

The 1950s Secret Discovery
of the Code of the Brain:

U.S. and Soviet Scientists
Have Developed the Key to Consciousness
for Military Purposes.

How The U.S. Government
Won the Arms Race to Control Man

A documentary with quotes by leading scientists, professionals and several independent sources

**By Cheryl Welsh, copyright
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Contents

Chapters Summarized

Introduction
One
Two
Three
Four
Five
Six
Seven
Eight
Nine

Main Chapters

Introduction

One

Two

Solitons

Three

Four

Superconducting Quantum Interference Device (SQUID)
High-temperature Superconductors
Military and Government Research

Five

Six

Seven

Eight

Nine

Mind Control Technology Correlates with Victim Allegations

Conclusion

Chapters Summarized

Introduction

This book is a description of the history and known facts of electromagnetic and neurological technology, within the framework of classified nonconsensual government experimentation. It is presented as a list of footnotes with brief commentary. It explains how the government, in particular the United States and the former Soviet Union have engineered science into a technology in order to target and control the mind and body for political and military purposes.

Chapter One

Email from Physician For Human Rights on cancellation of a human rights statistics project for mind control victims citing "fear for my family".

Chapter Two

A 1983 Defense & Foreign Affairs article by the editor Dr. Stefan Possony on Soviet-US mind control technology. A good summary of the "big picture."

Chapter Three

Jonathan Tennenbaum describes development of Soviet electromagnetic weapons and the physics and biology behind the weapons. He gives clear, concise explanations which can be verified with the current level of scientific knowledge. There are also excerpts from several articles.

Chapter Four

This is a list of what scientists are saying about brain research. It describes the physics, engineering and biology that is needed to develop mind control technology. This will explain what scientist believe it takes to decode the brain and the level of neurological research today. Will Russian and U.S. scientists develop neurological weapons on people or animals? This chapter logically and factually supports allegations by victims that brain functions and every nerve of the body can be controlled remotely with current technology.

Chapter Five

Korean brainwashing of the 1950s is briefly described. this is a turning point in the history of mind control. A few sample articles demonstrate that there was a pronounced political will to support a massive effort to control man before the Russians do, to solve the mysteries of the brain for military purposes.

Chapter Six

The history of science and military, corporations and government involvement from the 1940s up to today. There was a massive, classified military research effort to fight the cold war. There are many excerpts listed in support the fact that mind control technology could be developed out of the public eye and with the support of top officials. The top scientists of the nation work in teams to solve specific problems, such as the government Killian Panel, the Cybernetics Group, RAND, the secretive non-governmental Institute for Defense Analysis and it's JASON Group and the Golden Fleece and the Brain Research Institute. Examples are given of eminent scientists with government funding for research related to decoding the brain.

Chapter Seven

This is an interesting and well-documented history of sensors technology, highly classified and billions of tax dollars spent on its development during the Vietnam War. The U.S. military and corporations then sell this technology to Europe. There are many articles listed here which describe the importance and funding of bionics, replacing man with electronic eyes and ears. This is the foundation for a bureaucracy to distribute mind control technology throughout the world.

Chapter Eight

This chapter describes the targeting of whole populations with electromagnetic mind control. Top government officials state unequivocally that it can be developed and there have been many rumors over the years, reported in major newspapers. The goal of controlling man for political purposes continues. Here are a few of the many examples.

Chapter Nine

This chapter states what the brain code is in general terms. This is a summary of the Soviet discovery of the genetic code of the brain, how the U.S. surpassed the Soviets and the pioneers of this amazing history. Government mind control technology has been developed, is firmly in place today and is in the plans for the future. It is important to match the description of victim's allegations to the mind control technology so that they may find a timely solution.

Editor's note. Some chapters are long, over 20 pages and include the original material because of their importance and for documentation. **The main points of this book are highlighted and arranged with headings so that it may be skimmed.**

Introduction

This book came about as a result of research for alleged victims of mind control experimentation. Illegal experimentation using electromagnetic weapons technology on U.S. citizens has been going on throughout the cold war, continues today and is in use as an intelligence tool and military weapon today. Please see CAHRA website for background information. **This book goes to the roots of the problem.** It is a beginning and establishes the who, what, why, when and where behind mind control technology. This book will put together important facts that unfortunately, the U.S. government will never admit until they are caught. The evidence is growing. It will be up to the reader to put the facts together.

This book will show that **scientists, governments and the military were and are interested in finding the key to human consciousness.** The military would like to have ultimate control over humans. Scientists would like to find the scientific basis for consciousness. Victims of government experimentation, who can verify the sophistication of the technology know that signals of the brain can be remotely read, decoded and that simulated brain signals can also be sent to the victim. **This book is a start on the path to describe the scientific basis of the technology** used to destroy unwitting victims of mind control experiments. I hope that this will stimulate further research.

Most scientists agree that to find the brain code would be a tremendous undertaking, like the Manhattan Project to develop the bomb, the space program to go to the moon or the gene mapping program. Funding and scientific coordination is required for projects such as this. In the 1940s, both Russia and the United States were very interested in this topic. And if there were a mind control arms race, as indicated by several independent documents, the political will would necessitate a mind control "Manhattan Project". **This book will present the basic scientific theory of the brain code as described by scientists. And it will give examples of the development of this technology and how it could be hidden from the U.S. public.**

Many historical facts make sense in light of this hypothesis. Why has the United States denied the "nonthermal" theory of electromagnetic effects on biological organisms and yet the Russian scientific literature documents this fact going back to the 1920s? Why is there a documented history of electromagnetic politics that leads to a U.S. cover up beginning in the 1940s? A large military project to use electromagnetic technology for military and political purposes would be a logical explanation.

This history is barely beginning to be told. There have been rumors for years. When the information is finally declassified, it will be an amazing and tragic history. There is hope that a scientist who knows of this classified situation will share this information. In a similar way, the leaked confidential tobacco company papers by the tobacco employee was a heroic act and will save many children's lives eventually, as the tobacco companies are made to change their ways. As a gesture to humanity and to save thousands of alleged victims of nonconsensual electromagnetic and neurological experimentation,

this could begin the process of dismantling the cold war thinking that has allowed horrific radiation experimentation and now mind control experiments.

This book starts with a small but powerful example and proves that while the best evidence is still classified, there is still proof that the U.S. government is conducting mind control experiments and using the technology without consent of the target.

Next, this book will present a few representative articles written by **well-known scientists and professionals on mind control and electromagnetic technology**. The first article is by a Hoover Institute Fellow, Dr. Possony. It is a good overview of the whole situation. There will then be excerpts from articles on solitons and their role in mind control technology on a quantum level.

Next there will be excerpts from papers by Jonathan Tennenbaum, editor of Fusion magazine. **There are clear physics and biological descriptions of the mind control weapons which have been developed by the Russians.** The history of this development is described and excellent footnotes for further reading are included. Other sources verify the premise that the Soviets have developed mind control technology since at least the 1940s.

The next section includes excerpts from several articles and demonstrate the interest in **electromagnetic technology and the brain by scientists and the military for over 50 years**. Other articles will show that the brain's electromagnetic signals can be remotely detected by **SQUID**. **There will be current articles in support of the fact that science has decoded the brain signals so that direct communication with the brain is possible.** While it is true that this is highly classified, there are still strong indications of this fact. Classification has been used to cover up radiation experiments and even though there was proof, for various reasons, it was ignored. Again, history is repeating for mind control victims. It is important to note that the highly technical and sophisticated electromagnetic technology which is briefly described in this section, matches the symptoms that victims have described and documented.

This short section describes the Korean brainwashing scare of the 1950s and how much scientific effort and money was put into behavior control experiments by the CIA. This event would provide the political will necessary to fund mind control research and to start the search to find out how the Russians were brainwashing Korean soldiers and find the antidote. **The search for the decoding the brain intensified in the 1950s as several article will demonstrate.**

The following section describes the U.S. government during the 1940s through the present time. The classification, the cold war mentality, the scientists and their interest in brain research is well-illustrated from several different sources. There are many research leads to follow. **The science and government relationship that exploded during World War II has had an effect on this problem and will be briefly mentioned.** The funding of scientists and **how scientists worked in elite groups** such as RAND corporation and the Jasons Group, a part of the Institute for Defense Analysis is described. Out of the public eye, there was no accountability and no public input. A few examples of problems are described.

There is a large section on the development of sensors technology because it **explains so well how the military has worked with scientists. The Electronic Battlefield by Paul Dickson** is one of the few books which portrays the negative side of the military and supports his claims with many footnotes. **There are many ideas on how to work on mind control technology issues that can be found in this book.**

The newspaper articles on electromagnetic technology which can be broadcast over populations for warfare and psychoactive effects will be listed with excerpts. The numerous citations and excerpts are listed in order **to answer the question of how the government could technically do this and to show that the government was interested in this technology in order to fight the cold war.**

The U.S. government has decoded the brain. This is important to know about because there are allegations of abuse and there is no accountability or public input. Until someone stops the U.S. government, the problem will continue to get worse. The number of victims of government experimentation is increasing. And all of the experts say that electromagnetic weapons are as serious as the atomic bomb (see CAHRA website, nonlethal weapons.) The warnings are there.

This problem has been around for years and it is highly classified but that does not mean it doesn't exist. **The many excerpts from several independent sources are adding up to the same conclusion.** There is nonconsensual government electromagnetic experimentation and it is a tragedy that needs to be dealt with. On a more hopeful note, this article can prove that the mislabel of mental illness, which most victims have endured, is a thing of the past. There is too much evidence now. That is why it is important to keep researching, so that it will never happen again.

Chapter One

There is a problem. Here is one example of irrefutable proof.

An email **from a physician from the group Physicians for Human Rights** is convincing evidence of the seriousness of this problem. It is one of the common replies received by victims. This doctor wrote on biological warfare and was very active in human rights issues. When asked to write a medical report on allegations by victims of electromagnetic weapons testing experimentation this was the reply on March 10, 1997.

"...After a lot of consideration, I've decided that I cannot undertake this project. **I have a family, and feel unable to subject them to any risks that might result because of my involvement.**"

Chapter Two

The following important article was written by one of "**the greatest strategic philosophers of the 20th Century**", founder of International Strategic Studies Association, former member of Mankind Research Unlimited and former psychological warfare expert with the Office of Naval Research. **Dr. Possony stated that mind control is feasible and militarily important.** The article is a good overview of the Soviet-U.S. race to develop mind control technology and a precise explanation for why there is illegal experimentation going on to this day. Here is the entire article, with its many research leads.

Possony, Stefan.(1983,July). **Scientific Advances Hold Dramatic Prospects for Psy-Strat.** Defense & Foreign Affairs. P.34.

Associate Editor Dr. Stefan Possony discusses how scientists are facing the prospect of messaging directly into a target mind. Whither psy-war?

The history of psyops technology is about 200 years old, and it will continue to progress. Hence it is most important to look into the future. It is no longer really difficult to send messages to the targets; that is, the persons who are to be influenced. The target cannot be reached if he is not interested in the originator, nor in his message, or if his interest is perfunctory. He is unattainable also if he is bored, and if he finds it more pleasurable to listen to competitors, who are multiplying.

The target cannot be persuaded to listen. It is the other way around; he may listen if he already is fully or partially persuaded, and if the program is attractive in addition to informative, and if it helps him in his activities.

Psyops technology is more or less in hand. Its better utilization is at present precluded in most instances by political ineptitude and by international opposition. The importance of better programming is recognized as a theory, but new ideas and fundamental improvements are rare. Hence success often is a matter of hit or miss. At this point, let us forget about history and current events, and let us resolutely turn to the future; I want to alert you that psyops technology may advance from communicating to direct signaling. Some developments in this regard are already taking place.

X-rays and gamma rays are located at the upper end portion of the electromagnetic energy frequency spectrum. What is at the lower end? The most important of all of nature's phenomena.

Suppose it becomes feasible to affect brain cells by low frequency waves or

beams, thereby altering psychological states, and making it possible to transmit suggestions and commands directly into the brain.

Who is so rash as to doubt that technological breakthroughs of this general type would not be put promptly to psyops use? More importantly who would seriously assume that such a technology would not be deployed to accomplish political and military surprise?

A few years ago there was much excitement about the Soviet microwave "bombardment" of the US Embassy in Moscow. Why did the KGB, then under Yuri Andropov's leadership, embark on this seemingly scurrilous -- and very prolonged -- effort? There was no answer to this question, except that the KGB must have wished to harass US diplomats and cause them to worry about their health. This theory was never convincing.

The question was raised **whether the Soviets had discovered a technique of using microwaves for psychological purposes**, and whether they were experimenting with this technique on US specialists on the USSR, unwittingly pressed into Soviet service as guinea pigs.

Impossible, **replied the State Department, the waves cannot break through the blood-brain barrier**, and thermal effects are so negligible that the body would not be affected. Nevertheless, embassy personnel were indemnified for health damage.

By 1979, at the latest, it was known that electromagnetic fields raising body temperatures less than .1 degrees Celsius may result in somatic changes. It was most surprising that such a trivial temperature rise was having any effects, and even more astonishing that those effects were significant.

Chemical, physiological and behavioral changes can occur within "windows" of frequency and energy continua. One of those windows is connected with navigation in marine vertebrates and with biological rhythms of humans. Another is at the level of the human electroencephalogram (EEG), which is in the range of extremely low radio and sound waves, around 20 Hertz.

