

By 1998, publicly released information was being discussed as a result of information openly flowing out of Russia. A meeting was held to assess the threat: the "main purpose of the March meetings was described in the Psychotechnologies memo as to 'determine whether psycho-correction technologies represent a present or future threat to U.S. national security in situations where inaudible commands might be used to alter behavior.'"³¹⁸ The threat assessment was likely to begin to condition Americans for the public acknowledgment of one of the government's long held secrets - the human mind and body could be controlled remotely without a trace of evidence being left behind. In another quote, one of the leading researchers in this area began to announce his findings: "But psychological-warfare experts on all sides still dream that they will one day control the enemy's mind. And in a tiny, dungeon like lab in the basement of Moscow's ominously named Institute of Psycho-Correction, Smirnov and other Russian psychiatrists are already working on schizophrenics, drug addicts and cancer patients."³¹⁹ The results of this research have been investigated and demonstrated to members of the intelligence community in the United States and have even been demonstrated on a Canadian television documentary by Dr. Smirnov.

"Fantasies are thought processes involving internal monologues and imaginative sequences which can motivate healthy people to constructive behavior; likewise, they can inspire unbalanced individuals to destructive or dangerous behavior. One conclusion from that research was that fantasy played a major role among violent criminals. Researchers learned that criminals often daydreamed their fantasies, and then practiced elements of those fantasies before committing their crime. FBI agents determined that violent criminals often exhibit telltale signs as children and as adults. Hence, disturbed employees or students may demonstrate signs of violent fantasies to close observers. Troubled individuals may be obsessively interested in music with violent lyrics, or may have a drug or alcohol problem. When these signs reveal themselves, they should be reported to a threat management team, which can then neutralize the threat, either by therapy, if rehabilitation is possible, or by firing the employee. Workplace and school violence is usually preceded by warning signs."³²⁰ This issue is also an interesting one as the next chapter does show. The ability to determine a "predisposition" for a behavior does not mean that a person will make the "choice" to act on the feeling and internal thoughts. Every person on the planet can remember times when his thoughts were dangerous, immoral or otherwise unacceptable, falling below the standards set by societal and cultural "norms." Yet, we could have these thoughts in the privacy of our

318. *Defense Electronics*. "JOD, Intel Agencies Look at Russian Mind Control Technology, Claim," July 1993. EPI538
319. 1993. EPI538
319. Elliot, Dorinda and Barry. John. "A Subliminal Dr. Strangelove." *Newsweek*, Aug. 21, 1994.
EPI542
320. Dupue, Roger L. and Depue, Joanne M. "To Dream, Perchance to Kill." *Security Management*, July 1998. Vol. 43, No. 6. Source: NLECTC Law Enforcement & Technology News Summary, July 1998. EPI932

own mind. The trend in the application of mind control technology now would make our most private internal thoughts, as we wrestle with the temptations and choices of everyday life, subject to scrutiny by government and employers. Who will define the rules for psycho-correction? Who will decide what is ethical and right in this area as it develops over the next decade?

Control of the Mind and Body

The predominant brain wave frequencies indicate the kind of activity taking place in the brain. There are four basic groups of brain wave frequencies which are associated with most mental activity. The first, beta waves, (13-35 Hertz or pulses per second) are associated with normal activity. The high end of this range is associated with stress or agitated states which can impair thinking and reasoning skills. The second group, alpha waves (8-12 Hertz), can indicate relaxation. Alpha frequencies are ideal for learning and focused mental functioning. The third, theta waves (4-7 Hertz), indicate mental imagery, access to memories and internal mental focus. This state is often associated with young children, behavioral modification and sleep/dream states. The last, ultra slow, delta waves (.5-3 Hertz), are found when a person is in deep sleep. The general rule is that the brain's predominant wave frequency will be lowest, in terms of pulses per second, when relaxed, and highest when people are most alert or agitated.³²¹

External stimulation of the brain by electromagnetic means can cause the brain to be entrained or locked into phase with an external signal generator.³²² Predominant brain waves can be driven or pushed into new frequency patterns by external stimulation. In other words, the external signal driver or impulse generator entrains the brain, overriding the normal frequencies, and causing changes in the brain waves; which then cause changes in brain chemistry; which then cause changes in brain outputs in the form of thoughts, emotions or physical condition. As you are driven, so you arrive - brain manipulation can be either beneficial or detrimental to the individual being impacted depending on the level of knowledge or the intentions of the person controlling the technology.

In combination with specific wave forms, the various frequencies trigger precise chemical responses in the brain. The release of these neurochemicals causes specific reactions in the brain, which result in feelings of fear, lust, depression, love, etc. All of these, and the full range of emotional/intellectual responses, are caused by very specific combinations of these brain chemicals which are released by frequency-specific electrical impulses. "Precise mixtures of these brain juices can produce extraordinarily specific mental states, such as

321. *Major Brain New Goals and Techniques for Brain Growth and Mind Expansion*, by Michael Harrison, 1986. EPI1235
322. US Patent #5,366,368, Oct. 18, 1994. Method and Apparatus for Inducing Desired States of Consciousness. Inventor: Monroe, Robert. Assignee: Interstate Industries, Inc. EPI286

In 1995 it was reported that in the early research, clear signals had been sent and received. It is difficult now to determine what level of military or other research was being advanced in these areas. History was clear from Congressional Reports that this entire area was of great interest to the intelligence communities. "Drs. Allen Frey and Joseph Sharp conducted research. Sharp himself took part in these experiments and reported that he heard and understood words transmitted in pulse-microwave analogs of the speakers sound vibrations. Commenting on these studies, Dr. Robert Becker, twice nominated for the Nobel Peace Prize, observed that such a device has obvious applications in covert operations designed to drive a target crazy with voices, or deliver undetectable instructions to a potential assassin."³⁰²

Later, in 1996 "A wireless communication system undetectable by radio frequency methods for converting audio signals including human voice, to electronic signals in the ultrasonic frequency range, transmitting the ultrasonic signal by means of acoustic pressure waves across a carrier medium, including gases, liquids, or solids, and reconverting the ultrasonic acoustical pressure waves back to the original audio signal."³⁰³ was developed. Although this was meant to be used with both receiving and sending hardware, what was determined were the modulation methods for transferring the signal.

The real work was yet to be made public in the form of patents. However, the military claims in the area were starting to held back by the government and experience was that patents were being this intellectual property was seized the inventors were given a choice - work for the government or you can not continue research, or even talk about, your invention under a national security order. Those who did not cooperate could have their work effectively shut down.

Brain to Computer Connections

Major steps are being made to connect biology to information technology. "Researchers said they took a key first step toward creating electronic microchips that use living brain cells. The researchers said they had learned how to place embryonic brain cells in desired spots on silicon or glass chips and then induce the brain cells to grow along desired paths."³⁰⁴ In addition, "Scientists have succeeded for the first time in establishing a colony of human brain cells that divide and grow in laboratory dishes, an achievement with profound implications for understanding and treating a wide range of neurological disorders from epilepsy to Alzheimer's disease."³⁰⁵ The

possibility is that both brain cells and computer hardware could be built in the laboratories creating, perhaps, the first biologically generated computers.

What's on Your Mind?

A significant initiative was started for use in creating counter measures: the "Brain Imaging Technology Initiative. This initiative establishes NIDA regional neuroimaging centers and presents an interagency cooperative endeavor funded by CTAC, Department of Energy (DOE), and NIDA to develop new scientific tools (new radio tracers and technologies) for understanding the mechanisms of addiction and for the evaluation of new pharmacological treatments."³⁰⁶ Through neuroimaging, not only could the old objective be achieved, but through imaging, a person's emotional states could be mapped, chemical influences determined and perhaps even specific thoughts could be read.

In 1975: "Developments in ways to measure the extremely weak magnetic fields emanating from organs such as the heart, brain and lungs are leading to important new methods for diagnosing normal conditions."³⁰⁷

In 1995 a system for capturing and decoding brain signals was developed which includes a transducer for stimulating a person, EEG transducers for recording brainwave signals from the person, a computer for controlling and synchronizing stimuli presented to the person and at the same time recording brainwave signals, and either interpreting signals using a model for conceptual, perceptual and emotional thought to correspond to the EEG signals of thought of the person or comparing the signals to normal brain signals from a normal population to diagnose and locate the origin of brain dysfunction underlying perception, conception and emotion.³⁰⁸ In other words, the device reads your mind by comparing your brain activity to other people's.

In 1996 came this Orwellian development: "a method for remotely determining information relating to a person's emotional state, as waveform energy having a predetermined frequency and a predetermined intensity is generated and wirelessly transmitted towards a remotely located subject. Waveform energy emitted from the subject is detected and automatically analyzed to derive information relating to the individual's emotional state. Physiological parameters of blood pressure, pulse rate, pupil size, respiration rate and perspiration level are measured and compared with reference values to provide information utilizable in evaluating interviewee's responses or possibly criminal intent in security sensitive

³⁰² Scientists for Global Responsibility, "Non-Lethal Defence: The New Age Mental War Zone" Issue 10, 1995, EPI810
³⁰³ US Patent #5,539,705, July 23, 1996, Ultrasonic Speech Translator and Communication System, Inventor: Atreman, M. Alfred et al., Assignee: Martin Marietta Energy Systems, EPI293
³⁰⁴ Bishop, Jerry, Nerve Scientists Move Toward Union Of Living Brain Cells With Microchips, Wall Street Journal, Feb. 1, 1994, p. B3, EPI49
³⁰⁵ Specier, Michael, "Scientists make brain cells grow," Anchorage Daily News, May 4, 1990, EPI527

³⁰⁶ ONDOD/CTAC, Countering Research and Development Blueprint Update, <http://www.whitehouse.gov/scimed/blueprint89/evexsum.htm>, EPI305
³⁰⁷ Cohen, David, "Magnetic Fields of the Human Body," Physics Today, Aug. 1975, EPI1179
³⁰⁸ US Patent #5,392,788, Feb. 29, 1995, Method And Device For Interpreting Concepts And Intention, Inventor: Hudspehn, William J., EPI1129

political control - the ability to place information directly into the human brain, bypassing all normal filtering mechanisms.

The Department of Defense put forward the following information in 1995 which would be used for direct communication with military personnel. "Communicating Via the Microwave Auditory Effect; Awarding Agency: Department of Defense; SBIR Contract Number: F41624-95-C-9007." The description of the technology was written as follows:

"Title: Communicating Via the Microwave Auditory Effect

Description: An innovative and revolutionary technology is described that offers a means of low-probability-of-intercept Radio Frequency (RF) communications. The feasibility of the concept has been established using both a low intensity laboratory system and a high power RF transmitter. Numerous military applications exist in areas of search and rescue, security and special operations."287

The feasibility was not only demonstrated in the laboratory but also in the field using a radio frequency carrier. In the case of the Gulf War, we had always suspected that the reason that the Iraqis gave up in mass was not because of the heavy bombardments but because they were being hit with new "non-lethal" systems which created fear and perhaps even worse. Our research uncovered reports which now confirm our suspicions as fact.

"What the 'Voice of the Gulf' began broadcasting, along with prayers from the Koran and testimonials from well-treated Iraqi prisoners, was precise information on the units to be bombed each day, along with a new, silent psychological technique which induced thoughts of great fear in each soldier's mind..."288 This makes a great deal of sense today given what has become increasingly known about mind control weapons. "According to statements made by captured and deserting Iraqi soldiers, however, the most devastating and demoralizing programming was the first known military use of the new, high tech, type of subliminal messages referred to as ultra-high-frequency 'Silent Sounds' or 'Silent Subliminals.'"289 The use of these new techniques, we believe, went well beyond the injection of fear and may have involved more powerful signal generators which caused the other symptoms which the world observed including head pain, bleeding from the nose, disorientation and nausea - all possible with so-called non-lethal weapons. The questions which now remain: Are they still using the techniques like an electronic concentration

in order to control the population? Is this part of the way in which modern governments will suppress rogue nations?

The development of the technology followed a very traceable history which began in the early 1960s at the height of the cold war. In 1961 Dr. Allen Frey wrote, "Our data to date indicate that the human auditory system can respond to electromagnetic energy in at least a portion of the radio frequency (RF) spectrum. Further, this response is instantaneous and occurs at low power densities, densities which are well below that necessary for biological damage. For example, the effect has been induced with power densities 1/60 of the standard maximum safe level for continuous exposure."290 This observation had incredible ramifications because it meant that within certain ranges RF could create a sound within the brain of a person at energy concentration levels considered too small to be significant.

Later that year a patent was issued to Dr. Puharich which aided in part, "The present invention is directed to means for auxiliary hearing communication, useful for improving hearing, for example, and relates more specifically to novel and improved arrangements for auxiliary hearing communications by effecting the transmission of sound signals through the dental structure and facial nervous system of the user."291 This crude device produced a signal which could be heard in the brain by inducing a vibration which was transferred through the bone into the inner ear where it was then carried to the brain via the nervous system. Puharich continued searching along this line, gaining an additional patent in 1965.292 The path of these inventions required physical contact with the head of the subject.

By 1962 Dr. Allan Frey had advanced his work and was able to create sound at a distance from the subject using a pulsed (modulated) radio transmitter. "Using extremely low average power densities of electromagnetic energy, the perception of sounds was induced in normal and deaf humans. The effect was induced several hundred feet from the antenna the instant the transmitter was turned on, and is a function of carrier frequency and modulation."293 What was occurring in this research were the first attempts to "tune" into the brain of a human in the same manner as "tuning" into a radio station. The same energy was being used, it was just at a different frequency with a slight vibration (modulation) on the carrier wave which delivered the signal.

