lethal weapons are currently en vogue with the DoD, especially to those who have come to face the specter of MOOTW and anti-terrorist action. These situations, as well as those in law enforcement, are not suitable to the application of traditional combat arms. The chief intent of these non-lethal weapons being to compel its target to retreat or surrender, or to prohibit the target from offensive action. The goals of extra-low frequency (ELF) electromagnetic (EM) radiation is to mentally achieve these ends from a distance and without any physical contact.

These goals can be divided into three specific applications: deterrence, influence, and control. Each goal becomes progressively more scientifically challenging. Deterrence is to simply cause such neurological discomfort or mental psychosis to make the aggressor simply fall back rather than suffer. This area dovetails with electromagnetic pulse (EMP) weapons, but here the effect is not from a pulse as much as sustained radiation. Deterrence usually intends the recipient to be aware of the source of the ill effects and seek to avoid it. Influence and suggestion are achieved when the target is not aware that the EMR is present or what it is doing. Simple effects such as the

inability to concentrate, inexplicable paranoia, and headaches, all negatively influence the behavior without being able, or aware, of the need to escape a weapon. Finally the illusive goal of 'mind control,' in both allies and in the enemy, by co-opts them to work unconsciously based on direction of a controlling agent.

With these goals identified, the question now becomes: how much of this can be achieved, and how much has already been accomplished? In answering this question, it is important to discern between pseudo-science and hard science, between conspiracy theories and documented facts. Unfortunately, the line between these areas is often blurred, and with most information protected for national security and ethical means, separating the wheat from the chaff is quite challenging. Presented here are footnoted sources of legitimate research in both science and history.

Research in this field is not new. Hypnosis and mind-altering drugs have been known to man for years, and the use of subliminal suggestion has been well documented and even publicly accepted in such roles as shoplifting deterrence [\[CONGRESS84\]](#). Since the latter half of this century, the use of EM radiation to impact the brain has been researched. Though not the chief focus of this paper, research into these psychoactive drugs is of note since the attempts met with some results (some tragic), and the intent of such research is identical to that in ELF radiation. In the 1950s, at the beginning of the Cold War, the newly created CIA recognized the need for drugs and techniques that would both elicit information from captured spies, and prevent our operatives from divulging information under medication, if captured. This research came under the title Project ARTICHOKE and soon became Project MK-ULTRA. Dr. Sidney Gottlieb, a program administrator, stated the objective of the program was to, "investigate whether and how it was possible to modify and individual's behavior by covert means" [\[CONGRESS77\]](#). MK-ULTRA would almost certainly have remained classified, had it not been for the death and permanent psychosis of participants in the studies. The death of Dr. Frank Olson 1953, of the Army Chemical Corps, is but one example where LSD was given to a participant in MK-ULTRA, leading to his death. This case brought to a head to the public outcry which declassified MK-ULTRA, and resulting in the government's payment of damages to the Olson family and many others.

Two congressional subcommittees resulted from MK-ULTRA and from the parallel research being performed in the interest of law enforcement. Senator Ted Kennedy's congressional subcommittee that investigated MK-ULTRA in 1977, found it guilty of both ethical violations and of violating its charter to only involve non-domestic activities. No one in the CIA was ever criminally charged; the CIA simply vowed that the research would stop. A second committee of Senator Sam Ervin in

1974 entitled, "Individual Rights and the Federal Role in Behavior Modification" also found law enforcement agencies and the VA guilty of violating patients' rights through various means including lobotomies. Again, a stated promise to stop the research was the only punitive result. In 1977, one of the CIA whistleblowers, Michael Copeland, stated that despite claims to the contrary, the research continued and that, "the congressional subcommittee which went into this sort of thing only got the barest glimpse" [\[ERINGER85\]](#). Though MK-ULTRA is officially stated to have met with little success, its intent, clandestine manner, and ethical lapses are of note. MK-ULTRA's greatest contribution may have come in pushing research toward EM and away from narcotics.