Those findings remain unexplained. They seemed to require energy amplification of the initial stimulus by some 12 orders of magnitude. No such amplification was deemed to be feasible, and none was discovered.

Let us cut the story to the minimum. The original model, according to which the blood-brain barrier cannot be broken, was derived from **the axiom that electromagnetic waves interact with tissue in a linear manner. However, it turned out that the molecular vibrations caused by a stimulating extracellular electromagnetic field are non-linear.** Utterly unexpectedly, they take the form of soliton waves which can transfer energy along long molecular chains.

By 1982 the term "soliton" finally made it to the technical dictionaries. Here is a definition from the 1982 McGraw-Hill scientific-technical dictionary: "A soliton wave...propagates without dispersing its energy over larger and larger regions of space." As I understand it, it would be more correct to say: "A soliton wave propagates suddenly acquired energy, or energy imparted by shock, without dispersing it."

Significance? Extracellular disturbances such as acoustic or electromagnetic bursts can be propagated across the cell membrane. In this, non-linearities in molecular dynamics rather than chemical kinetics are the key. Put differently, the 12-magnitude energy deficit is overcome, not by brute force, but by the formation of solitons.

Visualize the brain and its environment as structures of waves, and assume that shock waves create solitons. Then imagine that modern electronics with their flexibility, accuracy and speed are put to work.

In addition, the range of resonances probably will be increased. Hence many frequencies, and several options for the transmission of energy across the membranes of brain cells may become available. **This may imply that the brain cells will be reachable diversely and flexibly, and perhaps routinely.**

The discovery of cross-membrane coupling may be compared to the discovery of oxygen in 1772, which allowed the proof that phlogiston, the supposed element of fire, does not exist. Once the phlogiston idea was buried, chemistry and the chemical industry began their triumphal march across the world.

The exploration of the cross-membrane phenomenon is only at the beginning, and it is not yet possible to anticipate practical applications. As of now a new phenomenon has been discovered, probably. **Nothing is as yet known or is known publicly, on how the soliton can be aimed to produce desired effects. Only a hypothesis can be stated: If the phenomenon can be utilized, this will in due time have crucial bearing both on the body and on the brain, and on defense.**

The theory of cross-coupling was formulated by A.S. Davydov who, it seems, published the first purely theoretical version in 1976, and followed this up with a study on "Solitons as energy carriers in biological systems". By 1979 Davydov appeared to be linked to the Ukrainian Academy of Science.

It should be noted **that Russian mathematicians were concerned with solitons before US scientists ever got interested.** It is therefore conceivable that Davydov achieved his results long before publication, and also that the experiments which involved the US Embassy, produced findings which led to subsequent progress.

In the US, the pioneering work seems to have been done by Albert F. Lawrence and w. Ross Adey, writing in Neurological research, Volume 4, 1982. the Max Planck Institute for Biochemistry in Munich also discovered that cell membranes can be crossed. Eberhard Neumann and Guenther Gerisch found that a shock wave passing through an electric field may create ultra-quick processes within the membrane, and that through such "jumps in the field" (Feldsprünge: this probably means solitons) senses can be transmitted and cells fused.

There is a differential in the tension of the inner and outer membrane which averages 1/70,000 of a volt. This corresponds to 70,000 volts per(theoretical) membrane thickness of one centimeter.(The real thickness of a membrane is 0.1<-8> centimeter.)

The discovery was made unexpectedly in the course of research on electric fields in membranes and their impact on vital processes. This research requires measurements of events lasting not more than one nano-second (one billionth of a second), and it suggested that solitons generally increase the permeability of membranes. Thus, new perspectives on genetic "engineering" were suddenly opened. Moreover, it was possible to fuse no less than 50 cells into one supercell with 50 nuclei and one single membrane. We might as well forego assessing this monstrous novelty.

The Max Planck Institute broke into the membrane, so to speak, either without knowing about Davydov, Lawrence and Adey, or after learning about them while pursuing a different goal. In either event, a fundamental innovation, a breakthrough discovery or invention will be made several times, at different places, and be persons working independently from one another.

It is futile to speculate on who stands where in a race which has barely begun. But it can be postulated that the USSR probably has an ambitious research program, whereas in the US, while work is being done, no program --let alone a crash program--is in existence.

It is predictable that in the wake of Andropov's upgrading of psyops, the relevant programs in the USSR will be given an early and powerful boost.

Future psyops will have to be planned for perspectives which cannot be formulated before the US embarks on a major and totally novel research and development program. Meanwhile, it must be assumed that psyops will grow world wide, in strategic importance and in new forms.

The following report appeared in "Defense & Foreign Affairs Daily" on June 7, 1983:

On May 20, 1983 US newspapers printed an Associated Press story from the Veterans Hospital at Loma Linda, California that the Soviets developed a device, called Lida, to bombard human brains with radio waves. The radio beams are expected to serve as a substitute tranquilizers, and to treat sleeplessness, hypertension, and neurotic disturbances.

It is not yet determined whether Lida affects the immune and endocrine systems. Lida is reported to change behavior in animals. At the present, the device is on loan to Dr. Ross Adey, chief of research at Loma Linda. Adey started testing the machine three months ago, and hopes to complete his investigations within a year.

According to Dr. Adey, who repeatedly visited the USSR, the Soviets have used the machine on people since at least 1960. The machine is technically described as "a distant pulse treatment apparatus". It generates 40 megahertz radio waves which stimulate the brain's electromagnetic activity at substantially lower frequencies.

Dr. Adey was quoted as saying: "Some people theorize that the Soviets may be using an advanced version of the machine clandestinely to seek a change in behavior in the United States through signals beamed from the USSR." No reference was made to the protracted microwaves bombardment several years ago of the US Embassy in Moscow.

On April 29, 1983, Associate Editor Dr. Stefan Possony, addressing the Defense 83 meeting sponsored by Defense & Foreign Affairs, reported on Dr. Adey's work and on the work by Dr. A.S. Davydov of the Ukrainian Academy of Sciences. Davydov discovered how the blood-brain barrier can be penetrated by low frequency beams and directly affect cells in the brain. Possony's remarks were delivered to a panel studying psychological warfare. [Part of that paper is printed below--Ed.]

In the US research on direct brain waves has scarcely begun, and the USSR has a lead of approximately 25 years. Once it is matured the new technology will be extraordinarily significant in medicine. It also may have major impacts on communications, intelligence, and psychological operations, and permit deliberate physiological impairment.

The KGB is known to be interested in the program. It is not known whether the US and other Governments are trying to determine whether their countries have become targets of clandestine brain waves beamed from the USSR. Nor are there indications that work on countermeasures is being contemplated, except perhaps in the USSR.

Solitons

Editor's note. Most people have not heard of solitons. But, Dr. Possony is not the only professional discussing solitons and mind control. Here are excerpts from books and journals to give an overview of biological nonlinear effects and solitons.

No author. (1979, October 27). You Cannot Be a Twentieth-Century Man Without Maths. Economist. Pg. 107.

"Fortunately for pure scientist, most of the problems of basic physics and chemistry either are (or can be adequately handled as)linear problems. **It is only in modern science--in particular, in quantum physics and gravity--that non-linearities loom large. ...The big news in maths is that there are recent developments which promise to make the solving of such non-linear problems possible. ... One development concerns things called solitons.** ..So the equations of solitons are being applied to the fields surrounding subatomic particles. A whole group of elementary particles. A whole group of elementary particles may have been missed by the existing theories. Solitons may also help to understand the force of gravity, which also behaves in a non-linear way. Although Einstein's theory of relativity was a breakthrough in understanding gravity, there is still much to be learnt about this force. Solitons are also being used in research on climate, electronic circuits, fusion power, **nerve conduction, optical materials, superconductors** and a range of other engineering problems."

Remoissenet, M. 1996. Waves called solitons: Concepts and experiments, 2nd ed. Springer-Verlag.

"Preface to Second Edition. ...Chapter 1 was expanded by a discussion of the discovery of solitons in the field of electromagnetic waves and optics.

P. 1. "Basic Concepts and the Discovery of Solitons. "Today, **many scientists see nonlinear science as the most important frontier for the fundamental understanding of Nature. The soliton concept is now firmly established after a gestation period of about one hundred and fifty years. Since then, different kinds of solitons have been observed experimentally in various real systems, and today they have captured the imagination of scientist in most physical discipline. They are widely accepted as a structural basis for viewing and understanding the dynamic behavior of complex nonlinear systems.**"

Infeld, Eryk & Rowlands, George. 1990. Nonlinear waves, solitons and chaos. Press Syndicate of U Cambridge.

p.5. "5. A theory that relies on the interaction of a small number of periodic modes also exists see Infeld (1981c). Solitons are special wave pulses which interact with one another so as to keep their basic identity and so that they act as particles. Now the soliton has come of age in its mother subject, though in the meantime promising to be a useful concept in many other effects. One of the first detailed experimental verifications of soliton type behaviour was in the study of nonlinear ion acoustic waves.

"**Davydov(1968),(1985) has applied some of the rules of solid state physics to the transport of energy down protein chains. He has shown that the idea of soliton propagation is essential to a study of chemical changes taking place in long protein molecules. This leads to the transfer of ATP (adenosine triphosphate) and could be the basis for an understanding of muscle contraction. Though much may still remain to be done in molecular biological problems it seems likely that the concept of a soliton will remain the cornerstone of any future theory.**"

Chaohoa, Gu, Yishen, Li Guizhang Tu, Editors. (1990). International Conference on Nonlinear Physics , Shanghai 24-30 April 1989.

p. 166. Ablowitz, MJ. et al. U Colorado. Nonlinear Evolution equations, Solitons, Chaos and Cellular Automata. Acknowledgments. **This work MJA is partially supported by the NSF, O of Naval Research, & Air Force O of Scientific Research. "Among the remarkable discoveries in applied mathematics during the past twenty or so years, have been the concept of the soliton and completely integrable nonlinear partial differential equations, chaotic phenomena associated with nonintegrable equations, and the understanding of cellular automata."**

Kerner, B.S. & Osipov, V.V. 1994 Autosolitons A New Approach to Problems of Self Organization & Turbulence, Vol 61. Kluwer Academic Publishers.

Introduction. "...**The properties of traveling autosolitons (pulses) and some other autowaves were analyzed as early as 1946 by Wiener and Rosenblueth on the basis of an axiomatic discrete model.** Hodgkin and Huxley(1952) proposed and studied a model of impulse propagation in nerve fiber; ..."

p. 110. "...there are numerous examples of active distributed systems of highly diverse

nature which may host autosolitons as well as more complicated dissipative structures and autowaves. Such are, for instance, chemical and biochemical reactions (Zhabotinskiik 1974: Nicolis - **Prigogine** 1977: Haken 1977),..."

Chapter -Three

In two articles, Jonathan Tennenbaum describes development of Soviet electromagnetic weapons and the physics and biology behind the weapons. Following the quite long Tennenbaum articles, there are several articles on the soviet development of electromagnetic and neurological technology. It is difficult to get information on this topic and to know what is going on but over a long period of time, the same facts are repeated and therefore become more verifiable and believable. For over 25 articles on Russian mind control see U.S. Human Rights Report Flatlands Publishing Ft. Bragg (707) 964 8326. It is not easy to see which is disinformation, as there certainly must be on this topic. **But these are several independent sources over several decades, stating much the same theme.** And the science and military implications of electromagnetic technology are by now well established.

Electromagnetic-Effect Weapons: The Technology and the Strategic Implications. Wiesbaden Federal Republic of Germany Jan. 16, 1988. **Executive Intelligence Review.(Executive Intelligence Review Special Report.** 317 Pennsylvania Ave. S.E., 2nd Floor. Washington, DC 20003 (202) 544-7010. Pg. 7. Michael Liebig. ..."This Special Report is meant to sketch the gestalt of this newly emerging Soviet threat, the dimensions of which the Western public is most dangerously unaware. There is barely any understanding in the West of the revolutionary transformations in technology and strategy associated with electromagnetic effect weapons."

Tennenbaum, Jonathan.(1988, Feb). Some ABCs of Electromagnetic Anti-Personnel Weapons. Executive Intelligence Review.Executive Intelligence Review Special Report.317 Pennsylvania Ave. S.E., 2nd Floor. Washington, DC 20003 (202) 544-7010. Pg. 9.

Dr. Jonathan Tennenbaum is on the Board of Directors of Fusions-Energie-Forum in the Federal Republic of Germany, and an editor of its magazine, Fusion.

"Often referred to by the misleading name, "radio-frequency weapons," The most sophisticated new type of anti-personnel weapons now being perfected by the USSR for use by its Spetsnaz and regular forces, uses pulses of electromagnetic energy to disorient, paralyze, and kill human targets. Such electromagnetic pulse (EP) weapons can take a variety of forms, including the following: ...

Electromagnetic pulse anti-personnel weapons have many scientific and technical features in common with the laser weapons under development in the American and Soviet anti-missile defense programs. Both use electromagnetic radiation, **propagating at 300,000 kilometers per second**, to achieve their destructive effect. Both require compact power sources, generators of electromagnetic radiation (e.g., **lasers, magnetrons, gyrotrons, etc.**), **beam radiator and focusing apparatus (e.g., optics for lasers, wave guides and phased-array antennas for microwave weapons)**, and **computerized control systems**. **In both cases also, the maximum effect of these weapons is obtained by "tuning" or "tailoring" the output to the characteristics of the target.**

The chief peculiarity of EP anti-personnel weapons lies in their exploitation of highly non-linear effects of electromagnetic radiation upon living organisms. Typically, these weapons employ complicated pulse shapes and pulse trains, involving several frequencies and modulations which can range over a wide spectrum from extremely low frequencies (ELF) into the hundred gigahertz range. Thus, although state-of-the-art technology permits construction of mobile systems of extremely high output power (up to 10 megawatts average power, peak pulsed powers of many gigawatts), it is not the high power per se which determines the lethality of the system, but rather its ability to "couple" the output effectively into the target and to exploit non-linear biological action. While high output power may be used to obtain range and breadth of effects and penetration into enclosures and defenses, the minimum lethal "dose" on target will typically be orders of magnitude less than that which would be required to kill by mere heating, in the manner of a microwave oven.