In 1968 G. Patrick Flanagan was issued a patent for a device which also required physical contact with the skin of the subject. This invention relates to electromagnetic excitation of the nervous system of a mammal and pertains more particularly to a method and

Dr. Allan H. Frey, "Auditory System Response to Radio Frequency Energy," *Aerospace Medicine*, 1961, Vol. 32, pp. 1140-1142. EPI970

Dr. Allan H. Frey, "Means for Aiding Hearing," *Inventors: Puharich et al.*

US Patent #3,170,993, Feb. 23, 1965. Means For Aiding Hearing By Electrical Stimulation Of Facial Nerve System. *Inventors: Puharich et al.* EPI1119

Dr. Allan H. Frey, "Human Auditory System Response To Modulated Electromagnetic Energy," *Journal of Applied Physiology*, 17(4): 689-692, 1962 EPI544

unspoken channels

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The first widespread interest in the subject of mind control in the mainstream of military think tanks after the Korean War was returning prisoners of war exhibited significant behavioral changes. In 1956 the following was written into the United States Congressional Record:

"Reports of the treatment of American prisoners of war in Korea have given rise to several popular misconceptions, of which the most widely publicized is 'brainwashing.' The term itself has caught the public imagination and is used, very loosely, to describe any act committed against an individual by the Communists. Actual 'brainwashing' is a prolonged psychological process, designed to erase an individual's past beliefs and concepts and to substitute new ones. It is a highly coercive practice which is irreconcilable with universally accepted medical ethics. In the process of 'brainwashing,' the efforts of many are directed against an individual. To be successful, it requires, among other things, that the individual be completely isolated from normal associations and environment."²⁷⁷

The ethical considerations have not changed, but the military's position on the ethics has changed as they have gained significant capabilities in these areas. "Psychological warfare is becoming increasingly important for U.S. forces as they engage in peacekeeping operations. In the psychological operations area, we're always looking to build on our existing technologies, so much of this is evolutionary," Holmes said. "It is critically important that we stay ahead of the technology curve."²⁷⁸ The temptation to dabble in this area has now overcome the ethical considerations.

A recent Russian military article offered a slightly different slant to the problem, declaring that "humanity stands on the brink of a psychotronic war" with the mind and body as the focus.

These weapons aim to control or alter the psyche, or to attack the various sensory and data-processing systems of the human organism. In both cases, the goal is to confuse or destroy the signals that normally keep the body in equilibrium.

According to a Department of Defense Directive, information warfare is defined as "an information operation conducted during a time of crisis or conflict to achieve or promote specific objectives of a specific adversary or adversaries." An information operation is defined in the same directive as "actions taken to affect adversary information and information systems." These "information systems" lie at the heart of the modernization effort of the US armed forces and manifest themselves as hardware, software, communication capabilities, and highly trained individuals

Information warfare has tended to ignore the role of the human body as an information - or data-processor, in this quest for dominance except in those cases where an individual's logic or rational thought may be upset via disinformation or deception... Yet, the body is capable not only of being deceived, manipulated, or misinformed but also shut down or destroyed - just as any other data-processing system. The "data" the body receives from external sources - such as electromagnetic, vortex, or acoustic energy waves - is created through its own electrical or chemical stimuli can be manipulated or changed just as the data (information) in any hardware system can be altered. If the ultimate target of information warfare is the information-dependent process, "whether human or automated," then the definition implies that human data-processing internal and external signals can clearly be considered an aspect of information warfare.²⁷⁹

On a much grander scale, the use of mind control was attempted as far back as 1969 by a former science advisor to President Johnson. "Gordon J.F. Macdonald, a geophysicist specializing in problems of warfare, has written that accurately timed, electrically excited strokes, 'could lead to a pattern of oscillations that induce relatively high power levels over certain regions of the earth... In this way, one could develop a system that would seriously impair the brain performance of very large populations in selected regions over an extended period...'"²⁸⁰ This capability exists today through the use of systems which can stimulate the ionosphere to turn a pulsed (modulated) signal which at the right frequency can override normal brain functions. By overriding the natural pulsations of the brain chemical reactions are triggered which alter the emotional state of targeted populations.

Subliminal Messages and Commercial Uses

One of the areas where this new technology is being used is in attempts to dissuade shoplifters using sound below the range of hearing. "Japanese shopkeepers are playing CDs with subliminal messages to curb the impulses of the growing band of shoplifters. The Control CDs have sound-tracks of popular music or ocean waves, with encoded voices in seven languages... warning that anyone who stealing will be reported to the police."²⁸¹ A number of attempts have been developed to influence behavior in this way. The following summations are taken from some of these patents dealing with both audio and video programming only this time we are the train:

An auditory subliminal programming system includes a subliminal message encoder that generates fixed frequency tones. Timothy L. "The Mind Has No Firewall." *Parameters*. Vol. XXVIII, No. 1, Spring 1998.

Andrzejki, Zbigniew. *Between Two Ages: America's Role in the Technetronic Era*. Viking Press, New York, 1970. EPI787

Bill Peter. "Wind Control Music Stops Shoplifters." *The Sydney Morning Herald*, Feb. 4, 1988.

staying up with the Soviet advances in this field.'...Helms attributed the cessation of the unwitting testing to the high risk of embarrassment to the Agency as well as the 'moral problem.' He noted that no better covert situation had been devised than that which had been used, and that 'we have no answer to the moral issue.'²⁷¹

They did have the answers to the moral questions on human experimentation but chose to ignore them, destroy the records, hide the truth and still continue in their efforts. Nothing has changed in each participating organization, using national security laws, avoid disclosure and accountability. The records which were destroyed contained the evidence necessary to perhaps send some participants to jail for society's version of behavior modification. Once again - there was no accountability and no recognition of the rights of the individuals damaged by these experiments.

Mind Wars

"For the first time in some 500 years, a scientific revolution has begun that will fundamentally change the world as much as the Renaissance and Enlightenment did. A handful of extraordinary new advances in science are taking humans quickly and deeply into areas that will have profound implications for the future."²⁷² One of these areas is control of the human mind. The issues surrounding behavior modification, mind control and information warfare become crystal clear as the facts unfold. The following is taken from a current military document which clarifies their position in the emerging area of research, taking a much different direction than the one described above:

The Information Revolution and the Future Air Force Colonel John A. Warden, III, USAF

We're currently experiencing, on an unprecedented global basis, three simultaneous revolutions, any one of which would be more than enough to shock and confound us. The first revolution, a geopolitical revolution, sees a single dominant power in the world for the first time since the fall of Rome. The opportunities that are inherent in this situation are extraordinary, as are the pitfalls. Unfortunately, there is no one around that has first hand experience in how to deal with that kind of single power dominant world.

The second revolution, and there's a lot of discussion about this so far, is the information revolution. As other

²⁷¹ Advisory Committee Staff, Committee on Human Radiation Experiments, Methodological Review of Agency Data Collection Efforts: Initial Report on the Central Intelligence Agency Document Search, June 27, 1984. (HQ) EPI579
²⁷² Petersen, John L., *The Road To 2015: Profiles of the Future*, Waite Group Press™, 1994. pp. 1-97/8739-85-9 EPI849

people have mentioned, it is following inexorably in tandem behind Moore's law of computing power. Attendant to it, though, is not the creation of new ideas and technologies, but also an exponential growth in the velocity of information dissemination, and for us, that is of extraordinary importance. A key part of this information revolution has an awesome impact on competition. The business that introduced a new product ten years ago could count on probably five years before it had to look seriously at potential competitors based overseas. Today, you're lucky if you can count on five months or even five weeks before you are facing the overseas competitor. In today's world, success simply demands rapid introduction of successively new products or military systems. Success now goes to the organization which exploits information almost instantly, while failure is the near certain fate of the organization which tries to husband or hide ideas. Real simple - use it or you're going to lose it.

The third revolution, which is a little bit more complex, is the military/technological revolution, or in some places called the revolution in military affairs. I'm convinced that this is the first military technological revolution ever because we now have, for the first time, a conceptually different way to wage war. We can wage war in parallel now. In the past, communications and weapons technology, especially weapons accuracy, have constrained us to waging serial war. This changes almost everything.

Biological Process Control: As we look forward to the future, it seems likely that this nation will be involved in multiple conflicts where our military forces increasingly will be placed in situations where the application of full force capabilities of our military might cannot be applied. We will be involved intimately with hostile populations in situations where the application of non-lethal force will be the tactical or political preference. It appears likely that there are a number of physical agents that might actively, but largely benignly, interact or interfere with biological processes in an adversary in a manner that will provide our armed forces the tools to control these adversaries without extensive loss of life or property. These physical agents could include acoustic fields, optical fields, electromagnetic fields, and combinations thereof. This paper will address only the prospect of physical regulation of biological processes using electromagnetic fields.

Prior to the mid-21st century, there will be a virtual explosion of knowledge in the field of neuroscience. We will have achieved a clear understanding of how the human brain works, how it really controls the various functions of the body, and how it can be manipulated (both positively and

this current to the distant target is via two channels of electrical energy conducted air."²⁶²

These weapons should be severely restricted or eliminated. The potential for, and actual abuse, of these weapons should be apparent to all.

Holography

Holography has been referenced, to a very limited degree, and is only vaguely mentioned in discussions of nonlethal weapons. The concept is that an image can be holographically projected so that it appears as a real thing or ghostlike apparition. The image can be endowed with speech which seems to emanate from the image itself. This type of technology could be used for creating panic and fear in unsophisticated combatants who are unaware of the technology. The following references point to the viability of this technology:

"HyperSonic Sound is a new technology in sound production that employs ultrasonic tones in a new patented and patents-pending process to produce sounds directly in the air. The laser-like HSS ultrasonic beam can project audible sound to virtually any listening environment creating many new sound applications previously impossible with existing speaker technology."²⁶³

"Future funding may be allocated to radio frequency devices for use against people and material; non-blinding lasers to confuse personnel, night vision or EO equipment; holography as a tool for psychological warfare; and calmative agents"²⁶⁴

"Potential weapons identified in the memo include 'dazzling radiator' munitions for causing temporary blindness, 'traction inhibitors' for making roads impassable to military vehicles, 'neural inhibitors,' stun guns and even 'holographic projections' for creating illusions on the battlefield."²⁶⁵

The trick in future wars might be in determining what is real, imagined or projected. Who knows what novel applications might be made with this technology; perhaps a UFO invasion, the appearance of God or some person known by the local population.

Sticky Foam and More

The use of sticky foam is hyped in almost every press report on nonlethal weapons as a "good example" of the technology. "The Marine Corps Systems Command and the U.S. Army are together developing non-lethal rigid foam. The Marine Corps is adapting it

²⁶² US Patent #5,675,103; Oct. 7, 1997. Non-Lethal Tearing Weapon. Inventor: Herr, Jan Eric. EPI392

²⁶³ American Technology Corporation, Chairman's Message. May 17, 1999. <http://www.smallcapresearch.com/news.htm> EPI811

²⁶⁴ Starr, Barbara. "USA defines policy on non-lethal weapons." *Jane's Defence Weekly*, March 1996. EPI694

²⁶⁵ Lancaster, John. "Pentagon, Justice Dept. Set Plans for Sharing Nonlethal Technology." *Washington Post*, March 23, 1994. EPI696

shelf product for military use to seal doors and windows, the moving vehicles of all kinds, and secure razorwire. The goal is the material to be rigid within 10 to 15 seconds, and fully set within 15 minutes and to increase the life of such products to a minimum of 42 months."²⁶⁶ What is not considered with the use of foam are the consequences to the victim if the foam covers his face. The problem is that of an armed suspect. In a late addition to the sticky foam concept, the gun dilemma was addressed by electrifying foam to paralyze the victim. The problems should be apparent as well - when the muscles of the victim contract and fire the gun then falls into the foam, suffocating in convulsions. Somehow, even most "safe" technologies leave a person with the impression that perhaps a bullet might be the preferred option of the individual on the living end of this innovation.

"Less lethal refers to the application of force that is not designed to cause death or serious injury, and experts say it is most useful in unique situations, such as suicidal threats and conflicts where armed individuals are armed with edged weapons. In the past, such situations often forced officers to shoot the suicidal person, inflicting severe wounds and frequently - death. Not so with less lethal weapons, officers now have a wide range of options at their disposal. Pepper sprays (OC) and the Taser, which is an electronic device that shoots small darts discharging 50,000 volts into the suspect's body, enjoy the most popularity among law enforcement officers. ... Less lethal projectiles come in an assortment of classifications: specialty impact munitions like MK Ballistics are loaded with steel pellets designed to cut through automobiles and windshields; a fragmenting munition can be fired into the engine compartment to slash hoses, cut tires, and otherwise destroy a vehicle's mechanical components; white phosphorus and stinger rounds are particularly useful in discouraging officers."²⁶⁷

These are but a few of the new mix of innovation being added to law enforcement and military arsenals. Many of these technologies have a place in these situations but the ethics of weapons development and use must be in conformity to law. Moreover, the concept of revisiting treaties seems to be a topic of discussion every time a new breakthrough is made. These Treaties may need to be revisited. However, the initiative should be driven by humanitarian interests and not by militaries which are inconvenienced by public scrutiny and debate.

²⁶⁶ Law Enforcement Technology, "Locking Down the Enemy With Foam." May 1999. Vol. 26, No. 1. Source: NLECTC Law Enforcement & Technology News Summary, June 3, 1999. EPI663

²⁶⁷ Flynn, Michael. "The Future Holds More Less Lethal." *Law Enforcement Technology*, Oct. 1998. Vol. No. 10. Source: NLECTC Law Enforcement & Technology News Summary, Oct. 22, 1998.

volunteers. A medical steering committee will have to establish acceptable limits of safety, since it is unlikely that any weapon can be 100 percent effective. The medical steering committee, together with Department of Justice personnel, including the FBI, must draw up a testing protocol - possibly with the help of advisory personnel from the National Institutes of Health and the Food and Drug Administration - and closely supervise the testing to ensure that it is as safe and as humane as possible.