Other researchers met with certain successes in the 1950s and '60s. Dr. Jose Delgado, professor of psychology at Yale, who was able to elicit a range of emotions from his subjects by using small implants located in parts of the brain which then received their energy from 'remote control' radio waves. Through this research, Dr. Delgado was able to stop a charging bull. [\[TIMES65\]](#) A contemporary of Delgado, Dr. Ivor Browning was able, through stimulation of the hypothalamus, induce a mule to ascend a 5000' mountain path [\[MARTIN\]](#). Delgado's human subjects could be consistently brought to states varying from euphoria, rage, and fatigue. Delgado states: "Stimulation of different points in the amygdala and hippocampus in the four patients produced a variety of effects, including pleasant sensations, elation, deep concentration, odd feelings, super relaxation, colored visions, and other responses" [\[DELGADO73\]](#). This research was limited in its applications because of its dependence on its physical implants into the brain. However, a 1970 RAND Corporation study found that using ELF microwave radiation alone, "could promote insomnia, fatigue, irritability, memory loss and hallucinations" [\[MACGREGOR70\]](#). Additionally, a DIA report found that ELF microwaves can, "induce metabolic change, alter brain function, and behavior patterns" [\[ADAMS76\]](#).

Dr. Delgado saw no limits for the technology he had researched and as a part of the 1974 congressional hearings, testified, perhaps prophetically, that, "Man does not have the right to develop his own mind. This kind of liberal orientation has great appeal. We must electronically control the brain. Some day armies and generals will be controlled by electric stimulation of the brain" [\[CONGRESS74\]](#). It may be worth noting that the Office of Naval Intelligence funded much of Dr. Delgado's research, but in his radical statements, Dr. Delgado is not alone. Three other Harvard doctors concluded in their 1967 report, "The Role of Brain Disease in Riots and Urban Violence" to JAMA, that screening tests of the limbic brain function was necessary as an "early warning test" for a predisposition toward violence [\[MARK67\]](#).

Dr. Ross Adey, now of Loma Linda University Research Hospital, has investigated the effects of ELF radiation on the brain. and his work

continues. Dr. Adey has researched the impact of ELF radiation on the inherent 'waves' of the brain. After studying the different rhythms of EEGs during various mental states, Dr. Adey was able to bombard the brain with specific frequencies to which the brain's EEG would involuntarily synchronize. Synchronizing the brain in various states would induce stress, anger, malaise, and fatigue. Dr. Adey was able to identify specific frequencies and their specific response. Some of Dr. Adey's current research, available in abstract from the NIH database is in calcium ion efflux [\[ADEY75\]](#).

Though someone viewing the research description might not be alarmed at the study of how ELF radiation can affect calcium ion efflux in brain cells, an understanding of this research's impact on the entire brain may cause alarm. Calcium ions are involved in transmitting neural and nerve impulses. Dr. Adey has shown that certain ELF frequencies can hinder or increase calcium ion efflux. Such ion efflux reduction delays or prevents neural impulses. The opposite case of efflux, "with repeated or continued exposure, the increased excitability leads to a state of exhaustion of the cells of the cerebral cortex." [\[ZARAT78\]](#) Dr. Adey was able to document a marked delay in rat's reaction times and memory. The more ominous prospect is that ion efflux in the hippocampus is also tied to the storage of human memory and recall [\[ADEY67\]](#). When Senator Richard Schweicker questioned Dr. Gottlieb of MK-ULTRA about this study and its potential to destroy memory in animals, Dr. Gottlieb replied, "I can believe that, Senator." [\[CONGRESS77\]](#) Further study has been done by other researchers using ELF radiation, with responses varying from and desire to 'bite' the researcher [\[LAWRENCE73\]](#), to the ability to hear spoken words delivered via pulsed ELF microwave analog of the speaker's sound vibrations [\[BECKER85\]](#).