The closest analogy to a sophisticated EP anti-personnel weapon is provided by powerful chemical weapons, such as nerve gases having rapid, fatal effects at extremely low concentration. In the latter case, the effect is mediated by molecules which enter nerve synapses and other critical areas and disrupt normal functions without massive destruction of tissue. The poison acts on the higher levels of organization of living process. Furthermore, it should be understood that molecules themselves are nothing but electromagnetic configurations. That is, the molecules (e.g., of the nerve gas) **act via electromagnetic fields, by exchange of electromagnetic energy with other molecules. Hence, it should hardly be surprising to discover that the same effects can be induced by electromagnetic radiation alone-without the presence of the molecules! In principle it suffices to identify the precise geometrical characteristics of the electromagnetic action associated with the given substance, and then just "mimic" the molecular action by a carefully "tailored" signal.** Once this principle is understood, **biophysical research can define the most appropriate pulse forms for weapon applications**, independently of any specific chemical "model." **That this is by no means a mere theoretical possibility is proven by a wide variety of experiments on the biological effects of "tailored" electromagnetic radiation, carried out in the West and East over the last 40 years. For obvious reasons, experiments involving lethal effects are mostly classified. To illustrate some of the relevant research areas, we present a couple of examples of well-documented non-lethal effects.**

Since the 1950s much scientific attention has been paid, in the East and West, to effects

on the brain of 1) psychotropic drugs (LSD, depressants, stimulants, etc.) and 2) electrical stimulation of specific areas of the brain by implanted electrodes. Among other things, experiments showed that minute currents induced by electrical stimulation could evoke profound changes in brain function, similar to those obtained by psychotropic drugs, the latter often at extremely low concentrations. **This work reveals some "deep secrets" of the physiological organization of the brain, secrets having potentially far-reaching military implications. Since the early 1970s a number of published experiments have shown that similar, profound neurological effects can be induced without the "substantial" intervention of drugs or electrodes, by electromagnetic fields applied from outside the experimental subject. Typical of these are those of Dr. Jose Delgado and Dr. Ross Adey.** Delgado applied a slowly modulated weak magnetic field (several Gauss, pulsed at less than 100 Hz) to the heads of monkeys via external coils. Depending upon the precise modulation frequency used, specific effects were induced. Thus, one frequency caused the animals to fall asleep, and another triggered aggression, each time with very specific neurophysiological effects on specific areas of the brain. Adey and others have obtained similar neurophysiological effects with a modulated, low-power, radio-frequency field, with modulation frequencies in the range of the internal "brain waves" (EEG). Absorbed power levels were very low- on the order of a thousandth of a watt per square centimeter.

Related experiments have shown that internal EEG waves can be entrained and modified, demonstrating the possibility of direct information transfer to the brain via modulated radio-frequency (RF) fields. Thus, below the threshold of lethal effects, a certain potential for subtle psychological manipulation by means of "tailored" electromagnetic signals cannot be excluded.

Lethal effects have been obtained at power levels not very much higher than in behavior modification experiments. Again, it is not so much the net power **as the exact form of the applied series of pulses, which makes the difference.** One laboratory device, used in brain research, kills experimental animals with a single microwave pulse of 1/6 second duration.

While the neurological effects of modulated RF and microwave radiation have long been a high-priority area for Soviet research, this field has tended to be played down or even suppressed in the West. **For example, Delgado's magnetic field experiments have gone nearly unnoticed in the Western scientific literature, but are a featured subject in a recent Russian book,** published under the auspices of Znanyia, a cadre organization headed by top Soviet military scientist N.D. Basov.

While we have concentrated here on the brain as a key target of EP weapons, this is by no means the only target. The central nervous system more generally, and vital organs, especially the heart, are all possible targets. Moreover, a very insidious deployment of EP would be to degrade the overall health of persons in a certain area by long-term, low-level irradiation. There is evidence that the latter has already been tried by the Soviets in a number of cases.

Much more could be said about non-linear biological effects exploitable by EP weapons.

In this short introduction, however, **we want to move on to another key problem of these weapons; how to generate and deliver the destructive action to the target.**

This Special Report presents some details on high-power RF and microwave generators, an area of highest priority in Soviet research and development. There are two essential types of devices which can be used in EP weapons; **oscillators using beams of electrons or plasmas, and solid-state devices.**

Solid state radar, whose development is driven by the needs of military aircraft and missiles, is one of the fastest advancing areas of electronic technology today. Although solid state devices do not (yet!) reach the very high powers attained by electron beam devices, miniaturization makes it possible to build today complete, **highly sophisticated phased-array radars of suitcase-size, with several kilowatts of average output. The principal advantage of this technology is that it permits extremely sophisticated "tailoring" of pulse shape in space and time, in a compact system, with direct coupling to high-speed computers. This is exactly what is needed in order to optimally exploit non-linear biological effects.** What is lost in brute power is thus gained in efficiency.

Recent breakthroughs in what is **called "high-temperature superconductivity" open up the perspective that both types of EP generation technology-- electron beam as well as solid state--are going to undergo revolutionary improvements in the years immediately ahead. The impact of this revolution cannot even be estimated at this time, but it will certainly mean radical reductions in the size of devices having a given electromagnetic "firepower".**

As our discussion of biological effects already indicated, electromagnetic anti-personnel weapons depend essentially on "tuning" the output signal to the target. This goes not only for the frequency and amplitude of the signal, but for its entire space-time "shape." Figure 6, for example, is drawn from thermographs of models of the human body irradiated by RF radiation of the same frequency, but with field geometries. These and other experiments demonstrate, that the areas of maximum absorption of electromagnetic energy inside the body depend on the geometry of the incident wave. By choosing the right geometry, the energy can be focused into any desired area, such as the brain.

A sophisticated EP weapon must thus be able to project a specific geometry of electromagnetic field onto a distant object, over a given terrain and in given surroundings. Without going into technical details of waveguides and various antenna types, we shall briefly present one of the relevant techniques: the principle of the phased array.

A phased-array antenna consists of an assemblage of many individually controlled emitting (or receiving) elements, placed in a fixed geometrical arrangement. The output field of the array is the sum of the waves emitted by the individual elements. By electronically controlling the relative phases of these individual signals, the output field can be given any desired "shape" and direction, limited only by the wavelength used, the

number of elements and the size of the array. The huge soviet ABM radar at Krasnoyarsk, for example, contains an 83-meter diameter phased array of thousands of elements. The output can consist of a single, very narrow beam, or hundreds of independently directed beams, all depending on the "phasing" of the elements. This radar can track large numbers of missiles simultaneously, without any mechanical motion of the antenna.

The functioning of phased-array antennae is thus closely related to holography, or three-dimensional photography. In a hologram, a photographic plate records interference patterns, corresponding to the phase relationships of laser light reflected from the object. When the holographic plate is illuminated by a laser, the phase relationships are "reconstituted" and the viewer has the impression of seeing a three dimensional object.

The ensemble of elements of a phased-array antenna takes the place of the holographic plate, but at a much longer wavelength than visible light (centimeters and millimeters instead of fractions of a micrometer). When operated in a receiving mode, the phased array obtains much more information than an ordinary antenna; like the hologram, it measures entire electromagnetic **field geometries, not merely a one-dimensional, electromagnetic "signal"**

The holographic principle underlying phased-array systems points to a potentiality for creating any desired three-dimensional, electromagnetic field distribution around a target object, from a distance, correcting for reflections, obstacles and other interference. Moreover, the field can be transformed and shifted from one location to another in space within a fraction of a second. Thus, an ideal EP-weapon could attack many individual targets, simultaneously or in rapid succession. One or more phased arrays would be used in receiving and transmitting modes to "lock on" to selected targets, and determine the necessary geometry of the attack pulses. To fully exploit such potentialities, the weapon would require for its target-acquisition and beam-control systems, sophisticated high speed computers, able to perform complex computations of the "inverse-scattering" type. Miniaturized systems of this sort are well within the reach of 'fifth generation' computer technology. "Hybrid" digital-analog systems would be simpler, smaller, and faster still. There is much overlap in requirements between EP weapons and systems developed for strategic defense(SDI).

For concrete weapons applications, simpler devices will often suffice; trade-offs can be made among range, output power, extent of three dimensional field control, and sophistication of biological effects.

As was the case earlier with nuclear weapons, many people may be tempted to think that EP anti-personnel weapons constitute "absolute weapons" against which no defense is possible. A glance at the history of the SDI, or of military science and technology in general, shows why no such thing ever has or will exist.

An obvious aspect of defense is to detect, locate, and neutralize weapons before they can be used. Antenna structures of EP weapons are resonant structures which can be detected in various ways. Spetsnaz deployment of EP weapons can be countered by

intercepting the weapons or weapons components in transport, by appropriate surveillance of the areas around potential targets, and by the whole range of countermeasures which can be taken against the Spetsnaz groups themselves. Of course, the EP weapon declares its existence as soon as it is turned on, and itself becomes vulnerable to rapid counterattack if readiness and appropriate means are at hand.

The famous "Faraday cage" and other forms of electromagnetic shielding can provide some protection against EP weapons, especially if the characteristics of the EP signal are known in advance and countermeasures are devised accordingly. Unfortunately, a sophisticated weapon can "tailor" its pulse to get through nearly any given kind of shielding utilizing non-linear, inverse-scattering techniques and a process known as "self-induced transparency." A Faraday cage under certain conditions can be transformed into an antenna, focusing the signal on the inside and even enhancing the effect for the unfortunate persons inside.

In theory, biological effects can be offset by creating a controlled "electromagnetic environment" around the target, with the effect of "detuning" the target relative to the anticipated signal of the attacking EP weapon - a kind of "immunization." To realize such potentialities will require a major research effort, but one having important spinoffs for biology and medicine.

The application of holographic principles to EP weaponry has profound implications for the future shape of warfare. The deployment of such weapons and the defense against them cannot be understood in terms of "point-to-point trajectory" concepts associated with conventional firearms and artillery. Actually, even in the past, competent military doctrine has always emphasized the geometries of "fields of fire" generated by overall deployment of mobile weapons over a given area, as opposed to mere "straight-line" action of an individual weapon. The geometrical aspect becomes much more explicit in the era of EP weaponry, in which "firepower counts as the ability to control the electromagnetic field geometry on the field of battle, through coordinated deployment and operation of mobile phased arrays and related devices.

The situation could therefore be summed up as follows: in practice, both the use of EP weapons and defense against them is a tricky, sophisticated business, if the antagonists are at comparable levels of technology, knowledge, and preparation. A surprise attack against an unprepared enemy is simpler and very devastating. In this respect, EP weapons are no exception to the general rules of warfare."

Tennenbaum, Jonathan.(1988). Soviet Work on Electromagnetic Pulse Weapons. Executive Intelligence Review. Pg. 17

The 1987 edition of the U.S. Department of Defense review, Soviet Military Power, contains the following stern warning about the current Soviet mobilization to perfect electromagnetic pulse (EP) weapons: "Recent Soviet developments in the generation of radio-frequency (RF) energy have potential applications for a fundamentally new type of weapon system that would degrade electronics or be used in an anti-personnel mode. The Soviets already have or are working on much of the technology for such a system. In their research the Soviets have generated single pulses with peak power exceeding 1 billion watts and repetitive pulses of over 100 million watts.. No significant technological

obstacles stand in the way of a prototype short-range tactical RF weapon."

In this Special Report, we shall document that the U.S.S.R. presently possesses the essential technological base, plus knowledge of advanced biophysics, to realize a wide variety of tactical and strategic electromagnetic anti-personnel weapons. We shall demonstrate this from the Soviets' own technical publications. Fortunately, we are not able to show pictures of EP weapons on parade in Red Square-if we could, it would be too late!

Figure 1 shows, on a map of the U.S.S.R., some of the known centers of Soviet work on the science and technology of EP weapons. For example, advanced high-power microwave generator work is carried out at the Applied Physics Institute in Gor'kiy near Moscow, at several institutes in Tomsk, at the Moscow Lebedev Institute, in Leningrad, Novosibirsk, and other locations. Advanced biophysical research of military importance is going on at the Institute for Biological Physics (G.M. Franck) at Pushchino near Moscow, at the Siberian Division of the Academy of Medical Sciences at Novosibirsk, at several institutes in Alma Ata, in Vladivostok, and at a number of establishments linked to the Soviet manned space program. (There is significant overlap between space medicine and the biophysics of EP weapons effects.) The question marks on the map indicate that only a very small part of the relevant research and development ever finds its way, even obliquely, into available Soviet technical journals. **Military secrecy is much stricter and all-encompassing in the East than the West.**

An interesting article appeared this year by one V.M. Koldayev in the Soviet journal *Biologicheskoye Nauki* dealing with "The Correction of Acute Microwave Exposure by Drugs-Experimental Results." In the article a large number of pharmaceuticals are evaluated for their capability of enhancing the resistance of the human organism to microwave radiation. Both preventive treatment, before exposure, and post-exposure treatment are discussed. Koldayev stresses a point which is key to the Soviet approach to microwave and radio-frequency effects: "Intensive microwave radiation changes the membrane characteristics of cells and ion transport, generates electrical breakdown at the boundaries of phase regions and other effects causing a destruction of living processes. Research in recent years has shown that the 'thermal conception' of microwave effects is inadequate."