Even if new weapons themselves win public acceptance, the process of testing those weapons on animal and human volunteers will require honest and skillful explanation to the public. The nature of the weapons to be tested and the necessity for the tests must not be a secret of the kind whose "leak" would result in an exaggerated expose and associated public outcry.

Much of the information necessary to construct these data bases exists already, but needs to be collected and organized in a usable form. A major problem is access to information. The military has undoubtedly conducted research and testing pertinent to the development of less than lethal weapons, but much of such work is classified. A similar problem may exist in accessing a corporation's proprietary information. Since the collection and dissemination of information was viewed as a key element in the successful development and refinement of less than lethal weapons, conference participants urged that efforts be made to resolve these access problems.

One suggestion was that development of less than lethal weapons be tied to defense contracts, since those contractors are typically large, strong, and technologically sophisticated.

Research for the Department of Defense and for the National Aeronautics and Space Administration has encouraged the development of thousands of companies that focus on technological research and engineering design.

A related suggestion emphasized the need to involve the medical community from the start, and perhaps to establish an independent panel of medical doctors to testify as to the safety of any weapons developed or in development.²⁴³

The predicted public outcry has begun. However, the gradual introduction of each technology softens the public's resolve to oppose these new technologies. By introducing these a few at a time, the public does not see how the totality of the technology will impact them personally. The impacts of these new technologies on privacy issues and other matters of law only become apparent when the full scope of these initiatives is considered in the context of the revolution in military affairs. A more complete picture of the interest of the

243. Smeetsman, *Silent Report on the Attorney General's Conference on Less than Lethal Weapons*, National Institute of Justice, March 1987, EPI762.

department of Justice is gained by reviewing their solicitation for proposals which will introduce the technology to law enforcement organizations as follows:

This solicitation seeks proposals for the development, testing, evaluation, adoption and implementation of new and innovative technologies and techniques to support and enhance law enforcement, courts, and/or corrections operations, particularly at the State and local level, and with an eye toward successfully developing new commercial products for their near-term use.

There are four major project category areas, which may contain overlaps, to guide the formulation of proposals. Proposals may address one or more of these category areas:

- 1) General Technology Thrust Areas for Law Enforcement, Courts and Corrections.
- 2) Special Law Enforcement, Courts and Corrections Technology Development and Demonstration Projects.
- 3) Behavioral and Organizational Impact of Technological Advances.
- 4) Creative Technology Solutions to Law Enforcement, Courts, and Corrections problems.

This solicitation is not intended to fund the purchase of existing systems, but rather it is intended to support the development of new technologies or the innovative adaptation of existing technologies to deal effectively with law enforcement, courts, and/or corrections problems.

The National Institute of Justice (NIJ), the research and development agency of the U.S. Department of Justice (DOJ), is responsible under the Crime Act for providing funding for technology development projects to enhance law enforcement, courts, and corrections technologies; and the demonstration and evaluation of innovative approaches to the development, application, and utilization of leading edge technologies.

Focus Areas

Less-Than-Lethal (LTL) Area. Technologies are sought that will provide new or significantly improved options to conventional use-of-force methods sanctioned by law enforcement or corrections agencies to counter violent behavior or effect a resisted arrest. Scenarios where LTL technologies, devices, and/or techniques might be appropriately employed include, but are not limited to: (1) confrontation with subjects who assault officers or refuse to comply with lawful orders, and who may be armed with a non-

potentials are well understood. Although the United States may choose not to pursue mind altering drugs as a weapon, other states may hold a different view. For that reason, it is imperative that we understand this capability. In short, technologies of the future will be able to incapacitate humans. If this option is the most efficient way to obtain strategic objectives, should we limit its use?"²³⁴

I marvel at the idea of military personnel contemplating the ethical consideration of "drugging" the enemy. Some might recall the problems the Army had when they cooperated with the CIA in testing chemicals on US military personnel in the 1960s. The violations of international agreements are clear when it comes to drugging people. Such activity is more commonly called Chemical Warfare. The most interesting facts in the text deal with the fear the military has of media coverage of its active engagements and the need to wage war without visible impacts. Herein is the risk - if such invisible wars can be waged, who will decide when they are fought and who will control their outcomes?

The public relations efforts surrounding non-lethal systems, is slowly weaving its way into the mainstream of acceptance on the basis of its greater humanity. "Achieving military objectives while conducting special operations or while providing humanitarian assistance calls for using another metric for measuring success - obtaining minimum casualties with little or no collateral damage. Nonlethal weapons such as high-power microwaves, 'sticky foam,' or sound weapons, among others, show great promise for achieving military objectives. The use of nonlethal weapons that have the capability to neutralize, stun, disable, disorient, or confuse the enemy without having lasting effects is therefore highly desirable."²³⁵ The Air Force provided the following partial list of these new systems:

- “Acoustic generators - Anti-materiel biologicals
- Anti-materiel chemicals
- Anti-personnel optical/dazzling munition
- Calmative agents
- Chemical immobilizers
- Chemical mobility impairments
- Counter-sensor optical
- High-power microwave generator
- Holographic projections
- Information system perturbation
- Neural inhibitors
- Non-nuclear electromagnetic pulse
- Wireless stun technology”²³⁶

234. Klabar, Maj. Jonathan W. (USAF) and Mitchell, Maj. Ronald S. "Nonlethal Technology: An Airpower: A Winning Combination for Strategic Paralysis." *Air Chronicles*, EP1245.
 235. Institute for National Strategic Studies, "The Present Defense Research Strategy," <http://www.ndu.edu/ndu/ss/books/docs/nlch4.html>, EP1218
 236. Inside the Air Force, "Pentagon To Set Priorities In Non-Lethal Technologies, Weapons No. 15, April 15, 1994, EP1189

The Merging of the Justice Department and Military Technology

On July 21, 1994, Dr. Christopher Lamb, Director of Policy Planning, issued a draft Department of Defense directive which would establish a policy for non-lethal weapons. The policy was intended to take effect January 1, 1995, and formally connected the military's non-lethal research to civilian law enforcement agencies.

The government's plan to use pulsed electromagnetic and radio frequency systems as a nonlethal technology for domestic justice Department use rings the alarm for some observers. Nevertheless, the plan for integrating these systems has moved forward. Coupling these uses with expanded military missions is even more disturbing. This combined mission raises additional constitutional questions for Americans regarding the power of the federal government.²³⁷

In interviews with members of the Defense Department the development of this policy was confirmed.²³⁸ In those February 1995, discussions, it was discovered that these policies were internal to agencies and were not subject to any public review process.

In its draft form, the policy gives highest priority to development of those technologies most likely to get dual use, i.e. law enforcement and military applications. According to this document, non-lethal weapons are to be used on the government's domestic adversaries." The definition of "adversary" has been significantly changed in the policy:

"The term 'adversary' is used above in its broadest sense, including those who are not declared enemies but who are engaged in activities we wish to stop. This policy does not preclude legally authorized domestic use of the nonlethal weapons by United States military forces in support of law enforcement."²³⁹

This allows use of the military in actions against the citizens of a country that they are supposed to protect. This policy statement poses the question: who are the enemies that are engaged in activities we wish to stop, what are those activities, and who will make the decisions to stop those activities?

An important aspect of non-lethal weapon systems is that the use of non-lethal is intentionally misleading. The Policy adds, "It is important that the public understand that just as lethal weapons do not have perfect lethality, neither will 'non-lethal' weapons always be able of precluding fatalities and undesired collateral damage."²⁴⁰ Other words, you might still destroy property and kill people with the use of these new weapons.

Department of Defense Directive, Policy for Non-Lethal Weapons, Office of the Assistant Secretary of Defense, Draft July 21, 1994, EP11234.
 Interviews in late February 1995 by Nick Begich.
 Department of Defense Directive, Policy for Non-Lethal Weapons, Office of the Assistant Secretary of Defense, Draft July 21, 1994, EP11234

control drugs are extensive, whilst controls are few. Prisons form the new laboratories developing the next generation of drugs for social reprogramming, whilst military and university laboratories provide scores of new psychoactive drugs each year.

Interrogation, Torture Techniques & Technologies: Helen Bamber, Director of the British Medical Foundation for the Treatment of the Victims of Torture, has described electro-shock batons as 'the most universal modern tool of the torturers' (Gregory, 1995). Recent surveys of torture victims have confirmed that after systematic beating, electroshock is one of the most common factors (London, 1993); Rasmussen, 1990)."217

The root issues pointed out by our allies in Europe touch on the ethical issues which are being raised in light of the capability of the United States and others. The United States "has been contemplating how to minimize 'collateral damage' in future operations. Technologies could include: radio frequency and micro-waves, lasers, superconducts, polymers, smoke, and electromagnetic pulse generators - to name a few. Lasers could be deployed and used to deny access to sensitive areas. Largely unspoken is the fact that some of the research underway could lead the US close to violating international conventions to which it is a party."218 These conventions are not clear in terms of some of the newest technologies although they are clear with respect to the use of chemicals or biological agents which are illegal. The weapons being developed which use electromagnetic fields or variations on this theme are not well addressed in treaty agreements.

Black Budgets

"Today, every day, close to \$100 million flows through underground pipelines from the Treasury to the Pentagon to fuel the national-security machinery of the United States. The black budget - 'black' in the sense of being unseen, covert, hidden from light - is the secret treasury of the nation's military and intelligence agencies. It is appropriated and spent with the barest public debate or scrutiny."219 These are the budgets which fund much of the new technology. Without much oversight billions of dollars are spent in the creation and development of the nation's most sophisticated systems, even the new "non-lethal" weapons. "But little is known publicly about the extent of the US government's projects in nonlethal weaponry. Virtually all are classified as 'special access,' a stricter security level

217. An Omega Foundation Summary & Options Report For The European Parliament. *An Appraisal Of The Technologies Of Political Control*. Sept. 1998. EPI128.
218. Starr, Barbara. "Non-lethal weapon puzzle for US Army." *International Defense Review*, April 1993. EPI860
219. Weiner, Tim. "The Pentagon's Secret Slush." *Mother Jones*, March/April 1992. EPI451

'top secret.' Only a handful of people are allowed knowledge of the existence of special-access programs, let alone the details of what they involve."220

RF Weapons

The United States Air Force has been interested in radio frequency (RF) weapons ever since it was first noticed that certain radio frequency energy could have significant effects on humans and hardware alike. "Public discussion of RF/MW weapons has focused on disrupting technology. But a recent article in the *Airpower Journal* revealed for the first time that the military is developing high-powered microwave weapons for use against human beings...RF/MW and SMF-based weapons are also being studied for civilian law enforcement."221 The direction of the research begins to take more open form during the 1980s. The Air Force points out several areas of interest in developing RF weapons as follows:

"Radiofrequency (RFR) Radiation"

Introduction: Biotechnology requirements in the next three decades must consider significant advances in electronic (electromagnetic radiation) warfare, since both offensive and defensive systems will add significant radiation stress to humans in a wide range of military operations. We can expect increases in available on-board power, development of sophisticated methodologies for detecting, tracking, identifying and attacking; and ultimately the development of systems to inflict intense pulses of electromagnetic energy on an adversary.

As the technological race continues, knowledge of mechanisms of action of RFR with living systems and the assessment of pulse RFR effects will demonstrate the vulnerability of humans to complex pulsed electromagnetic radiation fields in combination with other stresses...

Assessment and Development of Pulsed Radiofrequency Radiation Effects

a. Objectives

- (1) Develop techniques to deposit radiofrequency radiation (RFR) at selected organ sites.
- (2) Develop mathematical models and physical measurement capabilities (microdosimetry) to track the real-time RFR energy distribution within organ sites as a function of physiological responses such as diffusion and blood flow.

220. Korman, Vincent. "War over weapons that can't kill." *New Scientist*, Dec. 11, 1993. EPI673
221. *Microwave News*. "RF Weapons: Disabling People and Electronics." January/February 1996. Page 8

especially those dealing with chemical and biological agents, and nuclear, radiological and explosive devices. On May 8, 1998, the Assistant Attorney General, OJP, announced the establishment of the OJP Office for State and Local Domestic Preparedness Support (OSLDDPS).²¹⁵

Solutions for those eventual attacks are being developed. "Government chemists at Sandia National Laboratories in Albuquerque, N.M., have created chemical and disease neutralizing foam using toothpaste and hair care products ingredients. Reports by chemists indicate that the foam can render harmless such chemical and biological agents as nerve and mustard gases, viruses and bacteria, including anthrax. Inventors Dr. Maher E. Tadtros and Dr. Mark Tucker say the foam could be effective in biological or chemical attacks within a building. The laboratory said it is working with officials in New York and Washington, D.C., to discuss placing foam dispensers in subway systems. According to Tadtros, an ideal application would be to combine foam dispensers with a sprinkler system."²¹⁶

The European Concern Rises The Technology of Political Control

The technology of political control and its impacts has gained attention in the European community as they come to grips with its implications for democracies and individuals. A significant report was released which expresses these concerns in clear terms:

"Thus, the purpose of this report is to explore the most recent developments in the technology of political control and the major consequences associated with their integration into processes and strategies of policing and internal control. The report ends each section with a series of policy options which might facilitate more democratic, open and efficient regulatory control, including specific areas where further research is needed to make such regulatory controls effective.

A brief look at the historical development of this concept is instructive. Twenty years ago, the British Society for Social Responsibility of Scientists (BSSRS) warned about the dangers of a new technology of political control. BSSRS defined this technology as 'a new type of weaponry'... 'It is the product of the application of science and technology to the problem of neutralizing the state's internal enemies. It is mainly directed at civilian populations, and is aimed as much at hearts and minds as at bodies.' For these scientists, 'This new weaponry ranges from means of monitoring internal dissent to devices for controlling demonstrations; from new techniques of

interrogation to methods of prisoner control. The intended and actual effects of these new technological aids are both broader and more complex than the more lethal weaponry they complement.'