Given the small sampling of past and current research, it is worth noting that these seemingly disparate advances, along with the known areas of hypnosis and classical conditioning training — lest B.F. Skinner and Pavlov be left from the discussion — could lead to rather impressive and dangerous potentialities. The Internet is replete with those who have tied these technologies with history and personal psychosis to assert such many interesting conspiracies. Prospects such as the CIA assassination programming of Lee Harvey Oswald (a documented CIA employee) and Sirhan Sirhan, have been offered, as well as the notion of widespread mental implantation and control of the American populous. The former of these statements is the belief that through hypnosis, drugs, and possibly ELF radiation, these assassins were programmed to carry out their duties without remorse, without memory, and without memory of their training. The latter of these assertions, the notion of mental implants and control, has led to a large group of individuals, most likely with other more severe mental problems, to be convinced they are victims of a governmental mind control conspiracy. It

may be of note that before the discovery of MK-ULTRA such claims by individuals in that program, though seemingly ludicrous, were indeed accurate.

Further conspiracies revolve around the DoD which operates the joint Navy-Air Force High Altitude Auroral Research Project (HAARP). The program's stated objective is to study the affects of radiation in the upper atmosphere, but it's critics charge either for large-scale mind control (using the ionosphere as a reflector) or weather control. Another buzzword that is not strictly limited to conspiracy theorists is 'psycho-acoustic correction.' This word involves using an acoustic signal to mask an underlying ELF wave designed to produce 'voices in the head' and to produce overall states of anxiety and discomfort. Research in this area has already been mentioned. Such technology is alleged to have been used in both the eventual surrender of Manuel Noriega from the Vatican Embassy in Panama, and the siege of the Branch Davidian compound in Waco. In both cases, helicopters playing 'loud music' were certainly documented to fly over. Each of such conspiracy theories certainly contains a measure of truth and a bit of speculation. The military's intense secrecy in this area of research does little to abet their beliefs. When David Boyd of the National Institute of Justice was asked if such technology was used in Waco his reply was, "I have to answer that very carefully. The fairest answer is none were suitable." [\[VALENTINE\]](#)

The extent to which the conspiracies, which revolve around this area of research, are accurate may be best determined through history. If the military and intelligence communities since the start of the Cold War have known about such powerful technology, why so would the military actions in Korea and Vietnam resulted in such unsuccessful results? Though such technology may be able to create the perfect assassin, why involve such complicated technology, when Navy SEALs or Hamas terrorists would willingly achieve the same ends without any fancy mind control. Also in a military role the potential use of such technology still requires the presence (most likely from the air) of an emitter, which, if capable of overflying a battlefield, must fly in an environment in which air supremacy has already been established.

The military certainly needs technology that allows it to deter or influence aggressors from action against our forces and those of our allies. In an age when there is less threat of a single large-scale engagement, but a greater threat of small rebellions and terrorist action, such technology can be of even greater value. Such weapons and technology can obviate the need for inflicting mass casualties, incurring collateral damage, and launching street to street 'room clearing' offensives. Public source research in this arena is sufficient to glean that there is a body of research with definite PSYOP uses.

Such technology is not without its legal and ethical ramifications.

especially in a peacetime environment. If its application can pacify a people before war starts, is it acceptable? If it can extract near-perfect information without any physical torture or permanent effects from captured soldiers, is it a violation of the Geneva Accords? What could this mean for criminal justice in the U.S., where lie detectors are suspect enough? If such ELF waves are used in aversion therapy to 'rehabilitate' criminals from their violent impulses, is that okay? Can we be sure it worked? These ethical questions and the seemingly permanent veil of national security compartmentalization in this area will likely prevent any but the least powerful implementations of this technology in the near future.

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Leading Edge Research Group.
<http://www.trufax.org/main7.html>

Return of the Dragon: Hazards of Man-Made Magnetism.
<http://www.ratical.com/ratville/RofD1.html>

EMF Effects.
<http://www.yelmtel.com/~mrwizard/wizardEMF.HTM>

List of EMF Resources. http://www.etc-inc.com/html/emf_resources.html

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<http://www.newphys.se/elektromagnum/physics/KeelyNet/biology/index.html>

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