Kolayev points to a major stumbling-block of Western biophysical research: the absurd, but stubborn insistence on the part of the Western research "establishment", that electromagnetic radiation could have no other effect on a living organism than to increase its temperature (I.E., in Koldayev's words, the "thermal conception"). As a result of this blind spot, many Western specialists still refuse to accept the existence of precisely those kinds of effects upon which the most lethal Soviet EP weapons depend.

The Soviets presently lead the world in research into a crucial, but not much publicized field called "optical biophysics," sometimes referred in the West as "bioelectromagnetics," which deals with the electromagnetic organization of living processes. Although modern research into this area goes back to Louis Pasteur, the most consistent and sustained efforts were launched in Russia by V.I. Vernadsky (1863-1945), the physicist biologist, geologist, and architect of the

Soviet atom bomb project.

Vernadsky's scientific training focused on the works of Pasteur and radioactivity pioneer Pierre Curie, and included visits to the Pasteur Institute and other leading European science institutes. Vernadsky initiated the systematic search for reserves of uranium and other technically crucial minerals throughout the Russian empire, and was a key organizer of the pre-World War I economic mobilization in Russia. **As founding director of the State Radium Institute in Leningrad, Vernadsky launched in 1926 a crash program of fundamental research into the "physical geometry" of living processes, which would include a comprehensive study of their interaction with electromagnetic radiation:**

"Only a few of the invisible radiation's are known to us at present. We have hardly begun to realize their diversity and the inadequacy of our knowledge of these radiations which surround us and pass through us in the biosphere, and to understand their basic role in the processes going on around us, a role which is difficult to comprehend by those accustomed to other conceptions of the Universe...We are surrounded and penetrated, at all times and all places, **by eternally changing, combining and opposing radiation of different wavelengths--from 10 millionths of a millimeter to several kilometers.**"

Out of Vernadsky's program came the Soviet military slogan: "He who controls the entire electromagnetic spectrum will dominate the world." It was Vernadsky who coined the now-common term "biosphere," emphasizing the fact that the totality of living matter on the Earth forms a coherent process in powerful mutual interaction with the climate and geophysical conditions of the planet. This work was the basis of the concept of "planetary war" advocated by Marshal Ogarkov, according to which all available scientific knowledge concerning the biosphere is to be mobilized in war in order to crush the enemy. This includes development of means of weather modification, manipulation of the ionosphere and other layers of the atmosphere, large-scale biological warfare, triggering of natural disasters, as well as **global electromagnetic warfare.**

Vernadsky's efforts provided the scientific atmosphere for the launching of the most powerful current of Soviet biophysical research, that associated with Alexander Gurvich (1874-1954). **Gurvich was the first to systematically demonstrate that absorption of minute amounts of "tuned" electromagnetic radiation, down to individual quanta, can decisively influence the course of biological events.** This is now known in the Soviet literature as the "informational role of electromagnetic radiation in biological systems."

In connection with this research, **Gurvich developed that first "field theory" approach to the geometry of living processes, and discovered the universal ultraviolet light emission of cells called "mitogenetic radiation". He was the first to point to the capability of biological molecules such as proteins and DNA, to absorb energy at long wavelengths and reemit the stored energy at much shorter wavelengths-phenomena which are intensively studied today under the name of "multiphoton processes in non-linear spectroscopy."** Gurvich was thereby a pioneer in the area of advanced research which is decisive for the most devastating forms of electromagnetic anti-personnel

weapons.

Gurvich's student G.M. Franck founded the Institute of Biological Physics in Pushchino, which still bears Franck's name, and is today a key center of military-related research on electromagnetic pulse effects on biological systems. Another Gurvich disciple, Prof. Vlail Kaznacheev, heads the Medical Division of the Soviet Academy of Sciences in Novosibirsk, with close ties to the military space establishment. Kaznacheev carried out a decade-long series of experiments on the electromagnetic basis of the pathogenic action of viruses and poisons. Another member of the Gurvich school, Alma Ata biophysicist Inyushin, wrote an article in the Red Army paper Krasnaya Zvezda in 1984, declaring that breakthroughs of "revolutionary significance" were being made in the optical biophysics field. Since then, Inuyushin's name completely dropped out of Soviet scientific literature, indicating that he is now working in a top secret program. **Indeed, almost the entirety of the huge Soviet effort in biophysics of the Gurvich-Vernadsky variety has "gone underground" since 1983-84.**

One indicative area of continued Soviet publications is on the "non-thermal" effects of low-level microwave radiation in the millimeter wavelength band. Since at least the late 1960s, a U.S.S.R.-wide network of more than 21 institutes has conducted research into this field, led by Prof. N.D. Deyatkov of the Soviet Academy of Sciences. This research is continuing to this day. Late last year, for example, the Soviet microwave technology journal Radioelektronika published two long papers on biological effects, written by known members of the Deyatkov group. These papers discussed the mechanisms by which millimeter radiation interacts with internal electroacoustical oscillations, notably in cell membranes, to generate the resonant, frequency-dependent effects documented in a large number of experiments.

The significance of these sorts of publications is not that they give a direct "peek through the window" at weapons-development; rather, they indicate an orientation of "civilian" basic research programs to the type of phenomena of relevance to weapons applications. (It is unlikely that electromagnetic anti-personnel weapons would work with pure millimeter waves. Millimeter-band "harmonics" would be included in complex pulse forms, however.)

Unfortunately, Devyatkov's area of research was all but closed down in the U.S., following the conclusion of "biological warfare accords" between the U.S. and the U.S.S.R. in the early 1970s-another concession from which the Soviets have extracted great strategic profit.

The capability to generate controlled high-power pulses of electromagnetic energy has long been a top priority area for Soviet applied physics research and development. It even has its own name in the Soviet literature, for which no direct equivalent term exists in the West: sil'notochnaya elektronika. It includes things like explosive cathodes and other technology for high-current relativistic particle beams, energy storage and pulse compression technology, non-linear plasma devices such as the plasma focus, "explosive" MHD power generation, EMP simulators, etc.

Significant parts of this R&D are being carried out in "purely peaceful" programs, such

as controlled fusion energy and accelerators for elementary particle research. So, Soviet development of gyrotron devices for ultra-high-power microwave generation has the "official purpose of providing means for heating plasmas in experimental fusion reactors. And, in fact, gyrotrons can do exactly that. But, the technical advances thus made-or acquired from the West-under "civilian" fusion research programs with international cooperation, can immediately be transferred to secret military programs. **Thus, Rudakov's huge "Angara V" electron beam pulse generator, allegedly constructed for fusion research, was obviously motivated by some other reasons than just the publicized ones.**

Soviet development of high-power magnetohydrodynamic (MHD) generators is another interesting example. For many years, Vice-president of the U.S.S.R. Academy of Sciences E.P. Velikhov has directed a large program to perfect this technology for direct conversion of chemical combustion energy into electricity, for a variety of "peaceful" applications.

These are figures from 1977, ten years ago. Given intensive Soviet work in this field in the intervening period, we must assume that they can obtain the same or better output with much smaller devices. **These and the famous "Pavlovskii" pulse generators play an important role** in the Soviet's own version of the SDI, as power sources for beam weapons. They provide enough power for very devastating types of mobile anti-personnel weapons.

The heart of an EP anti-personnel weapon is the system for generating and emitting the electromagnetic radiation. Here the Soviets can draw from their vast experience with all types of military radars, including the large phased-array installations at Krasnoyarsk, Pechora and elsewhere, as well as advanced research **into relativistic electron beam devices for ultra-high-power EP generation. The article by Robert Gallagher documents how the Soviets have led the world in development of pulsed gyrotrons and related EP devices covering a wide frequency range.** This new hardware is being "spun off" in great quantity and variety as a product of the sil'notochnaya elektronika thrust. Nor have the potentialities of solid-state been neglected. While the Soviets may lag in some of the most exotic microchip technology, they are quite familiar with **solid state radar systems applicable (among other things) to miniaturized EP weapons. "Briefcase size" EP weapons for "close-in" Spetsnaz assassinations and related missions, are well within Soviet technological capability.**

Recently, it was announced that the U.S.S.R. intends to use its new, heavy space-lift system Energiya, with five times the payload of the American space shuttle, **to station some very large structures in orbit.** Besides a larger version of their present space station, one of the plans is for a huge "solar power station" which would relay its energy to Earth via a high-power laser or a beam of microwaves. (A similar project was considered by the U.S. NASA, but rejected because of the of inadvertently irradiating populated areas.) With a proposed several gigawatts of continuous power at its disposal, **such a station could carry out weather modification as well as electromagnetic warfare on a large scale.** Of course, compact nuclear reactors (which the Soviets are already using in radar reconnaissance satellites), especially in a

pulsed mode, and MHD devices, could be much better energy sources for a military system. given a sufficient supply of energy, a large, phased-array EP system in orbit could attack entire cities, with loss of life comparable to nuclear weapons, but without collateral damage.

However, it is not necessary to station EP weapons in space in order to have firepower on a "strategic" scale. The Soviets have been early masters at combining their knowledge of geophysics and non-linear wave propagation to develop novel types of over-the-horizon radar. Using combinations of phased-array installations with a very large effective aperture, it is theoretically possible to project lethal electromagnetic signals over thousands of kilometers. At shorter ranges, incoming missiles and aircraft might be destroyed using EMP-like effects. Soviet activities should be closely watched in these respects, especially in view of the potential "dual purpose" exploitation of certain facilities.

(The following list is not intended to be comprehensive, but **merely exemplifies extensive Soviet scientific efforts in fields relevant to EP weaponry.** The interested reader will find further literature through the cited publications.)"

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G.I. Budker, "The Gyrocon: An Efficient Relativistic High-Power VHF generator," Particle Accelerators 10, 1979.

N.D. Deyatkov, E.A. Gel'vich, M.B. Golant, "Radiophysical Aspects of the Use in Medicine of Energetic and Informational Action of Electromagnetic Radiation," (Russian), Seria Elektronika SVC (UHF Electronics), Nr. 9(333), 1981.

A.G. Gurvich, Mitogenetic Analysis of the Excitation of the Nervous System, Amsterdam 1937; "Une theorie du champ biologique," Bibliotheca Biotheoretica, Ser. D, II. See also Michael Lipkind, "Gurwitschs Theorie vom Biologischem Feld," in the German-language magazine Fusion, 8.Jg., 1987, Nr.4.

V.M. Inyushin, D.R. Chekurov, Laser Biostimulation and Bioplasma, (Russian), Alma Ata 1975.

S. Kassel, "Soviet Development of Gyrotrons," RAND Corp. Report R-3377-ARPA, May 1986.

V.P.Kaznacheev, L.P. Mikhailova, Ultraweak Radiation in Intercellular Interactions, (Russian) U.S.S.R. Academy of Sciences, Novosibirsk 1981.

V.M. Koldayev, "Pharmacological Correction of Acute Microwave Effects," (Russian) Biologiecheskiye Nauki, 1, 1987.

V.I. Vernadsky, The Biosphere, 1926 (Russian and French editions).

Editor's note. Here are more substantiating articles in support of Tennenbaum's information. It is in list format.

Liebig, Michael.(1988).Radio-Frequency Weapons: Strategic Context and Implications. Executive Intelligence Review. Pg. 42.

Michael Liebig is Managing Director of EIR nachrichtenagentur GmbH in Wiesbaden, Federal Republic of Germany. The following paper was presented at conferences in the Federal Republic of Germany, France, and Italy.

"...It is obvious that the whole complex of RF technologies, precisely because of the vast potential for military application, is highly classified. Detailed information on RF systems is extremely scant in the public domain. Yet we do know the scientific-technological basics of RF systems and their interaction with biological and other soft targets. While operational RF weapon systems may not yet exist as such, it can be stated categorically, that not just research, but development work towards operational RF weapons, is underway in the East and West, especially in the East.

Pg. 40. "Radio-frequency weapons" is a misleading name, carried over from a pragmatic understanding of earlier stages of electronic warfare. For example, it was thought, mistakenly, that the use of microwaves as anti-personnel weapons depended upon the heating effects of such waves upon targeted material. **Today, it has been shown that properly tuned electromagnetic pulses have mortal effects at levels of energy-deposit as low as two or three orders of magnitude below those required to kill cell-tissue by means of induced thermal effects. This comparison illustrates the importance of the term "non-linear effects."**

The most important of the near-term applications of non-linear electromagnetic effects are in the domain of optical biophysics, either as strategic or tactical anti-personnel weapons, or to produce global effects within the biosphere surrounding those personnel. However, there is also the prospect of disintegrating non-organic material, as well as the disruption of apparatus, through the same class of technologies. In applying the notion of technological attrition to all such electromagnetic-pulse weapons as a general class, it is the principles causing all of the indicated range of effects which must be considered as a unit for purposes of shaping strategic doctrine.