The Role & Function of Political Control Technologies:
What is emerging in certain quarters is a chilling picture of ongoing innovation in the science and technology of social and political control, including: semi-intelligent zone-denial systems using neural networks which can identify and potentially punish unsanctioned behavior; the advent of global telecommunications surveillance systems using voice recognition and other biometric techniques to facilitate human tracking; data-veillance systems which can match computer held data to visual recognition systems or identify friendship maps simply by analyzing the telephone and e-mail links between who calls whom; new sub-lethal incapacitating weapons used both for prison and riot control as well as in sub-state conflict operations other than war; new target acquisition aids, lethal weapons and expanding dum-dum like ammunition which although banned by the Geneva conventions for use against other state's soldiers, is finding increasing popularity amongst SWAT and special forces teams; discreet order vehicles designed to look like ambulances on prime time television but which can deploy a formidable array of weaponry to provide a show of force in countries like Indonesia or Turkey, or spray harassing chemicals or dye onto protesters. Such marking appears to be kid glove in its restraint but tags all protesters so that the snatch squads can arrest them later, out of the prying lenses of CNN.

The technology of political control produces a continuum of flexible options which stretch from modern law enforcement to advanced state suppression. It is multifunctional and has led to a rapid extension of the scope, efficiency and growth of policing power, creating policing revolutions both with Europe, the US and the rest of the world. The key difference being the level of democratic accountability in the manner in which the technology is applied. Yet because of a process of technological and decision drift these instruments of control, once deployed quickly become 'normalized.' Their secondary and unanticipated effects often lead to a paramilitarisation of the police - often because the companies which produce them service both markets.

Innovations In Crowd Control Weapons: Likewise there is a need to consider halting the use of pepper gas in Europe until

²¹⁵ U.S. Dept. of Justice OJP Office for State and Local Preparedness Support. "What's New at OJP/OSLDDPS." <http://www.ojp.usdoj.gov/osldps/> EPI221
²¹⁶ Browne, Malcolm W. "Chemists Create Foam to Fight Nerve Gases." *New York Times*, March 16, 1998. Source: NLECTC Law Enforcement & Technology News Summary, March 18, 1998. EPI1998

technological edge over the US. These actors may appear slowly and cautiously or may come on the global scene unexpectedly.

The US must be able to attack selected targets which are not vulnerable to precision-guided munitions or conventional explosives. These targets may need servicing with tunable destructive weapons which limit or eliminate collateral damage. These high-value targets could be people, facilities, or electronic databases. Enemy targets, valuable to the US, will be protected by passive and active means. Deep underground bunkers and mobile targets will present the greatest challenge to US targeteers.

Capabilities Required and Concept of Operations: Special Operations Forces (SOF) in 2025, like today, will focus on high-risk, highly specialized, high-consequence-of-failure missions; and will require nearly 100% guarantee of success, 'Zero Tolerance/Zero Error.' Political sensitivity is so significant that only a tailored organization with special skills, training, and equipment can accomplish these missions and assure success.

In 2025, weapons of mass destruction (WMD) will include nuclear weapons, poor man's nukes (biological and chemical weapons), and a new 'deadly' WMD - 'Information Bombs' (IB).

Enabling Capabilities and Supporting Technologies: Under the charge of the US Army Communications Electronic Command (CECOM), the 21st Century Land Warrior Program is developing and field testing an individual soldier computer/radio kit. This kit is expected to weigh approximately two pounds and strap onto the soldier of the twenty-first century providing voice, data, and imagery to each soldier and throughout the chain of command. This system is expected to greatly enhance the overall effectiveness of Army combatant units. Though two pounds of equipment does not sound cumbersome by today's standard, the packaging of this equipment will not meet precision-operations team requirements. Team communications equipment will need to be light, mobile, and unrecognizable as a communication system. Miniaturization should allow communication and supporting equipment to be embedded into mission apparel or uniforms. Interfacing with the equipment could be through implanted ear and throat pieces. Contact lenses could be the display screens of tomorrow affording normal fields of view. These lenses could display necessary visual data for mission tasking and additionally act as sensors for data collection or enhancing as night vision goggles do today. Controls for such

equipment must also be unrecognizable and activated through gestures, voice, touch, or even thought control.

Data Fusion: ARPA is working on a 'neuron-based biosensor that can feature nerve cells growing directly on microchips capable of sensing toxic substances.'

Mobility: Technological advances also offer promise in powerplant and propulsion systems. National Aeronautics and Space Administration (NASA), working in conjunction with aircraft manufacturers, has invested heavily in aircraft engine technology. One effort having a direct military application is a Mach 4 civil transport with reduced nitrogen oxides emissions, and quieter engines. An additional area offering promise is the use of magnetic-based rotation of ionized air as a substitute for physical turbine blades.

Low Earth Orbiter: Additional hypersonic platforms in research at this time are rapid response/global reach aircraft system and space launch/support system. The rapid response/global reach aircraft system is projected to fly at speeds greater than Mach 8 with global reach.

HVT Engagement (Targeting Items): However, future deceptive technologies such as chameleon camouflage and deceptive holographic imaging would assist SOF in nondetectability.

Additional options for pinpoint designation would be to optimize nanotechnology and develop a ROBOBUG, a fly on the wall, or some form of nanotech emitter to proceed or be placed on a target's desired mean point of impact (DMP) awaiting signal capture by an air system with an adequate weapons payload.

HVT Engagement (targeting people): The Hollywood movie, Runaway™, with Tom Selleck provides an interesting form of projectile for development. It is fired from a hand-held weapon, resembling a gun, but houses homing missiles with an individual DNA signature applied. Fired within the sensor range of the target, the missile goes active.

Star Trek the Next Generation™, episode 157, called 'The Vengeance Factor,' showed an interesting form of targeting people which may [be] a SOF precision operations tool for 2025. The story involves a planet with a history of clan wars, and one clan developed a bio-virus that would only affect a certain clan of people. The developing clan was not directly affected, but could carry the virus, nearly undetected within their own bloodstream. By merely a touch to anyone of the

Timothy Darrell Young BS MPA (Aware Tortured Truther Targeted Individual) Former Member Oregon State Board of Higher Education, #rnm #v2k #BCI #NanoAISatanism survivor, USA Synthetic Mind Control Slave since Bush Election '04 who penned the legislation to make satan out of the surveillance anti black ops, war crimes, crimes against humanity, crimes against civilization, crimes against creation, voice to skull, remote neural monitoring, direct energy weapons, gang stalked, bio hacked, deep state targeted, implanted, anti terror, satanism survivor, #anonfm, 4th dimensionals, 5th dimensionals, @Concaide, same plot to enslave every man woman and child, Anonymou5, anti human trafficking, anti NWO, anti satanic gods, anti satanism, anti the greatest sin, aware tortured targeted individual, anti Black Budgets, seeking Buddhist Non-Reincarnation, anti CIA Projects, anti cointelpro satanism, respect Counter Darkness, am nibbanapursuit@gmail.com, against crimes against the images of God in us, respect David Icke, like Deep Thought News, FBI, gang stalking targeted individuals defense studies, gaslit, working on how to escape the earth prison, JeffersonBobble interested, loath synthetic mind control that is not even spiritual, hate MKUltra, Nano AI Satanism, nano thieves, Natzi Satanism, NSA, NSA Satanism, admire David Icke, EMF or Electromagnetic Gang-stalking mind and body rape survivor in Oregon, Portland, Redmond, Utah, Washington State, California, Nevada, Project Blue Beam victim, Project Mockingbird victim, shut down Project Monarch in the name of creation, Psychological Operations opponent, Punishments that last channeled info giver and Rewards that last channeled info giver, hate the reptilian enslavement agenda, Anti Reptilian Humanoids, V2K, RNM, Admire John Lear and his work on that tricky and wicked soul trap moon and Area 51, tragically ironically satanic disrespected, satanic double speak decoder, satanic mimiced, satanic misdirected blame to and honor and work identity theft victim from EMF Gang Stalkers, Reptilians, RNM and other sin and HUGE crime, satanic mocked, Satanic Ritual Abuse (SRA) survivor, satanic set designed against in the 3d world, satanic topped by evil opportunist in and outside my head, saved in Christianity means an evacuation of Earth IMHO, hate most sin, sin combines for torture, spiritual soul traps after death, synthetic mind control slavery, Targeted Individual, Tim D Young, Tim D Young BS MPA, Tim Young, Tim Young BS MPA Oregon, Tim Young Oregon, Timothy Darrell Young Oregon, Timothy Darrell Young BS MPA Oregon, Transhumanism, Truther Aware Targeted Individual, tortured worse than Hitler could dream up in the secret holocaust, 1.5 million targeted individuals in use in 2018 by BlackWater estimates, Buddhist, EMF sum human attacked 24/7, Tim Young Portland State University Student Body President 1999-2000, Tim Young Member Oregon State Board of Higher Education 2000-2003, University of Oregon Master of Public Administration 2005, Tim Young Lake Oswego, Tim Young Oregon, Tim Young PSU, Tim Young Lakeridge, Tim Young University of Oregon, Tim Young Portland, Tim D Young USA TI, Timothy Darrell Young BS MPA Portland, Timothy Darrell Young BS MPA Oregon, Tim Young Aware Truther Tortured Targeted Individual, Timothy Darrell Young BS MPA Lake Oswego, TimDYoungBSMPA5, want to free the mind control slaves, hate nano thievery, love nano slaves, I have no God, love EDM music but don't go to shows, Jesus was a beautiful lie or was made a false idol to trick you but the white light tunnel to be recycle at the moon mislead, cohered, memory wiped and reincarnated back on Earth, Praise Buddha, the CIA is pure evil, Electro Magnetic Form gang stalking rape mind and body rape survivor, don't go to the white tunnel of light after death Christians, How to not reincarnate on earth, prison planet, Gang Stalkers stay out of our heads, Gang Stalkers stay out of our bodies, Gang Stalkers stay out of our homes, Gang Stalkers stay out of our communities, your satanic "gods" are parasites, PSYOPS are cohesive lies, I have no Gods in this false reality, Gods are evil and fake in my experience on Earth, I am a man not a God or Son Of God(s), the cosmos is a likely a quantum computer hologram, second son (Boy King) Bush was my anti christ who passed the legislation to make satan out of the surveillance, I can't save you,



most such events can be attributed to electromagnetic fields. Nevertheless, the evidence does indicate that certain functions and capabilities in the area can be enhanced with the proper use of electromagnetic fields. But, again this area has received very little attention. Certainly adequate research by competent scientists has not been done.

A large portion of this paper may read like Buck Rogers and the twenty-first century. Many readers will say that some of the ideas and concepts do not fit with their current concepts and theories of physics and biology. This may be true in part, but then most of the medical science I learned in medical school more than 25 years ago is not valid today. Certainly the concepts in this paper will not fit with classical physics. One is reminded of the trite saying that the science fiction of today is the scientific facts of tomorrow. I think this philosophy was elegantly stated by Werner Eisenberg in a speech given in 1934.

Now that we know all our journeying can only bring us back to our starting point, we realize that we are unable to reach full understanding no matter how far we travel. The infinity of the universe lies outside this path. In quite a similar way modern physics has shown that the structure of classical physics—as that of modern physics—is complete in itself. Classical physics extends just as far as the conceptions which form its basis can be applied. But these conceptions already fail us when applied to the processes of nuclear physics, and much more so in the case of all fields of science which are even further removed from classical physics. Thus the hope of understanding all-aspects of intellectual life on the principles of classical physics is no more justified than the hope of the traveler who believes he will have obtained the answer to all problems once he has journeyed to the end of the world.

Yet the misunderstanding, that the transformations in exact science have brought to light certain limits to the application of rational thinking, must immediately be countered. A narrower field of application is given to certain ways of thought only, and not to rational thought in general. The discovery that the earth is not the world, but only a small and discrete part of the world, has enabled us to relegate to its proper position the illusory "end of the world" concept, and instead to map the whole surface of the earth accurately. In a similar way modern physics has purged classical physics of its arbitrary belief in its unlimited application. It has shown that some parts of our science, e.g., mechanics, electricity, and quantum theory, present scientific systems complete in themselves, rational and capable of complete investigation. They state their respective natural laws, probably correctly, for all time. The essence of this statement is given by the phrase "completeness in itself" (Abgeschlossenheit). The most important new result of nuclear physics was the recognition of the possibility of applying quite different types of natural laws, without contradiction, to one and the same physical event. This is due to the fact that within a system of laws which are based on certain fundamental ideas only certain quite definite ways of asking questions make sense, and thus, that such a system is separated from others which allow different questions to be put. Thus, the transition in science from previously investigated fields of experience to new ones will never consist simply of the application of already known laws to these new fields. On the contrary, a really new field of experience will always lead to the crystallization of a new system of scientific concepts and laws. They will be no less capable of rational analysis than the old ones, but their nature will be fundamentally different. It is for this reason that modern physics adopt an attitude very different from classical physics toward all those fields not yet included in its investigations. Let us, for example, consider the problems concerned with the existence of living organisms. From the standpoint of modern physics, according to Bohr, we should expect the laws characteristic of these organisms to be separated from the purely physical laws in a rational and accurately comprehensive manner, just as, say quantum theory is

frequency and amplitude may have very specific biological targets and effects. Bassett has reported that in his laboratory recent studies have shown that the voltage wave form induced by a given pulse appears characteristically different in various tissues and organs. He goes on to state that it is possible to identify the tissue type by an analysis of the frequency response pattern, using fast Fourier transforms.¹⁶

Most scientists in the United States have discounted many of the Soviet reports that exposure to low levels of electromagnetic radiation causes these types of biological effects. Until recently many scientists believed both that thermal heating was the only mechanism which could produce biological effects and that levels reported in the Soviet and East European literature could not induce a significant thermal burden in the human body and thus could not produce any biological effects. The second major reason for disbelief was the attempt by early researchers to duplicate some of the Soviet research and their failure to find similar results. These failures to replicate the Soviet work were the result of several factors, which included the lack of sufficient details in the Soviet reports as to their exact protocols; lack of similar equipment; use of different frequencies; and use of higher power levels and finding no effects, and so assuming—without checking—that lower levels would also show no effects. And in some cases the reports were not valid in the first place. Even in the Soviet literature one finds many contradictions and so must read and evaluate it with a critical eye.