All of the weaponry based upon "new physical principles," including lasers, particle beams, and non-linear electromagnetic-pulse effects, belong, together with the role of high temperature superconductivity, to the domain of sub-atomic physics. Modern high-energy physics, especially that focused upon so-called "force free" status of plasmas, shows that sub-atomic phase-space has a distinct, Kepler-Gauss sort of inherent curvature. It is also shown, that non-linear effects of coherent electromagnetic pulses, as

phenomena of the macro-scale, are rooted in the non-linear physics of the curvature of "force-free," least-action states in the sub-atomic domain.

One of the most important lines of inquiry to this effect today, is modern optical biophysics' attention to the decisive role of precisely tuned, inherently coherent electromagnetic pulses in living processes.

Conceptually, this new work belongs to the tradition of Pasteur's work on optical biophysics and the definition of living processes presented by Luca Pacioli and Leonardo da Vinci nearly 500 years ago. **Essentially, modern instruments permit us to detect and measure localized coherent pulses in the range of quanta of emission, leading into what is called today "non-linear spectroscopy" of living processes. The comparison of the results obtained in this way in biological research, with lessons learned from high-energy physics of force-free plasma states, is the key to design of strategic and tactical anti-personnel assault weapons and related applications."**

Frazer, James W. PhD and Frazer, Joyce E.(1988, Mar.Apr.)How Radiofrequency Waves Interact with Living Systems.21st Century.Pg. 50.Dr. Frazer, adjunct professor of pharmacology, University of Texas Health Science Center San Antonio. Dr. Frazer was featured as a weapons expert on CNN's Special Report,1985 and discussed his ten year Air Force career and on electromagnetic effects. His conclusion that "radiofrequency weapons could be the wild-card in the arms race."

"The nonthermal effects of electromagnetic radiation on living cells offer clues as to what is life, as well as to understanding **Soviet research on the possibility of controlling human thought and emotional experience.**" Pg. 54. "In earlier work, Adey's group had shown a modulation sensitive effect on calcium efflux from chick brains. **These findings created considerable controversy**, but were completely substantiated by work done in Environmental Protection Agency(EPA) laboratories at Research Triangle Park in North Carolina. The subsequent history of their group is of interest. Adey's group continued with practical and theoretical **studies of nonlinear response of biological systems to low-intensity fields-but with nearly annual cuts in funding levels. The federal agencies monitoring that work have been fragmented and the people either left or transferred to other fields of endeavor. Price, Frazer, Mori, and all of the people performing the original lymphocyte experiments have resigned, been victims of reductions in force, gone into other areas of research, or retired. Thus, an area of research of great interest to theoretical biology has been very effectively choked off."**

Wellborn Stanley & Daniloff, Nicholas.(1984, Oct. 1 `). Can U.S. Hold Its Lead Over Soviets in Science Race? U.S News and World Report.Pg 53.

"The Soviets, for example, experiment extensively in parapsychology and psychic warfare," in modification of weather and in **the biological effects of microwave and other electromagnetic fields.** Much of this research is given high priority.

Commission on Security and Cooperation In Europe 102nd Congress First Session. The Moscow Meeting of the Conference on the Human Dimension of the Conference on

Security and Cooperation in Europe 10 Sept.-4 Oct.1991. Pg. 9.

"Many individual Soviet citizens also attended, seeking help in redressing grievances against the Soviet system after decades of lawlessness and arbitrary administration of justice. Complaints ranged from unjustified loss of employment **and placement in psychiatric hospitals to subjection to space-based rays launched and maintained by Soviet security organs.** The U.S. delegation was able to do little more than listen to these individuals and forward their complaints to the Soviet delegation or the relevant republican authorities, suggesting to the Soviet delegation that it address the problems of these individuals."

Baker, CB.(1997?). Youth Action News.Pg. 6-7

the 1980 book: Human Possibilities: Mind Exploration in the U.S.S.R. and Eastern Europe, was written by a leading U.S. scientific researcher in parapsychology, Stanley Krippner, Ph.D. The book described the 1960 discoveries of Y.A. Kholodov, a leading Soviet expert on the effects of electromagnetic fields on the brain. ...Krippner continued: "These Soviet attempts to construct holographic models resembles the work of Karl Pribram, who has suggested not only that sensory information is relayed in bits and pieces to be sequentially reconstructed by neuron interaction, but also that sensory cells can interact as to form the sort of interference pattern typified by a hologram."

Baker, CB.(1984?).Electronic Mind-Control.

"At the 1979 U.S. Psychotronic Association conference, Lt. Col. Thomas E. Bearden provided additional information about soviet usage of ELF for mind control ...In 1968, Litisitsyn, who happens to run the documentation center (in the U.S.S.R.) which has all the medical information there, wrote a paper...reporting that the U.S.S.R. had 'succeeded in controlling the induction...of images and sensations... into another biological system--a human being." "...Litisitsyn received his Ph.D. in highly esoteric, non-linear, mathematical brain-wave theory... "Litisitsyn's paper reported that the Soviets broke the genetic code of the human brain. "they worked out 23 EEG band-wave lengths, 11 of which were totally independent. So if you can manipulate those 11,youcan do anything to that living system it normally can do itself--anything at all. This is all from a paper in the (U.S.) Defense Documentation Center--1968, translation from the Soviet Union." "...the relationship between Soviet ELF signals and the Litisitsyn paper was described in a 1978 documentation packet on ELF issued by the Planetary Association for Clean Energy. ... The P.A.C.E. documentation continued: "Litisitsyn also reported that the Soviet scientists have developed and fitted a theory to actual brain wave measurements, and could insert material on electromagnetic carriers, directly into the brain and could control whether or not the process stimulated conscious awareness of the individual." ...The monitoring of time coherent and phase locked psychoactive modulations suggests strongly the following: The psychoactive modulation effectively locks -in the multiple carrier frequencies (say 11 to 23). On these locked -in multichannels, brain-coded information is inserted, feeding it directly into the captured target-brains." "Potentially, almost anything could be inserted in the target

brain/mind systems., and such insertions would be processed by the biosystems as intercranially-generated data/effects. Words, phrases, images, sensations, and emotions could be directly inserted and experienced in the biological targets as internal states, modes, emotions thoughts, and ideas...."

Wortz, Edward C.et al.(198?)An Investigation of Soviet Psychical Research. in Mind at Large. pg. 235.

"The term psychotronics was coined by a French journalist after the analogy with electronics, bionics, nucleonics, and so forth. the Soviets have devised their own term-psychoenergetics. Pg.249

"A review of possible NBIT (novel biophysical information transfer) transmission mechanism that are compatible with current modern physics yields three schemes.

1. VLF and ELF electromagnetic waves.

2. Neutrinos, based on the photon theory of neutrinos.

3. Quantum-mechanical waves, based on the schizophysical interpretation of basic quantum mechanical theory.

Presently, most U.S. and soviet experiments on psychic phenomena, as well as the use of the law of parsimony, would point to ELF/VLF mechanisms, but the other two possibilities cannot be ruled out.

Chapter Four

What Scientists are saying about brain research? What physics, engineering and biology is needed to develop mind control technology? What do scientist believe it takes to decode the brain? What is the level of neurological research today? The answers are conclusive. Will Russian and Soviet scientists develop neurological weapons on animals or humans? It is logical to believe the many claims by victims that brain functions and every nerve of the body can be controlled remotely with current technology.

Here is a list of what distinguished scientists are saying about neurotechnologies. These are just a few of many examples.

Russell, Christine.(1976, Feb. 23).Are Computer Hookups to the Brain Next? The Ultimate in Technology Predicted. Washington Star.

"...Such a prospect, dependent upon progress in **breaking the internal codes of the human mind,** might be possible in as little as 20 years or may take **several decades more,**" according to Dr. Adam V. Reed.[Rockefeller University scientist]. But the 30-year-old experimental psychologist, who was earlier trained as an electrical engineer, expects to see "electronic extensions" of the brain within his own lifetime. His futuristic speculation was part of a symposium on **"Man-Computer relations" yesterday at the American Association for the Advancement of Science meeting** here. Reed acknowledged the need to protect against the dangerous applications of "thought control" -turning human beings into virtual robots-but his emphasis was on what he saw as potential benefits. **...The main limit, however, is the difficulty of unraveling the internal language of the brain. ...**"I think there will necessarily be intermediate steps before people would even want direct hookups," said Dr. John McCarthy of Stanford University's department of computer sciences."

Greenfield, Susan.(1995). Journey to the Centers of the Mind. Towards A Science of Consciousness. W.A. Freeman & Co. NY. Pg. 196.

"If we could explain exactly how consciousness is generated by groups of neurons under certain conditions, it would also mean that we had the ability to manipulate on e another's consciousness to such a degree that it could lead to the effective annihilation of the individual. This specter is comparable to the ultimate, Frankenstein-like feat of the molecular biologist in creating organic life. Whether or not such a world would be a good place in which to live can only again be the stuff of science fiction."

Connor Steve.(1995, May 21).Science:The Last Great Frontier: The Brain is the Ultimate Enigma.The Independent(London).Pg52.

"The human brain is the most complicated structure in the known universe. ...No superlative, it seems, is too grand to explain what is happening to brain research, precisely midway through the **international "Decade of the brain"** **Gerald Fischbach, professor of neurobiology at Harvard,** believes philosophers inquiring into the human condition can no longer ignore the brain experiments that are "among the most urgent challenging and exciting" in all of science. "Our survival and probably the survival of this planet depend on a more complete understanding of the human mind." he says.

Cornwell, John.(1994,Sept.4).A Mindfield For the Brains Trust.Sunday Times. Lexis-Nexis.

"...Penrose the 62-year old Rouse Ball Professor of Mathematics at Oxford...who made his name by collaborating with Stephen Hawking in the 1960s on black holes, was drawn to the consciousness debate in the late 1980s... ..In Shadows of the Mind, **Penrose demonstrates that mathematics and physics are more central to the problems of consciousness than computer science or even biology. At the same time, he urges that physics must take consciousness into its scope.** **"...We must look for a feature of the brain," he says, "that can mediate between the microscopic world of quantum physics and our everyday realm of classical physics."** According to the view prevalent in neurobiology, brain action is

entirely controlled by the interconnected system of "neuron switches" and nothing else: there is no plausible role for the subtleties of quantum action. But basing himself on research of **Stuart Hameroff, an anaesthetist at the University of Arizona, and the work of Herbert Frohlich, a noted physicist who has made important advances in the study of superconductivity, Penrose believes he has come up with a suitable site and structure for quantum activity in the brain.** In his new book he describes how cell structures known as microtubules, found in the branches of neurons (brain cells), have the ability to shrink and expand between the microscopic realms of the quantum and our familiar world of switches," says Penrose. "The microtubules are themselves microscopic tubes made of proteins called tubulins. Each tubulin individually seems to behave something like a switch, increasing neuronal numerosity by something like 10,000m" If Penrose is right, his book may be the first accessible report to a general readership about the site, if not the actual substance, of **the Holy Grail of consciousness the precise point where quantum activity interacts with classical physical activity in the brain.** ...and by body-soul dualists such as the veteran neurophysiologist Sir John Eccles, who believes that a quantum physical effect mediates our spiritual souls and our physical brains. **...Our conscious brains, he declares, are woven from subtle physical ingredients that somehow enable us to take advantage of the profound organization of our mathematically underpinned universe...** ...Penrose confesses he is very far from explanations; but he is adamant that no clear answers will come unless the interrelating features of physics, mathematics, biology and psychology are seen to come together...

Jibu, Mari, Hagan, Scott, Hameroff, Stuart R., Pribram, Karl H., Yasue, Kunio.(1993, August 10)Quantum Optical Coherence in Cytoskeletal Microtubules: Implications for Brain Function. BioSystems 32(1994)195-209.

"Abstract 'Laser-like,' long-range coherent quantum phenomena may occur biologically within cytoskeletal microtubules. This paper presents a theoretical prediction of the occurrence in biological media of the phenomena which we term 'superradiance' and 'self-induced transparency'. Interactions between the electric dipole field of water molecules confined within the hollow core of microtubules and the quantized electromagnetic radiation field are considered, and microtubules are theorized to play the roles of non-linear coherent optical devices. Superradiance is a specific quantum mechanical ordering phenomenon with characteristic times much shorter than those of thermal interaction. Consequently, optical signaling(and computation) in microtubules would be free from both thermal noise and loss. **Superradiant optical computing in networks of microtubules and other cytoskeletal structures may provide a basis for biomolecular cognition and a substrate for consciousness.**

Moravec, Hans.(1988). Mind Children The Future of Robot and Human Intelligence.

Editor's note; Moravec is an MIT professor, well-known and was on the Learning Channel on Dec 16, 1997 on the program Future Fantastic. He explains artificial intelligence and replacing the brain with a computer.

"Perhaps, with advances in high-resolution scanning, it will be possible to achieve this effect without messy surgery: you might simply wear some kind of helmet or headband that monitored and altered the interhemispheric traffic with **carefully controlled**

electromagnetic fields.

Rucker, Rudy.(1997, April 25).Imagined Worlds".International Herald Tribune. Pg. 4.

"By Freeman Dyson. ...Harvard. Reviewed by Rudy Rucker. **"The dominant science of the 21st century will be biology."** [physicist] Dyson expects great advances in two areas of biological knowledge: the gene and the brain. He suggests that the first may give us pet dinosaurs, and the second may bring about "radiotelepathy."..."Radiotelepathy" is a word coined by Dyson to express a surprising but logical idea: You could have something like a cordless phone inside your head. That is, "After the organization of the central nervous system has been explored and understood, the way will be open to develop and use the technology of electromagnetic brain signals."

Dyson, Freeman.(1997)Imagined Worlds.President and Fellows of Harvard College. Acknowledgments.

"This book grew out of a set of lectures given in May 1995 at the Hebrew University of Jerusalem... ...The idea of radiotelepathy first appeared, so far as I know, in the science-fiction novel Last and First Men, written by Olaf Stapledon, in 1931, ...in which the cells of a multicellular creature communicate with each other by means of electric and magnetic fields... **The chief barrier to progress in neurophysiology is the lack of observational tools. To understand in depth what is going on in the brain, we need tools that can fit inside or between the neurons and transmit reports of neural events to receivers outside. ...observing instruments...with rapid response, high band-width and high spacial resolution...There is no law of physics that declares that such an observational tool to be impossible. We know that high-frequency electromagnetic signals can be propagated through brain tissue for distances of the order of centimeters. We know that microscopic generators and receivers of electromagnetic radiation are possible. We know that modern digital data-handling technology is capable of recording and analyzing the signals emerging from millions of tiny transmitters simultaneously. All that is lacking in order to transform these possibilities into an effective observational tool is the neurological equivalent of integrated-circuit technology. We need a technology that allows us to build and deploy large arrays of small transmitters inside a living brain, just as integrated-circuit technology allows us to build large arrays of small transistors on a chip of silicon. ...Radioneurology is in principle only an extension of the existing technology of magnetic resonance imaging, which also used radio-frequency magnetic fields to observe neural structures. A rough estimate based on the available band-width indicates that a million transmitters could be monitored through each patch of brain surface with size equal to the radio wave-length. The factor of a million is the ratio between the radio band-width, of the order of hundreds of millions of cycles per second, and the band-width of a neuron, of the order of hundred of cycles...."**

Greenfield, Susan.(1996, Feb.25).Science: From Socrates to Silicon Chip?; Artificial

Intelligence has evolved so far... So are computers nearly conscious? The neuroscientist Susan Greenfield argues that it all depends on what 'conscious means.'

"...Hence there is obviously a strong chemical-selective element in determining consciousness. ...Admittedly, advanced machines are no longer in thrall to digital on/off operations, and **a silicon "retina" and "neuron" have been built with analogue (ie dimmer switch) properties.**

Superconducting Quantum Interference Device (SQUID)

This is a list of excerpts from books and articles to demonstrate the level of brain mapping and reading today. SQUID seems to be the basis of classified technology used to read brainwaves remotely. In *The Brain Code, Mechanisms of Information Transfer and the Role of the Corpus Callosum* by Noram D. Cook, 1986, he writes Phrases such as the 'brain code' are used to describe the set of fundamental rules concerning how information is stored and transmitted from site to site within the brain. ...how large groups of neurons transmit the images, thoughts and feelings which we suspect are the fundamental units of our psychological lives. ...The perspective on brain function discussed in the following chapters is not claimed to be a complete unraveling of the brain code, but I do believe that it is the beginning of same and that the direction of future developments is already clearly indicated."

Coyle, Anna.(1992, Sept.14). *Science and Technology: The Machine That Watches You Think*. Independent(London). Pg.14.

"Doctors and medical scientists soon will be able to watch the human brain "thinking". With the aid of a device no bigger than a pinhead, they will be able **to see exactly where and how electrical signals are traveling around the brain. ..."We are aiming to build up an image of where the current is flowing,"**says Dr. Steven Swithenby, director of the Biomagnetism group at Open University... ..**Squid is the acronym for superconducting quantum interference device, and it measures magnetic flux or field extremely accurately at ultra-low levels, such as the level reached when a group of neurons in the brain is triggered.** The device is made of a ring of superconducting material, usually niobium metal, a few millimetres wide, with a slice of insulator, a few atoms thick, sandwiched into the loop. when an electric current is applied to this superconductor, the flowing current generates a magnetic field around the wire loop. Inside the superconducting loop this magnetic field is extremely sensitive to any changes in magnetism. If a change in magnetic field is detected, the current flow in the Squid changes to re-adjust the field strength to counter the external force. ...But there is still the problem of interpreting the information. "We can look at what is going on in the head, but **it takes a lot of mathematics to unscramble the whole mess so that we can make a sensible image,"** Dr. Swithenby says. ...**The magnetic field generated by the brain in response to an external stimulus, and measured by the Squid, is about 100 millions times weaker than the Earth's magnetic field,** and a million times weaker than the magnetic fields around overhead power cables. ...A less expensive and more practical

approach, used at the Open University, is to couple the Squid to another device known as a **gradiometer**. In effect the gradiometer is a matched pair of (non-superconducting) magnetometers placed between the Squid and the patient's head. One of the pair measures the external magnetic field outside the brain, the other measured the total field, including the contribution from the brain, and the difference between the two is measured by the Squid....The so-called high -temperature superconductors-metal oxides that can work at temperatures of up to 100 degrees above absolute zero- are the next stage in the development of workable machines. ..."**In three or four years' time, who knows what Squids will be made of?**" Squids are not new: they were first postulated by the theoretical physicist Anthony Leggett at the University of Illinois in the early Eighties."

Author's note. These articles give examples of how thoughts could be detected remotely. It is not impossible, especially with the will to develop this technology before the Soviets do, for example.

Hanley, John M.D.(1985,June17).Aviation Week.Pg. 156.

"...It has never been necessary to stick something into pilots, or anybody else for the purpose of obtaining brainwave signals. It was pointed out 50 years ago by B.H.C. Matthews that non-invasive scalp electrodes provide the necessary sensing, and that is the method most in use around the world today. As for sticking something onto pilots, **the evolution of sensors has a branch of non-adhesive, contact electrodes, highly stable examples of which were developed in our Space Biology Laboratory almost 20 years ago under NASA contracts, and put to practical use in a variety of environments, both space and terrestrial. The continued evolution of the electrode has inevitably traversed the path from nonadhesive and contact to remote, non-contact sensing. Fourteen years ago, Adey and Silver, of the University of California at Los Angeles and Aerospace Corp., respectively, at that time, proposed cryomagnetic sensing of the EEG. Magnetoencephalograms were obtained by Cohen of the Massachusetts Institute of Technology one year later.** Moreover, sophisticated machine recognition of EEG correlates of states of awareness from the subtleties of pilot reclination to sleep in the space environment have been achieved within the last two decades. Clearly, dogmatic assertions that present technology has remained at the stick-on or -in electrode and gross delta wave era belong with scriptural championing of slingshots as state-of-the-art weaponry.

No author. (1989, July 5). Magnetic Fields of the Brain. PR Newswire.Lexis-Nexis.

"The human brain is alive with pulsating magnetic fields. ...The brain's nerve cells, called neurons, are triggered by small electrical currents. This has been known for decades and doctors routinely record the intensity and patterns of these electrical brain waves. ...Today, highly sensitive detectors can spot even these faint magnetic fields and [physicist Samuel] Williamson a member of the American Physical Society, and his colleagues are busy mapping the brain's magnetic activity. Every brain function, from imagining a pay raise to lifting a forefinger, uses the neurons of a specific location. Detecting magnetic fields can pinpoint these geographical areas. In one instance, Williamson discovered

which part of the brain generated a magnetic field when a subject moved a forefinger. Moving the thumb produced fields from a slightly different spot. "Our sensory and motor systems are tied to highly specific brain areas," says Williamson. "in one experiment we passed a brush over the tip-center and base of a person's finger. We found that this produced magnetic fields from three distinct areas of the brain." Magnetic research of the brain is of great interest to surgeons, doctors, and psychologists. **With this tool specific brain locations are being linked to specific body activities. In the area of psychology, monitoring the brain's magnetic activity is helping determine the nature of imagination and thought processes.** ...this feature is from the American Institute of Physics' Science Report."

No author.(1996,Oct.8).Pictorial Proof of Brain Damage Caused by Cocaine and Alcohol Seen in New Quantitative EEG Studies:BEAM Study Provides New Light on Brain Disorders. PR Newswire.

"Measurements of "brain waves" using state-of -the-art **quantitative electroencephalography (QEEG) -- or brain electrical activity mapping (BEAM)** demonstrate that both cocaine and alcohol abuse/dependence significantly worsen such pre-existing brain abnormalities as attention-deficit hyperactivity disorder (ADHD), major depression, mental distress, anxiety disorder, and paranoid schizophrenia, according to medical research by Eric R. Braverman, MD. and Kenneth Blum, Ph.D. both affiliated with the PATH Foundation, a not-for-profit scientific foundation of Princeton, New Jersey. **...since they[QEEG and BEAM] are relatively easily, quick and potentially inexpensive to administer...Unlike other brain imaging techniques, it can be administered in a doctor's office. ...Other work by Drs. Braverman and Blum, as well as by other researchers, suggests that a mentally ill population--including teens and adults--have strongly disturbed brain waves even prior to their substance abuse. This study again documents that the mentally ill population have brain electrical and chemical imbalances. ...BEAM is a brain stress test using light, sound, cognition, and electrical stimulation to generate dramatic pictures of total brain health..**

High-temperature Superconductors

(HTSC) contains the theory and basis for the technology used for remotely detecting brainwaves from a distance. Currently the military is developing it for remote sensing. While this may not be the classified mind reading technology used today, the point is to see that the level of technology is possible and the scientific theory behind mind reading can be figured out, even if it is classified. Please note that the Jonathan Tennenbaum article mentions HTSC and it's use for mind control weapons. Here is a list of articles on HTSC with brief comments.

Hewish, Mark.(1992,June 1). High-temperature Superconductors. International Defense Review. Vol.25. No.6; Pg. 624.

"The United States government Office Of Technology Assessment believes that electronic components using high-temperature superconductors

(HTSCs) will be available by the mid-1990s....DARPA(the US Defense Advanced Research Projects Agency) has awarded several contracts for work on HTSCs. E-Systems'Melpar Division leads a team--including several universities and specialist companies such as Superconductor Technologies and Conductus--that has a \$9.7 million contract from the agency to demonstrate a feasible approach to defense applications of HTSCs by 1994. ...HTSCs first made their appearance in 1986, when two researchers at the IBM laboratories in Zurich--who won a Nobel prize for their work...Radio-frequency energy encounters some resistance even in a superconductor, but this is negligible at frequencies below 1 GHz. ...Most radars of military interest operate at frequencies below 120GHz... ...Superconductors additionally exhibit the Meissner effect. A magnetic field will not penetrate a superconductor cooled to below its transition temperature. This effect is exploited in electromagnetic rail guns, and superconductors are also almost perfect materials for magnetic and electromagnetic shielding. SQUIDs (superconducting quantum interference devices) have military applications in magnetometers used to detect submarines and mines. SQUIDs can detect the most tenuous magnetic fields, even those generated by brain cells. They exploit the properties of a Josephson junction, which is constructed from two superconductors separated by a non-superconducting layer. Lockheed has built an HTSC SQUID... ...The phenomenon of superconductivity was discovered in 1911, but the first high-temperature superconductors(HTSCs) did not become available until 75 years later.

Rose, Stephen.(1994, Dec.1). Off Line: The Life of Brain. Guardian(London). Pg.14.

"...Helsinki is the site for Europe's most powerful neuromagnetic measuring system. ...In 1929, the Swiss amateur physiologist Hans Berger taped a set of recoding electrodes to a person's scalp and found he could record continuous bursts of electricity pulsing through the brain. ...As every O-level student knows, where there is an electric current, there is a magnetic field at right angles to it. So too in the brain - except that because the currents are tiny, so are the magnetic fields, around one millionth billionth of a Tesla. ...Then you can measure the oscillating millisecond fluxes of the brain in real time. Furthermore, unlike the EEG, granted enough mathematical sophistication and computing power, you get a good idea of the location of the electromagnetic source in the brain. In Helsinki the neuromag is linked to an online recording system that enables an experimenter sitting outside the sealed room to scan the records of the 122 channels arrayed across the inmate's head, I was strongly reminded of that ancient philosopher's dream, a 'cerebroscope' that would enable a person to observe their own thoughts. Magnetoencephalography is the nearest neuroscience has yet got to such an instrument...."

Editor's note. The above article in bold describes as briefly as can be done, the probable scientific basis for reading thoughts remotely. It is scientifically possible. The major details almost certainly are classified.

No author.(1990, Sept.17).**Professor Guy Deutsch** Joins Xsirius Superconductivity Inc.PR Newswire. Lexis-Nexis.

"Xsirius Superconductivity Inc. ...,a Scottsdale firm engaged in commercializing high-temperature superconductors, announced recently that Dr. Guy Deutscher has agreed to serve as a key consultant for the company in its international effort to bring high-temperature superconductors to the marketplace. Deuthscher is **one of the key innovators of the important superconducting device--the "SQUID" or Superconducting Quantum Interference Device** and holds a patent for this device. SQUIDS are used to detect extremely weak magnetic fields and are potentially useful in such applications as submarine detection and in measuring subtle electromagnetic signals from the brain. Deutscher has been professor of physics at Tel Aviv University since 1973. ..and has since established a reputation as a world-renowned authority in the field of superconductivity."

Editor's note; The following article states that remote sensing technology can be fixed in satellites. It is not impossible to develop a method for remotely reading brainwaves. The level of technology is here today.

No author.(1990,July12).Federal Germany Develops Superconductive Antenna For Space and Medical Use. Xinhua General Overseas News Service. Lexis-Nexis.