Current research in chaotic behavior has shown that the alternation of only one parameter to a critical phase can induce chaotic behavior with drastic outcomes. It is not too difficult to envision that electromagnetic systems could interact with the electrical signal in cardiac muscle. If the proper parameters were utilized, several possible results could be produced. These include auricular or ventricular fibrillation, or complete asystole with a resultant fatal outcome.

Past research has shown both altered behavior in animals and altered electroencephalograms (EEG) in both humans and animals. What these EEG changes mean in practical terms to humans at the present time is difficult to say, since we still lack a great deal of knowledge and there is much controversy about what a "normal" EEG means. It is currently impossible to understand and to predict how an altered EEG can influence behavior and the cognitive processes of an individual. Some current research provides a few clues that altering brain waves can have a major impact on a person's cognitive and overt behavior. In this regard, some people have even speculated that electromagnetism has already been used for this purpose.¹⁷

Some recent theoretical research has looked at the classical neuronal synapse and proposed that the size of the synaptic space is so small that rather than a pure chemical event taking place, it must be a quantum mechanical event. Classically it has been assumed that an action potential transverses down the axon and directly stimulates the vesicles to release their chemical neurotransmitters, which then cross the synapse and trigger the second neuron to fire its action potential. If it is true that the event is quantum mechanical in nature then the following events may

**Characteristics of Electromagnetic Wave Propagation
in Tissues of Low Content Represented by Fat and
Bone at Various Frequencies**

Frequency MHz	Wavelength Air Tissue in cm	Depth of Penetra- tion cm	Dielec- tric Constant	Conduc- tivity mho-cm	Reflection Coefficient at Interface	
					Air-Fat	Fat/Muscle
100	300-10.6	60.4	7.45	19.1-75.0	0.511 -168	0.650 -172
200	150.59.7	39.2	5.95	25.8-94.2	0.458 -168	0.612 -172
300	100.41	31.1	5.7	31.6-107	0.438 -169	0.592 +172
433	69.3.28.8	26.2	5.6	37.9-118	0.427 -170	0.562 -173
750	40.16.8	23	5.6	49.8-138	0.415 -173	0.532 -174
915	32.8.13.7	17.7	5.6	55.6-147	0.417 -173	0.519 -176
1,500	20.8.41	13.0	5.6	70.8-171	0.412 -174	0.506 -176
2,450	12.2.5.21	11.2	5.5	96.4-213	0.406 -176	0.500 -176
3,000	10.4.25	9.73	5.5	110-234	0.406 -176	0.495 -177
5,000	6.2.63	6.67	5.5	162-309	0.393 -176	0.502 -175
5,900	5.17.2.29	5.24	5.05	186-338	0.388 -176	0.503 -176
8,000	3.75.1.73	4.61	4.7	255-431	0.371 -176	0.513 -173
10,000	3.1.41	3.39	4.5	324-549	0.363 -175	0.518 -174

Source: S. Barana and P. Christy, *J. Neurophysiol.*

As a result of these and other studies, several groups of scientists have been reevaluating their concepts and looking for new solutions. Some of the newer approaches have included the recognition that biological systems are nonlinear and, rather than apply simple linear functions to the interaction of electromagnetic fields and biological systems, one must use nonlinear wave mechanics.* Some researchers have even incorporated the mathematics of chaos dynamics.*

The result of this rethinking has been the acceptance by many scientists that intrinsic electromagnetic fields play a key role in a wide range of biological functions, including embryogenesis,* bone repair,* and information transfer and storage, particularly in the central nervous system. In addition, many scientists and researchers have speculated as to the adverse effects of EM fields on biological systems. Some recent work using the concepts of chaos dynamics may have a major impact upon how one looks at external systems interactions with biological systems. Scientists have known for some time that chaotic behavior of systems exists in physics and chemistry. More recently its mathematics of nonlinear differential equations has been applied to biology.*

In simple terms, systems will behave "normally" over a wide range of conditions then suddenly shift into a chaotic mode when a single parameter (among many) moves through a critical value. Thus a tiny change in one parameter can result in drastic alterations in the behavior of a system. Dr Rapp of the Medical College of Pennsylvania has suggested that epileptic behavior and other convulsions may be the result of chaotic behavior within the central nervous system. He cites theoretical evidence that suggests that neurons and neural networks are capable of shifting into chaotic behavior. Guerara and others have recently reported the onset

The potential applications of artificial electromagnetic fields are wide ranging and can be used in many military or quasi-military situations.

Some of these potential uses include dealing with terrorist groups, crowd control, controlling breeches of security at military installations, and antipersonnel techniques in tactical warfare. In all of these cases the EM systems would be used to produce mild to severe physiological disruption or perceptual distortion or disorientation. In addition the ability of individuals to function could be degraded to such a point that they would be combat ineffective. Another advantage of electromagnetic systems is that they can provide coverage over large areas with a single system. They are silent and countermeasures to them may be difficult to develop. Assuming that electromagnetic radiation can be controlled to produce a specific adverse biological effect, the equal possibility exists that one can produce a beneficial effect such as enhancing the performance of individuals. This development would provide personnel with enhanced capabilities in time of need. For example, if a small force is required to operate in isolation for an extended period of time, then local exposure to the right parameters of electromagnetic radiation may give this force the ability to do so with minimal rest and still maintain peak performance. One last area where electromagnetic radiation may prove to be of some value is in enhancing abilities of individuals for anomalous phenomena.

CLASSICAL THEORY VERSUS RECENT THEORETICAL RESEARCH

Even though the body is basically an electrochemical system, modern science has almost exclusively studied the chemical aspects of the body and to date has largely neglected the electrical aspects. However, over the past decade researchers have devised many mathematical models to approximate the internal fields in animals and humans. Some of the later models have shown general agreement with experimental measurements made with phantom models and animals. Presently most scientists in the field use the concept of specific absorption rate for dosimetry of electromagnetic radiation. Specific absorption rate is the intensity of the internal electric field or quantity of energy absorbed per unit time per unit mass. The latest edition of the *Dosimetry Handbook* discusses specific absorption rate in detail.² Tables 2-4 and 2-5 present the depth of penetration of various frequencies of electromagnetic radiation in biological tissues according to current electromagnetic theory. However, the use of these classical concepts of electrodynamics does not explain some experimental and clinical findings. For example, according to classical physics, the frequency of visible light would indicate that it is reflected or totally absorbed within the first few millimeters of tissue and thus no light should pass through significant amounts of tissue. But it does. Also, classical theory indicates that the body should be completely invisible to extremely low frequencies of light where a single wave length is thousands of miles long. However, visible

THE ELECTROMAGNETIC SPECTRUM IN LOW-INTENSITY CONFLICT

by

Capt. Paul E. Tyler, MC, USN

Although electromagnetic radiation is familiar to everyone, the prototype being visible light, and although some magnetic and "electrical" properties have been observed for centuries (the lodestone, for example), not until late in the eighteenth century did scientists identify electromagnetism for what it really is, explore its physics, and develop rational theories for its practical use. Major contributions to this field include the experiments and studies of Harvey, Helmholtz, Faraday, and Maxwell. Maxwell finally formulated the basic theory of the electromagnetic field, which Hertz later verified. Today, research on electromagnetic fields is moving in directions far different from what these pioneer scientists envisioned or attempted.

The results of many studies that have been published in the last few years indicate that specific biological effects can be achieved by controlling the various parameters of the electromagnetic (EM) field. A few of the more important EM factors that can be manipulated are frequency, wave shape, rate of pulse onset, pulse duration, pulse amplitude, repetition rate, secondary modulation, and symmetry and asymmetry of the pulse. Many of the clinical effects of electromagnetic radiation were first noticed using direct current applied directly to the skin. Later the same effects were obtained by applying external fields. Electromagnetic radiation has been reported in the literature to induce or enhance the following effects:

1. Stimulation of bone regeneration in fractures.
2. Healing of normal fractures.
3. Treatment of congenital pseudarthrosis.
4. Healing of wounds.

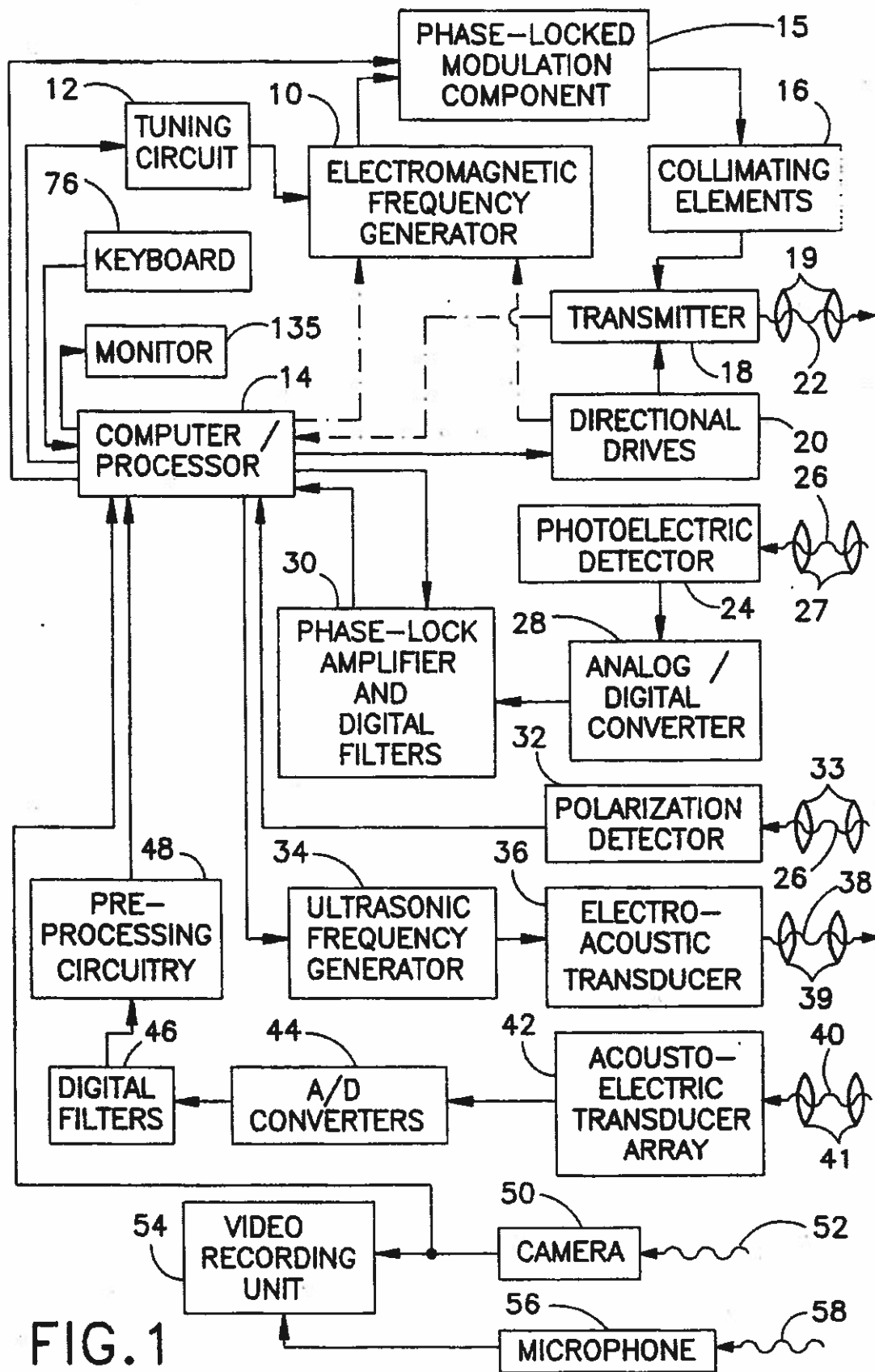
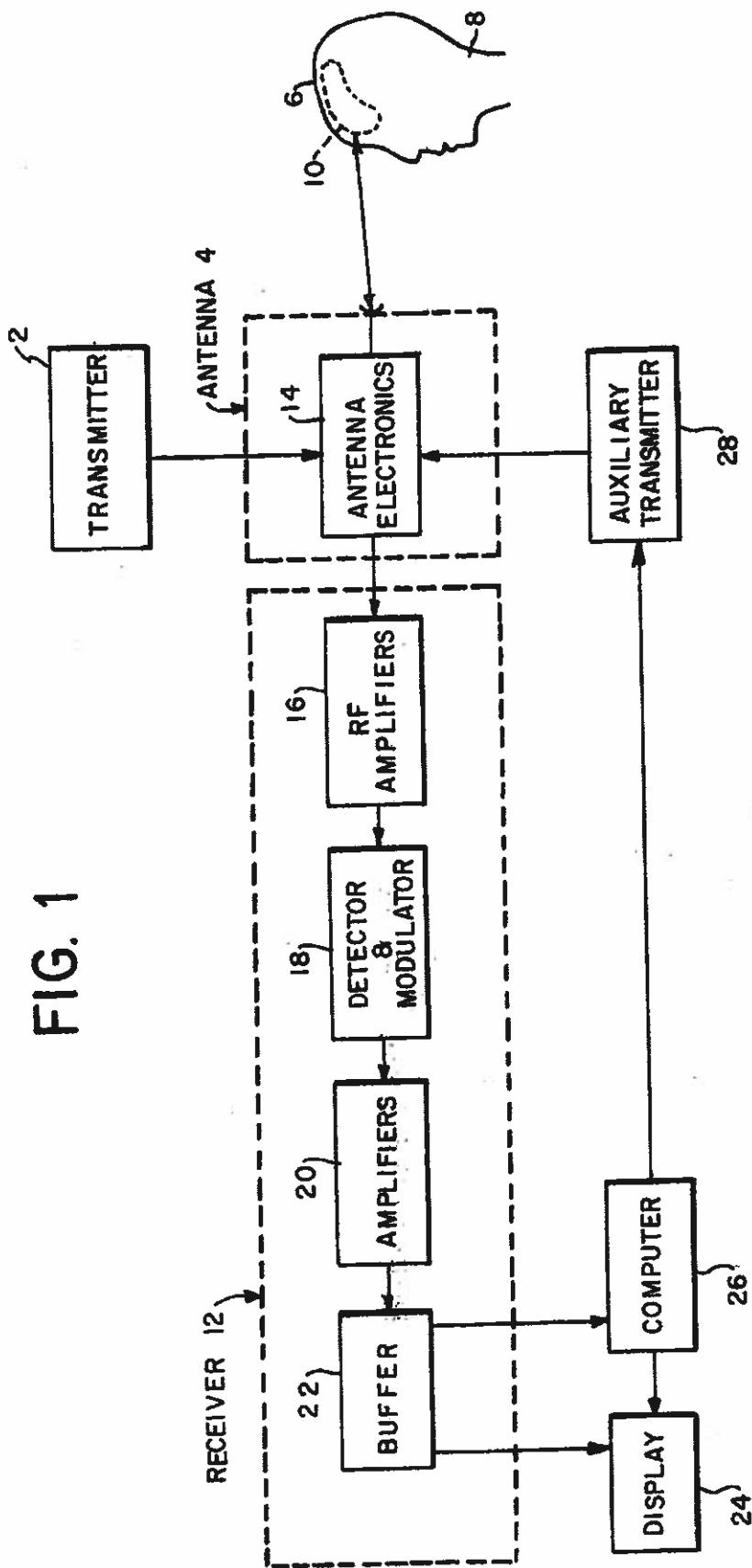