"...has successfully developed a superconductive antenna for space and medical use. The antenna, made of high-temperature superconductor, can be fixed in satellites to receive the electromagnetic wave emitted by earth so that researcher can exactly determine the humidity in soil and the content of water vapour. The antenna can also be installed in medial instruments to help doctors determine the faint signals from brain and heart."

Brown, Malcolm.(1989,June6).Hopes for Superconductivity Begin to Fade.New York Times.Section C.P. 1.

"...[American Superconductor Corp.]The company was founded two years ago in collaboration with scientists from the Massachusetts Institute of Technology to create high-temperature superconducting wire. ...Conductus Inc. of Sunnyvale, Calif., which draws expertise from scientists at Stanford University and the University of California at Berkeley..."

Editor's note. The above article also shows how universities, the military and private business are working closely on military technology.

No author.(1997,June16).Superconductive Magnetic Shield: Hitachi Group. Comline Daily News Electronics. Lexis Nexis.

"Japan Science Foundation(JSF) has certified that Hitachi Chemical Co. and Hitachi Cable,Ltd. have successfully developed "manufacturing technology for bismuth-lineage superconductive magnetic shields." JSF, which consigned the project to the two companies, claims the shields are much smaller and consume considerably less energy than existing types. One superconductive shield, developed by Hitachi chemical, will be **used for measuring weak biological magnetic fields....** ...According to JSF sources, the former shield can dampen external magnetism by more than five digits and

the later to a level close to that of geomagnetism.

Editors note. The scientists are stating that the technology is possible and many other articles below indicate the interest and level of technology today. Mind Control technology is a growing area of research and victims claims of remote reading of thoughts is possible, especially since this book only lists unclassified sources.

Military and Government Research

Here is a list of articles on what the military and government are researching and how they are developing this technology. There is research into detecting and using every body signal including brainwaves, for example for pilots to fly using their thoughts and for soldiers and remote battlefield medicine. Victims claims are not farfetched. It becomes clear that the technology can be tied to victim's allegations.

Marsh, Alton K.(1979, Jan.29). USAF Studies Arming Weapons Vocally. Aviation Week. Pg. 239.

"...Thus far the research has resulted in the ability to predict the perception and recognition of letters. ...The area of evoked brain response development and applications holds promise as a method of automatically compensating for pilot fatigue. It can also assure the pilot will not make errors during the flight, by taking the pilot's brain waves through unobtrusive sponge sensors in the flight helmet. **Evoked response refers to "driving" the brain, forcing it to emit brain waves at regular intervals, either through use of light flashes in the eyes or laboratory-generated clicks in the ears.** It is research that has come into its own only in the last two years. **By measuring the amplitude of the brain waves generated,** fatigue of the pilot can be recognized. By increasing the brightness of the instrumental panel lights, the amplitude of the brain waves can be returned to their normal height, thus compensating for fatigue. To get the "evoked response" from the pilot's brain, the instrument panel lights could be made to flash so fast that the pilot would not be aware of the flashes. **Researchers think the brain can "register" up to 145 flickers per second,** Lt. Col Robert D. O'Donnell, an experimental psychologist, said. It also could be used to prevent errors, **since scientists have discovered that responses occurring after the wave could be "locked out" electronically, preventing a pilot from making an error,** O'Donnell said. **...The follow-on system aims a small amount of near-infrared light into the subject's eye, causing a spot of light to be reflected off the cornea. The spot is picked up by a remote oculometer and fed to a computer, which calculates the angle between the center of the eye pupil and the spot.** ...Later, after the remote oculometer has been combined with more advanced simulation capabilities, work will be directed toward a helmet-mounted oculometer to track eye movement.

Uhlig, Robert.(1997?). The End of Death: "Soul Catcher" Computer Chip Due.Electronic Telegraph(England)(From CNI News).

"A computer chip implanted behind the eye that could record a person's every lifetime thought and sensation is to be developed by British scientists. ..Dr. Chris Winter, of

British Telecom's(BT) artificial life team. Dr. Winter's team of eight scientists at BT's Martlesham Heath Laboratories near Ipswich calls the chip the 'Soul Catcher.'BT's **official futurologist, has measured the flow of impulses from the optical nerve and nerves in the skin, tongue, ear, and nose....**"For example, police would be able to use it to relive an attack, rape, or murder from the victim's viewpoint to help catch the criminal." Editor's note. Delores Hejazi claimed to have experienced this. See CAHRA website under Intelligence tools.

No author.(1985,Sept.)Advanced Technology Report.Defense & Foreign Affairs.Pg.35.

"...In California, it is rumored, a University-sponsored experiment has found that brain waves emitted by patient volunteers in a mental hospital have successfully controlled the switching of electric trains, making them go and stop at will. **...Sources said it even has a name by which it is known around DARPA (Defense Advanced Research Projects Agency): a "psychotronics."**

Gourley, Scott et al.(1995, August1).Saving Lives While Saving Money: Military Medicine Moves From MASH to Star Trek. International Defense Review.Vol.28.No.8.Pg.45.

"...The US Department of Energy's Pacific Northwest Laboratory(PNL), in collaboration with the Madigan Army Medical Center, is developing an Advanced Imaging System (AIMS) that uses **ultrasound to locate and monitor internal injuries.** ...Over the next three years, PNL and Madigan will develop **a portable field prototype consisting of an imaging array, with 1024 transducers,** measuring 5x5cm; ...If initial work on AIMS is successful, it could be followed by two further phases. The first of these, lasting two years, would replace the earlier transducer array with a **conformal gel blanket have an area of some 2500cm. a subset of the array, placed around a body cavity, would be sequentially scanned to generate a larger and more detailed image.** ...a possible further phase, lasting three years, would involve developing an **"imaging bed" with an area of 1000cm. This would contain an array of high-resolution ultrasonic transducers and perform additional functions, such as magnetic-resonance imaging, and ...** ...PNL says that is **may even be possible, by this stage, to monitor the patient's brain by using advanced electromagnetic sensors."**

Bucholtz,Chris.(1995, May3).Thought Control A Step Nearer.Flight International.Lexis-Nexis.

"Scientist at the Aeronautical Systems Centre (ASC) at the US Air Force's Wright-Patterson AFB, Ohio, are studying the use of brain-actuated control techniques as a means of controlling aircraft. ...In the past, the problem with thought-control techniques has been **discerning the faint electromagnetic brain signals which accompany voluntary thought from the flurry of "background noise" in the brain caused by everyday activity.** In the ASC experiments, pilots in a simulator face two fluorescent lights, which pulse at **13.25 Hz. This causes nerve cells in the subject's visual cortex to fire at the same frequency. Electrodes on their heads detect the resulting brain-wave patterns, feeding them to an amplifier and a filter. The filter picks out the 13.25.Hz waves and measures their power.** A bar scale displays a measurement of these waves, which allows the subjects to

learn how to vary the intensity of their brain responses. On the simulator, heightened intensities cause it to bank to the right; depressed intensities cause it to bank to the left. ..."They say it's like learning to walk..." Project physicist John Schnurer adds..."

Scott, William.(1994, Aug.15).No title.Aviation Week and Space Technology.

"...For more than 30 years, the U.S. military services have been intrigued with the concept of linking human brains with computers or other hardware. A retired colonel confirmed that the Army conducted experiments in the 1960s aimed at controlling air defense missiles with brainwaves. More recent research attempted to improve the combat performance of U.S. special forces, which rely on critical timing and zero-margin teamwork. ...An industry scientist said that the Army's Research Institute worked on a variety of "neurotechnologies" in the mid-1980s, ostensibly abandoning the program--although there are indications to the contrary. Since these activities were classified, military officers will not comment on the success or failure of such programs. In any event, more than 2,000 "white world" technical papers and research reports describe aspects of neurophysiological work in the U.S., Europe and the former Soviet Union. Only recently, however, has there been a concerted effort to harness research results and convert them to concrete applications. ...M Barry Sterman...A 30 year veteran of neurophysiology research, Sterman is a professor at the University of California-Los Angeles School of Medicine...Sterman's focus is on "neuroregulation," a term that highlights the neurological response to cognitive demands {of B-2 pilots}... ..A pioneer in this effort is Advanced Neurotechnologies, Inc.(ANI) of Colorado Springs, Colo. Its founder, Richard Patton, combined a personal computer, sensors, commercial electronics, a Motorola 56000 digital signal processor and proprietary software routines to create what he calls the "BrainLink" system. Sensors attached to a headband--or adhered directly on the client's scalp--detect brainwaves that approximate a traditional electroencephalogram(EEG).Signals are amplified and converted from analog to a digital format**, then fed to a Motorola digital signal processor. The DSP performs a **high-resolution fast-Fourier transform**, converting the time-domain brainwave signals to the frequency domain. ...**teaches a client to control the display and tones, which correlate to desired brainwave patterns associated with specific mental states.**"**

No author.(1996, March 12).ARPA Battlefield Care Project to Shake Up Medicine. Armed Forces Newswire Service.

"DOD's Advanced Research Projects Agency(ARPA) has quietly ignited the most radical series of technological changes to hit the practice of medicine since the invention of X-rays. ARPA's medical-technology stable includes an array of high-fidelity virtual-reality medical training and diagnostic simulators; **satellite-aided tele-diagnostics for soldiers, now being used for Bosnia operations; tiny embedded diagnostic sensors; telerobots that let remote MASH surgeons operate on badly wounded soldiers; miniature intensive care units that automatically monitor soldiers; and infusively treat soldiers being helicoptered from front lines to MASH units; and high-speed networks that can automatically fuse data from giant databases around the world. The most crucial**

component of future combat care, said Richard Satava, ARPA's biomedicine program manager, is the personal status monitor(PSM), **a continuously worn monitor that he would like to see woven into the soldier's clothing. The PSM would monitor a wide range of vital signs and also host external communication, GPS and other functions. Tied into the PSM might be clothing with "sensate liners," that would detect projectile exit wounds** and infer the organs damaged by defining the pathway from entry to exit wounds. Today's edition of Technology Transfer Week reports Satava is particularly excited about a dime-sized PSM sensor, originally developed to fit on bumblebees for radio tracking, that is woven into clothes, and mounts a tiny radio and vital signs sensor.

No author.(1995,June1)The Power of Thought.Daily Mail(London).Pg.40.

"...special electrodes being developed by researchers at the Wadsworth Centre in Albany USA. **They attached electrodes to the scalps of volunteers and asked them to move a cursor towards a target on a video screen by thought. Tiny electromagnetic brain signals were amplified by a computer deciding when and how to move the cursor.**

No author.(1995,Mar.25).Short Takes;American Topics.International Herald Tribune (France).Lexis-Nexis.

"...The brain emits electrical signals of only a millionth of a volts or so. **But studies financed by the National Institutes of Health show that these signals can be amplified enough so that by conscious effort, the subject can move a cursor on a computer screen.**

Stork, David G.(1996?).Hal's Legacy 2001's Computer as Dream and Reality.MIT Press. Pg.164.

"Raymond Kurzweil. ...There are already precursors of such a project. For example, **a few years ago Carver Mead's company, Synaptics, created an artificial retina chip that is, essentially, a silicon copy of the neural organization of the human retina and its visual-processing, as the human brain does.**"

Smith, Cyril W. & Best, Simon.(1989). Electromagnetic Man. Pg. 236.

"A team at York University's Physics Department, for example, has built and tested a 'Faraday magnetometer' under contract to GCHQ, to pick up very weak magnetic fields, possibly for use in remote eavesdropping(The times, 1988)."

Chapter Five

Here are a few articles which describe the Korean brainwashing of the 1950s. It clearly demonstrates the necessary political will to support a massive effort to control man before the Russians do, including projects to solve the mysteries of the brain for political and military purposes. The Korean brainwashing scare seems to be the event that triggered the race for the brain code.

No author. (1977, Aug.2). Mind-Control Studies Had Origins in Trial. New York Times.

In the summer of 1977, it may be difficult for Americans to comprehend the frame of mind of the men who nearly 30 years earlier started the Central Intelligence Agency's effort to manipulate human behavior. As some of the former high-ranking CIA men recall now, they had looked into the vacant eyes of Joseph Cardinal Mindszenty at his treason trial in Budapest in 1949 and had been horrified. They had been convinced that his confession had been wrung from him while he was either under the influence of some mysterious, mind-bending drug or that he was standing before the dock in a post-hypnotic trance. The sight touched off memories of earlier "show trials" in the Soviet Union. The CIA leaders were certain the Communists had embarked on a campaign to control men's minds and they were determined to find a defense, setting out in earnest the next year-1950-with Project Bluebird...

Slesin, Louis.(19?)."Zapped? Radiation at Greenham Common Peace Camp" The Nation. Editorial Pg. 313.

Louis Slesin editor of the publication Microwave News stated: "In The Search for the Manchurian Candidate, published in 1979, John Marks relates that in response to a Freedom of Information Act request, **the CIA told him that it had a roomful of files on electromagnetic and related techniques to alter behavior and stimulate the brain. The agency refused to release the papers, and they remain classified.**"

Subcommittee on Health and Scientific research of the Committee on Human Resources United States Senate, September 20 and 21, 1977.

Gottlieb, Sidney, Md.. former CIA agent. Pg.169.