FIG. 1



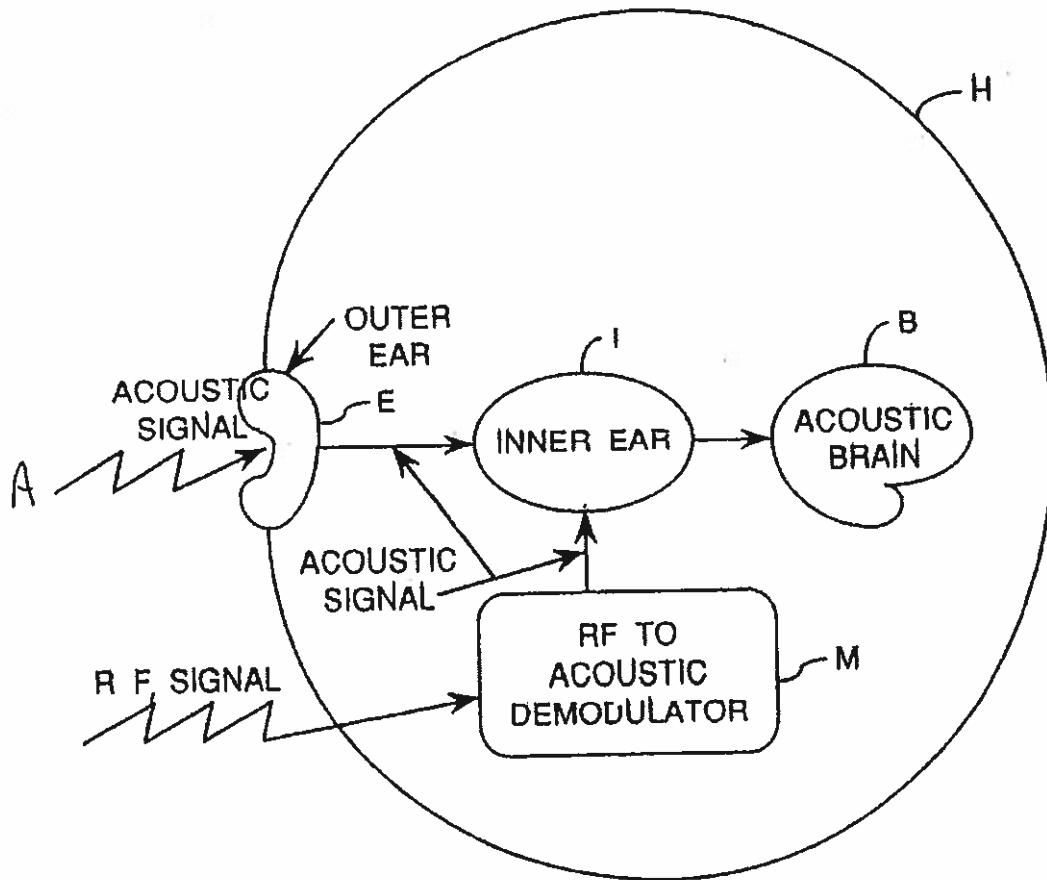
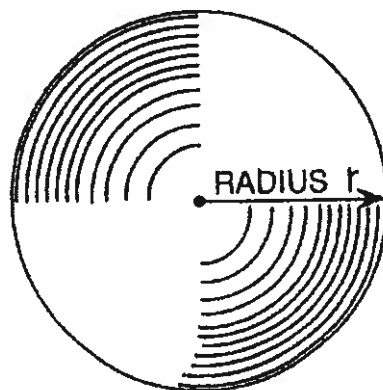


FIG. 1



SPHERICAL RF / ACOUSTIC TRANSDUCER

FIG. 2

Information Cutoff Date: 17 February 1998

~~Derived from Multiple Sources~~
~~Declassify on Source marked "OADR"~~
~~Date of Source: 17 February 1998~~

REGRADED UNCLASSIFIED ^{per} _{NOIC}
ON 6 Dec 06
BY USAF/SCOM FOIPA
AUTH: E.O. 13526, 4-102 DOD 5200.1R

~~SECRET~~
~~NOFORN~~



On the other hand, the thermal effect is a primary mechanism for laser-induced injury. The extent of the injuries induced depends upon the wavelength and energy of the incident radiation, duration of exposure, and the nature of the exposed tissue and its absorption characteristics. Generally, this mechanism predominates in the visible and the near-infrared (.760 to 1.4 microns) portions of the electromagnetic spectrum and for almost all CW and pulsed exposures between 0.1 milliseconds and 1 to 5 seconds.

The third injury mechanism associated with exposure to laser radiation is the mechanical or acoustical-mechanical effect. The radiant energy is absorbed into the tissue and, as a result of rapid thermal expansion following a short (1 nanosecond to 0.1 millisecond) laser radiation pulse, a pressure wave is generated that may result in explosive tissue injury.

Generally, all three mechanisms operate concurrently in an irradiated animal. Thermal effects currently predominate for continuous wave (CW) lasers, while mechanical effects are of increased significance for pulsed-mode lasers. With even higher power, one must also consider nonlinear phenomena such as multiphoton absorption and electromagnetic field effects.

The organs most susceptible to external laser radiation are the skin and eyes. The severity of injury is affected by the nature of the target, the energy density delivered to the target, the frequency and power of the laser, atmospheric attenuation of the beam, and the use of filtering or amplifying optics by the target, etc.

The primary effect on the skin is thermal damage (burns). The severity varies from slight erythema or reddening to severe blistering or charring, depending on such factors as total energy deposition, skin pigmentation, and the tissue's ability to dissipate heat.

The eye is particularly susceptible to intense pulse of laser radiation because of its unique sensitivity to light. The focusing effect is similar to that of a magnifying lens, which focuses the energy on a particular spot. Since the cornea and lens of the eye amplify the intensity of the light incident upon the retina, the retina is extremely sensitive to visible and near-infrared light, and damage to the retina may result in temporary or permanent loss of visual acuity. Laser eye injuries vary according to incident power, spot size, beam angle, temporal mode (CW or pulsed), and pulse repetition frequency. Reported effects include corneal lesions, burns, cataracts, and retinal lesions.

Some high-power lasers can cause antipersonnel effects by the deposition of thermal energy. These lasers must operate at a wavelength that is readily absorbed by the skin or the cornea. These generally include the far- and mid-IR regions (10 to 12 microns and 3 to 5 microns) as well as the ultraviolet region (<0.4 microns). However, ultraviolet wavelengths generally do not propagate well in the atmosphere, so the primary threat wavelengths to be considered are between 3 and 12 microns. Although relatively modest amounts of far-IR laser power are required to produce superficial burns on the skin at short ranges, and efforts to design rheostatically lethal laser weapons are on going.

and giddiness. Effects also included blurred vision and visual field distortions in some exposure conditions. The nature and degree of all effects was dependent on both sound level and frequency with the most severe effects occurring in the audible frequency range (as opposed to infrasound), at levels above about 145 dB. The investigators found no temporary threshold shift (TTS) among their subjects, and the use of hearing protectors greatly alleviated the adverse effects.

Since the early days of jet-engine testing and maintenance, anecdotal evidence has appeared linking exposure to intense noise, with such complaints as dizziness, vertigo, nausea, and vomiting. As a result of siren noise at 140 dB, subjects consistently reported a feeling of being pushed sideways, usually away from the exposed ear, and one subject reported difficulty standing on one foot.

These effects were not as dramatic as from the jet-engine (broadband) noise at 140 dB. This research concludes that the threshold of labyrinthine dysfunction is about 135 to 140 dB and that these effects occur during, but not after, exposure.

Time to Onset

No times to onset of nausea or nystagmus were identified in the literature but is presumed to be relatively immediate based on effects to the labyrinth system occurring during, but not after, exposure to sound pressure levels of 135 to 140 dB.

Duration of Effect

The incapacitation lasts only as long as the incapacitating sound is present.

Tunability

Based on the data presented above, it is unclear whether the degree of nausea or nystagmus is tunable, but similar symptoms caused by other stimuli are variable in degree.

Distribution of Human Sensitivities to Desired Effects

It is most probable that all individuals will be susceptible to this stimulus with the exception of those with a disease or defect (i.e., deaf mutes) of some part or parts of the vestibular system. Data showed no consistent decrease in vestibulo-ocular reflexes with increased age.

Recovery/Safety

Normal subjects are likely to recover immediately and experience no or unmeasurable changes in hearing unless well known frequency-intensity-time factors are exceeded. This is based on studies which found no temporary threshold shift in hearing of subjects tested at low frequency. Occupational safety personnel generally recognize that 115

conditions specified, experimental work is required to characterize onset time. Different types of technologies could be employed to influence wide areas or single individuals. Because this technology is considered to be tunable, the influence on subjects could vary from mild disruption of concentration to muscle spasms and loss of consciousness. The subject(s) would have varying degrees of voluntary control depending on the chosen degree of incapacitation.

Technological Status of Generator/Aiming Device

An electric field strength of roughly 100 Kv/m over a time period of 1 nanosecond is approximately the condition thought to be necessary to produce the desired effect when provided to an overall repetition rate of 15 Hz. Such a field may be developed using a radar-like, high-peak-power, pulsed source or an electromagnetic pulse generator operated at 15 Hz. These technologies exist today sufficient to evaluate the disabling concept. Power requirements are not high because the duty factor is so low. Aiming devices are currently available, but a high degree of directionality at long distances will require development. It may be necessary to provide bursts of these nanosecond pulses in order to stimulate the desired effect. As the duty time increases so does the average power requirement for power source. Because there were no open literature reports from which to make inferences, there is some uncertainty about the power levels required.

Range

The effective range could be hundreds of meters.

Defeat Capabilities/Limitations

Shielding can be provided by conductive barriers like metal or metal screen. There are a number of drugs that are capable of inducing convulsive seizures and others, like phenobarbital, diphenylhydantoin, trimethadione, 2-4 dinitrophenol, and acetazolamide, which are anticonvulsive. Anticonvulsive drugs are known to be helpful in reducing the effect of seizures in epileptic patients, but their ability to reduce the effect of the proposed technology is unknown (possibly no effect) but expected to be less than for photic-induced seizures.

Incapacitating Effect; Acoustic Energy

The nature of the incapacitation consists of severe pressure sensations, nystagmus (a spasmodic, involuntary motion of the eyes), and nausea caused by high intensities of 9140-155 dB). Nystagmus occurs when convection currents are produced (cupula movement) in the lateral ear canal. This cupula movement causes the eyes to move involuntarily; hence, the external world is interpreted as moving. The subject "sees" his surroundings turning round him and at the same time experiences a sensation of turning. Persons exposed to these levels of sound experience nausea.

Biological Target/Normal Functions/Disease State

voltage-dependent blockade by magnesium and modulation by glycine and polyamines. For example, in the low magnesium model, spontaneous synchronous burst discharge in hippocampal pyramidal cell populations is sensitive to NMDA antagonists. That finding suggests that it is the opening of NMDA channels, by relieving the magnesium blockade, that facilitates epileptiform activity.

Significant attention in the literature is also being given to gamma-amino butyric acid (GABA) receptors for the potential role in control of excitability. Changes in GABA inhibitory efficacy can lead to important effects on the excitability of the system. GABAergic inhibitory post-synaptic potentials (IPSPs) have been shown to be quite labile in response to repetitive activation of cortical cell populations, as may occur during epileptiform discharge. Scientists have shown that even a small percentage change in GABA inhibition can have profound effects on neocortical epileptogenesis. These changes in GABAergic inhibition may be the key to an explanation of how repetitive discharge patterns give rise to ictal discharge. Further, there appears to be a significant increase in excitatory postsynaptic potential (EPSP) frequency prior to seizure initiation an observation that is consistent with loss of IPSP efficacy prior to ictal onset.

The above hypotheses describe different mechanisms of epileptogenesis, but it is quite possible that all of these mechanisms take place, and they reflect large variety of types of epileptic seizures. The common principle of the mechanisms proposed is the change of membrane properties (i.e., conductance, permeability etc.) of certain neurons which results in depolarization and burst discharging. Some factors (e.g., trauma) can affect these specific neurons and initiate synchrony for neurons that control internal communication and communication with various muscle systems not associated with vital functions (i.e., heart beating, breathing). High strength pulsed electric fields could also be such a factor.

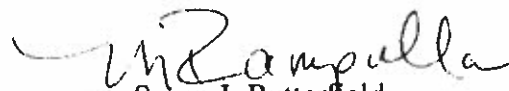
Mechanism to Reproduce the Desired Effects

Application of electromagnetic pulses is also a conceptual nonlethal technology that uses electromagnetic energy to induce neural synchrony and disruption of voluntary muscle control. The effectiveness of this concept has not been demonstrated. However, from past work in evaluating the potential for electromagnetic pulse generators to affect humans, it is estimated that sufficiently strong internal fields can be generated within the brain to trigger neurons. Estimates are that 50 to 100 kV/m free field of very sharp pulses (~ 1 nS) are required to produce a cell membranous potential of approximately 2 V; this would probably be sufficient to trigger neurons or make them more susceptible to firing.

The electromagnetic pulse concept is one in which a very fast (nanosecond timeframe) high voltage (approximately 100 kV/m or greater) electromagnetic pulse is repeated at the alpha brain wave frequency (about 15 Hz). It is known that a similar frequency of pulsing light can trigger sensitive individuals (those with some degree of light-sensitivity epilepsy) into a seizure and it is thought that by using a method that could actually trigger nerve synapses directly with an electrical field, essentially 100% of individuals would be susceptible to seizure induction. The photic-induced seizure phenomenon was borne out

If you have any questions concerning this action, please feel free to contact this office at (301) 677-2308. Refer to case #614F-06.

Sincerely,



Susan J. Butterfield
Director
Freedom of Information/Privacy Office
Investigative Records Repository

Enclosure

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that which resides only in the minds of these people. We believe that the claims should be taken seriously and that people should have some place to go in order to find the truth or gain the medical treatments they otherwise deserve. The history of the United States is littered with examples of people being exploited by scientists working under the cover of darkness provided by "black budgets". Could these reports have a factual basis? We believe that some do.

Government control of the mind in order to impose its will on people is best summarised on the wall of the Franklin D. Roosevelt Memorial with an inscription that reads: "They [who] seek to establish systems of government based on the regimentation of all human beings by a handful of individual rulers...call this a new order. It is not new and it is not order."83 8

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often rendered helpless in a situation when they become dysfunctional. Therefore, it is only appropriate that they are covered here. The primary anti-machinery arsenal includes the microwave weapon, the non-nuclear electromagnetic pulse, and the laser weapon.

"US Special Operations Command has in its arsenal the portable microwave weapon. The capability of such a weapon is varied in that it can not only disrupt enemy communications, but can also superheat internal organs. Of course, directing this type of weapon towards personnel eliminates it from the non-lethal classification. Developed in the Los Alamos National Laboratory, the weapon forms its signal similar to the RF weapons discussed above in that it directs the energy into a high-powered pulse and destroys transistors and other electrical equipment... On an even smaller scale, a portable EMP weapon could be carried by ground forces to destroy the electrical components in an armored vehicle or tank. This capability is being developed with police forces to emit a pulse that would stop a car almost immediately."⁷⁹

These systems offer both promises and risks as we move into the new century. What will be the public reaction to these systems? We suggest that the reaction will cause a significant change in the uses and further developments of these technologies. Additionally, we suspect that monitoring systems would be developed which would allow

enforcement agencies track down Libyan leader Moammar Gadhafi and find plutonium in North Korea, the CIA and others confirm. The ESP spying operations—code named 'Stargate'—were unreliable, but three psychics continued to work out of Ft Meade, at least into July, researchers who evaluated the program for the CIA said..."75

It is also worth pointing out that this report coincided with the public disclosure by military personnel of this project. The story was revealed in David Morehouse's book *Psychic Warrior*.76

Col. John Alexander, working out of Los Alamos and a major proponent of this area of research, was quoted as saying: "...there are weapons systems that operate on the power of the mind and whose lethal capacity has already been demonstrated... The psychotronic weapon would be silent, difficult to detect, and would require only a human operator as a power source."77

According to a paper on non-lethal weapons: "An RF weapon currently under development is the high powered, very low frequency (VLF) modulator. Working in the 20-35 kHz spectrum, the frequency emits from a 1-2 meter antenna dish to form into a type of acoustic bullet. The weapon is especially convenient because the power level is easily adjustable. At its low setting, the acoustic bullet causes physical discomfort—enough to deter most approaching threats. Incrementally increasing the power nets an effect of nausea, vomiting and abdominal

exploited and used in a controlled manner for military or covert applications. This paper focuses on the potential uses of electromagnetic radiation in future low-intensity conflicts.

"Potential Military Applications of EMR

"The exploitation of this technology for military uses is still in its infancy and only recently has been recognized by the United States as a feasible option. A 1982 Air Force review of biotechnology had this to say.

'Currently available data allow the projection that specially generated radio frequency radiation (RFR) fields may pose powerful and revolutionary military threats. Electroshock therapy indicates the ability of induced electric current to completely interrupt mental functioning for short periods of time, to obtain cognition for longer periods and to restructure emotional response over prolonged intervals.

'Experience with electroshock therapy, RFR experiments and the increasing understanding of the brain as an electrically mediated organ suggested the serious probability that impressed electromagnetic fields can be disruptive to purposeful behavior and may be capable of directing and or interrogating such behavior. Further, the passage of approximately 100 milliamperes through the myocardium can lead to cardiac standstill and death, again pointing to a speed-of-light weapons effect.

hidden information meant to unduly influence things like religious beliefs, politics or consumption of goods and services?

The possibilities are immense and the ethical and moral questions surrounding these matters are equally large. We can no longer avoid the debate. In fact, the debate is lagging far behind the scientific advances.

In the interim, there are some simple things we could all do to enhance our own, or our children's, learning capacity by applying simple and available knowledge. For instance, "researchers at the Center for the Neurobiology of Learning and Memory at University of California, Irvine, have determined that 10 minutes of listening to a Mozart piano sonata raised the measurable IQ of college students by up to nine points".⁷³ This is a simple thing of great use to anyone seeking self-improvement.

Weapons of the Mind

A 1984 paper titled "The Electromagnetic Spectrum in Low-Intensity Conflict" said much about the military's interest in EMR:

"The results of many studies that have been published in the last few years indicate that specific biological effects can be achieved by controlling the various parameters of the electromagnetic (EM) field. A few of the more important EM factors that can be manipulated are frequency, wave shape, rate of pulse onset, pulse duration, pulse amplitude, repetition

(feeling detached, sense of a presence) and imaginings (vivid images from childhood) were more frequent within the field exposed groups than the sham field exposed group."69 In a 1996 "new age" invention, quartz crystals are used to create stress relief by slowing brain activity. "Physiological stress in a human subject is treated by generating a weak electromagnetic field about a quartz crystal. The crystal is stimulated by applying electrical pulses of pulse widths between 0.1 and 50 microseconds each at a pulse repetition rate of between 0.5k and 10k [500 and 10,000] pulses per second to a conductor positioned adjacent to the quartz crystal thereby generating a weak magnetic field. A subject is positioned within the weak magnetic field for a period of time sufficient to reduce stress."70 It is interesting that "New Age" thinkers have played on "crystal magic" as a way to get "in tune" with oneself and relax, and here is a quartz crystal being included as a component of this invention. Again, the crossovers between fiction and science continue to appear.

Consciousness training is also a big theme in cults, religious organisations and others pursuing the "New Age". Science has now gained a greater understanding of how the mind and brain work, so that what used to take years or even decades to achieve can now be mastered in weeks, days or even minutes. For instance, in 1996 a method and apparatus for the use in achieving alpha and

46

The control of mind and body by using various forms of electromagnetic energy including radio signals, light pulsations, sound and other methods has resulted in several inventions and innovations. The positive health effects and uses have been pursued by private researchers around the world. In 1973, an "...apparatus for the treatment of neuropsychic and somatic disorders wherein light, sound, VHF electromagnetic field and heat sources, respectively, are simultaneously applied by means of a control unit to the patient's central nervous system with a predetermined repetition rate. The light radiation and sound radiation sources are made so as to exert an adequate and monotonous influence of the light and sound radiation on the patient's visual analyzers and auditory analyzers, respectively."⁵⁷ This results in the brain following the external stimulating source in triggering brain pattern changes which affect the brain immediately and directly.

A simple invention patented in 1977 "...provides a device for improving upon the aforesaid application [see patent for full text] in assisting the induction of natural sleep. As stated above, this invention is concerned specifically with an improvement that will permit the creation of several waveforms such that an analgesic noise device can approximate soothing sounds of nature, i.e., waves, rain, wind."⁵⁸ These kinds of devices are available everywhere

The predominant brain wave frequencies indicate the kind of activity taking place in the brain. There are four basic groups of brain wave frequencies which are associated with most mental activity. The first group, beta waves (13-35 Hertz or pulses per second), is associated with normal activity. The high end of this range is associated with stress or agitated states which can impair thinking and reasoning skills. The second group, alpha waves (8-12 Hertz), can indicate relaxation. Alpha frequencies are ideal for learning and focused mental functioning. The third group, theta waves (4-7 Hertz), indicates mental imagery, access to memories and internal mental focus. This state is often associated with young children, behavioural modification and sleep/dream states. The last group, ultra-slow delta waves (0.5-3 Hertz), is found when a person is in deep sleep. The general rule is that the brain's predominant wave frequency will be lowest in terms of pulses per second when a person is relaxed, and highest when a person is most alert or agitated.⁵⁴

External stimulation of the brain by electromagnetic means can cause the brain to be entrained or locked into phase with an external signal generator.⁵⁵ Predominant brain waves can be driven or pushed into new frequency patterns by external stimulation. In other words, the external signal driver or impulse generator entrains the brain, overriding the normal frequencies and

remotely, without a trace of evidence being left behind.

In another quote, one of the leading researchers in this area, Dr Igor Smirnov, began to announce his findings. "But psychological warfare experts on all sides still dream that they will one day control the enemy's mind. And in a tiny, dungeon-like lab in the basement of Moscow's ominously named Institute of Psycho-Correction, Smirnov and other Russian psychiatrists are already working on schizophrenics, drug addicts and cancer patients."52 The results of this research have been investigated and demonstrated to members of the intelligence community in the United States, and have even been demonstrated by Dr Smirnov in an interview for the Canadian television documentary Undercurrents.

This issue is also an interesting one, as can be seen in this 1999 article excerpt. "Fantasies are thought processes involving internal monologues and imaginative sequences which can motivate healthy people to constructive behaviour; likewise, they can inspire unbalanced individuals to destructive or dangerous behaviour. One conclusion from that research was that fantasy played a major role among violent criminals. Researchers learned that criminals often daydreamed their fantasies, and then practiced elements of those fantasies before committing their crime. FBI agents determined that violent criminals

journal Nature, quoting Pasteur Institute neuroscientist Jean-Pierre Changeux, chairman of the French national bioethics committee: "But neuroscience also poses potential risks, he said, arguing that advances in cerebral imaging make the scope for invasion of privacy immense...it will become commonplace and capable of being used at a distance, he predicted. That will open the way for abuses such as invasion of personal liberty, control of behaviour and brainwashing."48

Dancing to the Tune of an Unknown Drummer

In "...a dramatic demonstration of mind reading, neuroscientists have created videos of what a cat sees by using electrodes implanted in the animal's brain. 'Trying to understand how the brain codes information leads to the possibility of replacing parts of the nervous system with an artificial device,' he said."49 The scientist commenting on this technology—Gattett Stanley, assistant professor of biomedical engineering at Harvard—saw the future possibility of brain activity mapping being used in creating electronic components to replace damaged parts of the system.

The use of mind-mapping had other possibilities as well. Similar research in controlling the behaviour of humans and animals was pursued by Dr José Delgado at Yale University, one of the leading research institutions in the United States. Actual testing of certain systems proved that

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the laboratory... The experiment, to be run by Professor Michael Persinger, a neuroscientist at Laurentian University, of Sudbury, Ontario, consists of a converted motorcycle helmet with solenoids on its sides that set up magnetic fields across a subject's head."43 This experiment was carried out and was the subject of a Canadian Broadcasting System exposé on mind control. The segment ran on a program called Undercurrents in February 1999. This author also appeared in that program, along with several others interested in this field.

A 1993 report said that for over 20 years Dr Persinger "...has been working on a theory that connects not only UFOs and earthquakes, but also powerful electromagnetic fields and an explanation of paranormal beliefs in terms of unusual brain activity. He has also found that stimulating another area, the temporal lobes, can produce all sorts of mystical experiences, out-of-body sensations and other apparently paranormal phenomena."44 This doctor's work suggests that these experiences may be the result of activity in the brain and not the actual experiences of the individuals. He has had some measure of success in re-creating many of these experiences in his subjects. Dr Persinger is also known for his work in studying the effects of ELF [extra-low-frequency waves] on memory and brain function.45

In 1991, a method for changing brain waves to a desired frequency was patented.46 A

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initiative establishes NIDA [National Institute on Drug Abuse] regional neuroimaging centers and represents an interagency cooperative endeavor funded by CTAC [Counterdrug Technology Assessment Center], Department of Energy (DOE), and NIDA to develop new scientific tools (new radiotracers and technologies) for understanding the mechanisms of addiction and for the evaluation of new pharmacological treatments."39 Through neuroimaging, not only could the stated objective be achieved, but through imaging a person's emotional states could be mapped, chemical influences determined and perhaps even specific thoughts read.

Back in 1975, Physics Today reported: "Developments in ways to measure the extremely weak magnetic fields emanating from organs such as the heart, brain and lungs are leading to important new methods for diagnosing abnormal conditions."40

In 1995, a system for capturing and decoding brain signals was patented which includes a transducer for stimulating a person and EEG transducers for recording brainwave signals from the person. It also includes a computer for controlling and synchronising stimuli presented to the person and at the same time recording brainwave signals, and either interpreting these signals using a model for conceptual, perceptual and emotional thought to correspond to the EEG signals of the person's thoughts or comparing the signals to normal brain signals from a normal

Sharp conducted related research. Sharp himself took part in these experiments and reported that he heard and understood words transmitted in pulse-microwave analogs of the speaker's sound vibrations. Commenting on these studies, Dr Robert Becker, twice nominated for the Nobel Peace Prize, observed that such a device has obvious applications in covert operations designed to drive a target crazy with voices, or deliver undetectable instructions to a potential assassin."³⁵

Then, in 1996 came another development, a "wireless communication system undetectable by radio frequency methods for converting audio signals, including human voice, to electronic signals in the ultrasonic frequency range, transmitting the ultrasonic signal by means of acoustic pressure waves across a carrier medium, including gases, liquids, or solids, and reconvertng the ultrasonic acoustical pressure waves back to the original audio signal".³⁶ Although this was meant to be used with both receiving and sending hardware, what was determined were the modulation methods for transferring the signal.

The real work was yet to be made public in the form of patents. However, the military claims in the area were starting to surface. What was known from experience was that patents were being held back by the government and confiscated by the military. When this intellectual property was seized, the inventors were given a choice: work for

from microwave energy to an acoustic signal. This observation, to the best of our knowledge, has not been described in the literature and may serve as a mechanism mediating the 'hearing' of pulsed microwave signals."³⁰

By 1989, the science took another leap forward with the combination of the modulated signal on a microwave carrier. This provided a much more efficient delivery of the sound. It was reported: "Sound is induced in the head of a person by radiating the head with microwaves in the range of 100 megahertz to 10,000 megahertz that are modulated with a particular waveform. The waveform consists of frequency modulated bursts. Each burst is made up of ten to twenty uniformly spaced pulses grouped tightly together. The burst width is between 500 nanoseconds and 100 microseconds. The pulse width is in the range of 10 nanoseconds to 1 microsecond. The bursts are frequency modulated by the audio input to create the sensation of hearing in the person whose head is irradiated."³¹

Two other patents awarded that year addressed this breakthrough. The first invention related to devices for aiding hearing in mammals: "The invention is based upon perception of sounds which is experienced in the brain when the brain is subjected to certain microwave radiation signals."³² The second invention confirmed the earlier observations: "Sound is induced in the head of a person by radiating the

The device could be placed anywhere on the body, and a clear voice or music would appear in the head of the subject. This was a most unbelievable device which had actually been invented in the late 1950s. It had taken years to convince patent examiners that it worked. The initial patent was only granted after the dramatic demonstration of the device on a deaf employee of the US Patent Office.

In 1972, a second patent was issued to G. Patrick Flanagan after being suppressed by the military since 1968. This device was much more efficient in that it converted a speech waveform into "a constant amplitude square wave in which the transitions between the amplitude extremes are spaced so as to carry the speech information".²⁸

What this did is establish the code of modulation or timing sequences necessary for efficient transfers into the nervous system where the signals could be sent to the brain and decoded as sound in the same way that normal sound is decoded. The result was a clear and understandable sound.

The military interest in auditory effects was present since the first inventions were patented, but in 1971 came a system which would allow troops to communicate through a radio transmitter which would render the enemy deaf and disoriented while allowing "friendly" combatants to communicate at the same time.

The device is described as follows:
"Broadly, this disclosure is directed to a

least a portion of the radio frequency (RF) spectrum. Further, this response is instantaneous and occurs at low power densities, densities which are well below that necessary for biological damage. For example, the effect has been induced with power densities 1/60 of the standard maximum safe level for continuous exposure."²³

This observation had incredible ramifications because it meant that within certain ranges RF could create a sound within the brain of a person at energy concentration levels considered too small to be significant.

Later that year, a patent was issued to Henry K. Puharich and Joseph L. Lawrence which stated in part: "The present invention is directed to a means for auxiliary hearing communication, useful for improving hearing, for example, and relates more specifically to novel and improved arrangements for auxiliary hearing communications by effecting the transmission of sound signals through the dental structure and facial nervous system of the user."²⁴ This crude device produced a signal which could be heard in the brain by inducing a vibration which was transferred through the bone into the inner ear, where it was then carried to the brain via the nervous system. Puharich continued researching along this line, gaining an additional patent in 1965.²⁵ Both of these inventions required physical contact with the head of the subject.

the human brain, bypassing all normal filtering mechanisms.

In 1995, the US Department of Defense put forward the contract, "Communicating via the Microwave Auditory Effect; Awarding Agency: Department of Defense; SBIR Contract Number: F41624-95-C-9007". The description of this technology, which would be used for direct communications with military personnel, is written as follows:

"Title: Communicating via the Microwave Auditory Effect

"Description: An innovative and revolutionary technology is described that offers a means of low-probability-of-intercept Radio Frequency (RF) communications. The feasibility of the concept has been established using both a low intensity laboratory system and a high power RF transmitter. Numerous military applications exist in areas of search and rescue, security and special operations."20

The feasibility was not only demonstrated in the laboratory but also in the field using a radio-frequency carrier. In the case of the Gulf War, we had always suspected that the reason the Iraqis gave up in mass was not because of the heavy bombardments but because they were being hit with new "non-lethal" systems which created fear and perhaps even worse. Our research uncovered reports which now confirm our suspicions as fact.

"What the 'Voice of the Gulf' began broadcasting, along with prayers from the

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these technologies are being developed for personal use and as security measures, consider the possibilities for abuse by commercial interests where the messages might be "buy, buy, buy", "drink more, don't worry", or some other self-serving script. Should these systems be regulated? By whom and under what conditions?

New Standards for What is a Memory

"Nevada is currently the only state to allow witness testimony of a person who has undergone hypnosis. As of October 1, 1997, courts hearing both civil and criminal cases can take a hypnotically refreshed testimony, as long as the witness, if a minor, has had the informed consent of parent or guardian, and the person performing the hypnosis is any of the following: a health care provider, a clinical social worker licenced in accordance with 641B of Nevada Revised Statute, or a disinterested investigator."¹⁹ This issue will surely become more complex as technology advances in terms of evidence. When the day arrives that it is possible to change or alter memory completely, as suggested earlier by military officers, what then? How will we separate the real from the unreal? What will be the impact on the burden of proof in courts as it relates to "reasonable doubt"?

Again, the emergence of the technology has first to be recognised as real before laws can be constructed and systems established for controlling misuse. Think how long it

CDs with subliminal messages to curb the impulses of the growing band of shoplifters. The Mind Control CDs have sound-tracks of popular music or ocean waves, with encoded voices in seven languages...warning that anyone caught stealing will be reported to the police."14

A number of devices have been developed to influence behaviour in this way, and patents have been awarded. The following summations are taken from some of these patents dealing with both audio and video programming—only this time, we are the program:

"An auditory subliminal programming system includes a subliminal message encoder that generates fixed frequency security tones and combines them with a subliminal message signal to produce an encoded subliminal message signal which is recorded on audio tape or the like. A corresponding subliminal decoder/mixer is connected as part of a user's conventional stereo system and receives as inputs an audio program selected by the user and the encoded subliminal message."15

"Ambient audio signals from the customer shopping area within a store are sensed and fed to a signal processing circuit that produces a control signal which varies with variations in the amplitude of the sensed audio signals. A control circuit adjusts the amplitude of an auditory subliminal anti-shoplifting message to increase with increasing amplitudes of sensed audio signals and decrease with decreasing

processing systems of the human organism. In both cases, the goal is to confuse or destroy the signals that normally keep the body in equilibrium.

According to a US Department of Defense directive (S-3600.1, December 9, 1996), "information warfare" is defined as "an information operation conducted during time of crisis or conflict to achieve or promote specific objectives over a specific adversary or adversaries". An "information operation" is defined in the same directive as "actions taken to affect adversary information and information systems". These "information systems" lie at the heart of the modernisation effort of the US armed forces and manifest themselves as hardware, software, communications capabilities and highly trained individuals.

Information warfare has tended to ignore the role of the human body as an information or data processor in this quest for dominance, except in those cases where an individual's logic or rational thought may be upset via disinformation or deception... Yet, the body is capable not only of being deceived, manipulated or misinformed but also shut down or destroyed—just as any other data-processing system. The "data" the body receives from external sources, such as electromagnetic, vortex or acoustic energy waves, or creates through its own electrical or chemical stimuli, can be manipulated or changed, just as the data (information) in any hardware system can be altered. If the

just behind the head. The phenomena occurs [sic] at average power densities as low as microwatts per square centimeter with carrier frequencies from 0.4 to 3.0 GHz. By proper choice of pulse characteristics, intelligible speech may be created. Before this technique may be extended and used for military applications, an understanding of the basic principles must be developed. Such an understanding is not only required to optimize the use of the concept for camouflage, decoy and deception operations but is required to properly assess safety factors of such microwave exposure."8

Actual testing of certain systems has proven "that movements, sensations, emotions, desires, ideas, and a variety of psychological phenomena may be induced, inhibited, or modified by electrical stimulation of specific areas of the brain. These facts have changed the classical philosophical concept that the mind was beyond experimental reach."9

The first widespread interest in the subject of mind control hit the mainstream of military think-tanks after the Korean War when returning prisoners of war exhibited significant behavioural changes. In 1956, the following was written into the United States Congressional Record:

"Reports of the treatment of American prisoners of war in Korea have given rise to several popular misconceptions, of which the most widely publicized is 'brainwashing'. The term itself has caught the public

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suggestion and psychological direction. When a high power microwave pulse in the gigahertz range strikes the human body, a very small temperature perturbation occurs. This is associated with a sudden expansion of the slightly heated tissue. This expansion is fast enough to produce an acoustic wave. If a pulse stream is used, it should be possible to create an internal acoustic field in the 5-15 kilohertz range, which is audible. Thus, it may be possible to 'talk' to selected adversaries in a fashion that would be most disturbing to them.

"In comparison to the discussion in the paragraphs above, the concept of imprinting an experience set is highly speculative, but nonetheless highly exciting. Modern electromagnetic scattering theory raises the prospect that ultrashort pulse scattering through the human brain can result in reflected signals that can be used to construct a reliable estimate of the degree of central nervous system arousal. The concept behind this 'remote EEG' is to scatter off of action potentials or ensembles of action potentials in major central nervous system tracts. Assuming we will understand how our skills are imprinted and recalled, it might be possible to take this concept one step further and duplicate the experience set in another individual. The prospect of providing a 'been there-done that' knowledge base could provide a revolutionary change in our approach to

applied. We will be involved intimately with hostile populations in situations where the application of non-lethal force will be the tactical or political preference. It appears likely that there are a number of physical agents that might actively, but largely benignly, interact or interfere with biological processes in an adversary in a manner that will provide our armed forces the tools to control these adversaries without extensive loss of life or property. These physical agents could include acoustic fields, optical fields, electromagnetic fields, and combinations thereof. This paper will address only the prospect of physical regulation of biological processes using electromagnetic fields.

"Prior to the mid-21st century, there will be a virtual explosion of knowledge in the field of neuroscience. We will have achieved a clear understanding of how the human brain works, how it really controls the various functions of the body, and how it can be manipulated (both positively and negatively). One can envision the development of electromagnetic energy sources, the output of which can be pulsed, shaped, and focused, that can couple with the human body in a fashion that will allow one to prevent voluntary muscular movements, control emotions (and thus actions), produce sleep, transmit suggestions, interfere with both short-term and long-term memory, produce an experience set, and delete an experience set. This will open the door for

modification, mind control and information warfare become crystal clear as the facts unfold.

The following is taken from a current military document, "The Information Revolution and the Future Air Force" by Colonel John A. Warden III, USAF, which clarifies their position in the emerging area of research, taking a much different direction than the one described above:

"We're currently experiencing, on an unprecedented global basis, three simultaneous revolutions, any one of which would be more than enough to shock and confound us. The first revolution, a geopolitical revolution, sees a single dominant power in the world for the first time since the fall of Rome. The opportunities that are inherent in this situation are extraordinary, as are the pitfalls. Unfortunately, there is no one around that has first hand experience in how to deal with that kind of single power dominant world.

"The second revolution, and there's a lot of discussion about this so far, is the information revolution. As other people have mentioned, it is following inexorably in tandem behind Moore's law of computing power. Attendant to it, though, is not the creation of new ideas and technologies, but also an exponential growth in the velocity of information dissemination, and for us that is of extraordinary importance. A key part of this information revolution has an

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"...The Church Committee found some records, but also noted that the practice of MKULTRA at that time was 'to maintain no records of the planning and approval of test programs'. ...MKULTRA itself was technically closed out in 1964, but some of its work was transferred to the Office of Research and Development (ORD) within the DS&T under the name MKSEARCH and continued into the 1970s.

"The CIA worked closely with the Army in conducting the LSD experiments. This connection with the Army is significant because MKULTRA began at the same time that Secretary of Defense Wilson issued his 1953 directive to the military services on ethical guidelines for human experiments.

"Throughout the course of MKULTRA, the CIA sponsored numerous experiments on unwitting humans. After the death of one such individual (Frank Olson, an army scientist, was given LSD in 1953 and committed suicide a week later), an internal CIA investigation warned about the dangers of such experimentation. The CIA persisted in this practice for at least the next ten years. After the 1963 IG [Inspector-General] report recommended termination of unwitting testing, Deputy Director for Plans Richard Helms (who later became Director of Central Intelligence) continued to advocate covert testing on the ground that 'positive operational capability to use drugs is diminishing, owing to a lack of realistic testing. With increasing knowledge of state of the art, we are less capable of staying