"In the judgment of the CIA, there was tangible evidence that both the Soviets and the Red Chinese might be using techniques of altering human behavior which were not understood by the USA and which would have implications of national survival in the context of national survival in the context of national security concerns at that time. **It was felt to be mandatory and of the utmost urgency for our intelligence organization to establish what was possible in this field on a high priority basis.**"

Pg. 202. "Dr. Gottlieb. ...As I remember it, there was a current interest, running interest,

all the time in what affects people's standing in the field of radio energy have, and it could easily have been that somewhere in many projects, someone was trying to see if you could hypnotize somebody easier if he was standing in a radio beam. ...I would remind you that the problem of radio waves and what it does to people is [an] extremely current interest in connection with events in an important embassy overseas now. There is great concern about that."

Chapter Six

The history of science, the military, corporations and government involvement from the 1940s up to today. Classified military research was used to fight the cold war. It can be seen how mind control technology could be developed out of the public eye and with the support of top officials. Teams of elite scientists were used to tackle military problems. The Cybernetics Group, Brain Research Institute, the Institute for Defense Analysis and their JASON Group and also their Golden Fleece Group are a few examples given below. Prominent scientists were given military funding generated by the race to surpass the Russians.

By looking at the nature of the scientific military organizations which sponsor Manhattan Projects, the origins of mind control research can be found. This is the point of this lengthy but very interesting information. Atomic bomb research and mind control research do follow a similiar pattern. The same corporations, military offices, scientist's names and leading officials are repeatedly found in several different sources listed below. Radiation and mind control experiments occurred in the cold war era within the same bureaucracy.

McDougall, Walter.(1985)The Heavens and the Earth. Basic Books.

"...the AAF, however, turned to is new advisory body, the RAND Corporation, for an independent opinion on the prospect and value of an earth satellite. ...the USAF also assigned RAND the task of "continuing studies of the potential military utility of earth satellites-including work on the use of such devices for cold war politico-psychological advantage for communications and for purposes of observation." **...In March 1954 Eisenhower summoned the Office of Defense Mobilization's Science Advisory Committee and apprised its members of the growing danger faced by the United States....It was imperative that the best minds in the country attend to the technological problem of preventing another Pearl Harbor. The result was the Technological Capabilities Panel(TCP) Report, or "Killian report," ...Its authors included James F. Killian, later president of Bell Labs,...Edwin H. Land, inventor of the Polaroid camera ...and over forty scientists and engineers. Reporting to the NSC in a "full-dress" secret session,** The Killian panel presentedEisenhower had commissioned another top-

secret strategic review. Entrusted to H. Rowan Gaither, Jr., of the Ford Foundation, who fell ill, it was completed under Robert C. Sprague a veteran consultant from the Killian panel) and such luminaries as William C. Foster, John J. McCloy, Frank Stanton of CBS, and Jerome Wiesner. They reported ...a crash program on R & D for defensive systems, a national fallout shelter program costing upward of \$25 billion,... ...Spy satellites proved successful beyond the most sanguine expectations of laymen(what Edwin Land and the technicians expected is unknown). ...During the same weeks the Kennedy transition team eagerly polled scientist, academic, and military and civilian strategists for their views on the shape of things to comeBy New Year's 1961,two U.S. spy satellite programs verged on brilliant success. Thanks to the energetic advocacy of Richard M. Bissell, Jr., of the CIA,... ...The International Telecommunications Convention of 1973, which possesses treaty status, regulated the use of comsats and radio frequencies. ...By 1963 the government supplied 88 percent of the entire Caltech budget, 66 percent of MIT's 59 and 56 percent of the

University of Chicago's and Princeton's and a 25 percent chunk of Harvard's and Stanford's.

Buderi, Robert.(1996). The Invention that Changed the World: How a Small Group of Radar Pioneers Won the Second World War and Launched a Technological Revolution.Simon and Schuster. Pg. 470.

"...For starters, with some two thirds of national defense contract R&D dollars going to sixty-eight corporations, and an astonishing 40 percent to only ten companies,... ... Roosevelt died before [**Vannevar**]**Bush** completed the Document ...Science-The Endless Frontier on to Harry Truman. It was a land mark document that formed a focal point in a lengthy congressional debate over the best method for distributing federal research funds and ensuring the scientific, technical, and economic prosperity of the Nation. ...The stalemate continued until a compromise was reached in early 1950. ... Capitalizing on their five-year head start, the armed services, led by the Office of Naval Research, became the main supporters of academic research and NSF's strength was diluted further by the emergence of the Atomic Energy Commission and NASA as additional funding sources."

Brown, Anthony Cave.(1982).Wild Bill Donovan. The Last Hero. Times Books. Pg. 802.

"...In 1948 Donovan was to find out for himself how weak the CIA had become. That year the secretary of defense, James Forrestal, invited him to **serve on a small secret committee consisting of Dr. Vannevar Bush**, Admiral Sidney Souers, and General Alfred M. Gruenther, to study the problems of defense against **unconventional attack** against the United states , including clandestine attack employing biological weapons, .. The subject was divided into **seven subjects for investigation: ...4. Certain special applications of psychological warfare(i.e., thought control or special mode, as it was called).**

Becker, Robert O. & Selden, Gary.(.). Body Electric. "**The establishment's attitude toward EMR (Electromagnetic Radiation) health effects are based on the work of Herman Schwan. Schwan was a professor in Germany during most of the Nazi era, who was admitted to the U.S. in 1947 and accepted a job at**

the University of Pennsylvania doing most of his research for the DOD (Department of Defense)." Editor's note. Many scientists such as Dr. Schwan may have had a "need to know" security clearance. This is important to keep in mind because there are many examples of scientists working on parts of classified projects without knowing the whole picture.

Kaplan, Fred.(1983). Wizards of Armageddon. Simon & Schuster.

Pg. 189. "In 1949, a group of six Institute professors, including Bernard Brodie and Kaufmann, was hired by the social science division of the RAND Corporation in Santa Monica to do part-time work analyzing psychological warfare."

Kaplan, Fred.(1960?). Scientists at War The Birth of The Rand Corporation. American Heritage.

Pg. "By the Fall of 1947 the RAND staff had grown to one hundred and fifty. For anyone interested in some vague combination of mathematics, science, international affairs, and national security, RAND offered an ideal setting. There was an intense intellectual climate but no teaching obligations or boring faculty meetings. **There was access to military secrets but no military officers from whom to take direct orders.**"

Szulc, Tad.(1975, Dec.). The Mind Readers and Other Tales of Science Fiction Research by the Pentagon's Think Tank. Washington Monthly. Editor's note. This article found in a very important congressional hearing, **a must read. Subcommittee on Constitutional Rights of the Committee on the Judiciary US Senate.(1976) Surveillance Technology Policy and Implications: An Analysis and Compendium of Materials.** Pg.1036.

"...As matters now stand, scientists from the Massachusetts Institute of Technology to the University of California and a dozen other famous schools are involved in ARPA research. Some of these scientists belong to a **highly exclusive, informal group known as the "Golden Fleece," men and women picked in the late 1950s by the Pentagon-funded Institute for Defense Analysis for some of the most esoteric and complex defense research. ARPA, upon its birth in 1958, immediately received the benefit of the talents of these "Jasons," as they are still called. ARPA officials says that some 20 "Jasons"-an elite, informal, almost secret group-are still at its disposal. Over the years, the "Jasons" have been holding quiet brainstorming sessions at hideaways around the country to feed ARPA ideas.**"

Science Against the People. Berkeley Sespa. **The Story of Jason-The Elite Group of Academic Scientists who, as Technical Consultants to the Pentagon,** have Developed the Latest Weapon Against Peoples' Liberation Struggles: "Automated Warfare."(1972) Pg. 3. "At the end of World War II many of the country's leading scientists, who had been involved in such war research as the atomic bomb and radar, left full-time government work and returned to the college campuses . The military, of course, did not want to lose all this valuable talent. In addition to it's own "in-house" laboratories, the Defense Department sought to establish ongoing consulting liaison with first-rate scientists. At first this service was obtained through the RAND

corporation and some scientific advisory committees attached directly to the Pentagon; some scientist also consulted for industrial corporations working on defense contracts. The industrial consulting jobs did extremely well, but the scientists involved felt that they were not close enough to the center of power to influence policy decisions. On the other hand, scientists in Washington often felt restricted by the particular government agency they consulted for and also found the government consulting fee scales to be very low. Therefore, the idea of a new, independent research and consulting organization arose: **This was the Institute for Defense Analyses, IDA. Set up nominally as a private, non-profit corporation**, IDA worked on the basis of contracts with the Pentagon for particular research problems of interest to the military. IDA could determine its own salary scales and it hoped to attract high calibre scientists with the promise of considerable "freedom" of their choice of problem to be worked on. **A group of the very brightest young scientists was recruited into a sub-group of IDA called Jason.** The whole success of this enterprise depended upon establishing it as a mark of highest prestige to be invited into this elite group. **IDA's Cold-War Ideology.** The original political-philosophical outlook of IDA and Jason was boldly stated in terms of cold-war ideology. Their literature of ten years ago told of the creation of IDA as arising from "the inescapable realization that International Communism is imperialistic in nature and that its goal is no less than world domination." ..."Jason and the "McNamara Fence" **The most detailed public account of Jason's contribution to the Vietnam War is contained in the Pentagon Papers: the 1966 Jason summer study which gave birth to a new form of technological warfare, now known as the automated, or electronic battlefield.** ...Early in 1966, a clique of Harvard-MIT scientists with high level connections in Washington persuaded Defense Secretary Robert McNamara to sponsor a special study on "technical possibilities in relation to our military operations in Vietnam." With this prompting, McNamara formally requested the scientist to look into the feasibility of "a fence ...warning systems, defoliation techniques and area denial weapons." **This special scientific study group was assembled under the auspices of the Jason Division of IDA, the group of 47 scientists represented "the cream of the scholarly community in technical fields"..."a group of America's most distinguished scientists, men who had helped the government produce many of its most advanced technical weapons systems since the end of the Second World War**, men who were not identified with the vocal academic criticism of the Administration's Vietnam policy." **This Jason study group met during the summer of 1966, starting off with a series of briefings by high officials from the Pentagon, the Central Intelligence Agency, the State Department and the White House. They were given access to secret materials. ...thus we are drawn to conclude that the clique of top-level scientific advisors were instrumental not only in initiating the electronic battlefield ideas(1966), not only in helping the implementation of the system in Vietnam(1968), but also in extending this new warfare system to a world-wide capability(1970).** ...The technological wing of the military-industrial complex does not necessarily win wars. We have seen that it certainly can help prolong them. **...Since most Jason work is highly classified, and it is customary to keep secret the titles and even the very existence of most highly classified reports, we can conclude that this information represents only the tip of the iceberg.** ...One of the distant branches of the sensor development has been described by **Joseph A. Meyer, a computer specialist working for the National Security Agency and funded by the Department of Defense ("Crime Deterrence Transponder**

Systems", IEEE Transactions AES-7 no. 1, January 1971): "A transponder surveillance system is based on three ideas. First, parolees, bailees, or recidivists will each carry a small radio transponder, which cannot be removed, as a condition of their release. This transponder will emit a radio signal which gives a positive and unique identification. Second, a network of surveillance transceivers will interrogate transponders in a neighborhood. Third, a realtime computer will receive the transponder reports, update location and tracking inventories for each subscriber, and control the surveillance process. Every subscriber must be accounted for at all times. ... For urban areas, a mesh of transceivers would scan the streets, communicating with central computers to provide a public surveillance network." Meyer goes on to discuss special problems: Harlem--"a high crime area"; group actions and large-scale confrontations; juveniles;etc. [Here is a list of Jason members, that were also mentioned elsewhere in this paper.] Princeton University and Institute for Advanced Studies Freeman Dyson ...**Kenneth Watson (Professor of Physics, UC, Berkeley) Watson was one of the group that founded Jason in 1959. At first they were thinking of forming their own private consulting company, but they finally decided to let IDA be their business manager; This avoided the problem of profits (taxes). There is usually a 6-week summer study session and then a couple of long weekend meetings during the school year. Government people come and outline problems they would like Jason to solve. Most of the work is for the Defense Department. The purpose of Jason is to supply purely technical information for the government;** it is non-political. Jason has never taken a position on any subject, as an organization. We are just a group of individuals... ...As to his personal attitude about the military, he said that since it is an \$80 billion budget he couldn't make a blanket statement.

Heims, Steve J.(1980). John von Neumann and Norbert Wiener. MIT.

Pg. 180. "While the high technology with which each was concerned led directly to weapons development, it suggested incidentally to both men similarities in principle between machines and organisms, particularly parallels between high technology and **the human nervous system.**"

Pg. 275. "In May 1953 von Neumann assumed the chairmanship of the nuclear weapons panel of the Scientific Advisory Board of the US Air Force...In May 1954, von Neumann had occasion to make a list of all the organizations to which he was a consultant, twenty-one in all, mostly government organizations but also some private companies. The latter included the Standard Oil Company, IBM Ramo-Wooldrigdge, the Rand Corporation.

Forman, Paul.(1987)Behind Quantum Electronics: National security as basis for physical research in the United States, 1940-1960. HSPS, 18:1.

Pg. 160. "Raytheon had particularly close ties to MIT: Vannevar Bush had been one of its founders..." Pg. 170. "During the 1950s the cumulative number of announced and available number of papers properly published in U.S. physics journals-about 50,000-but it was probably only some small percentage of the (unknown) number of **security classified reports in physics** and its technical applications prepared in that decade. Pg. 173. "As Marvin Kelly,President of Bell Labs, told the banqueting members of the American Physical Society early in 1957, "the ivory towered existence is no more...37" 37.

"...Bell Telephone Laboratories were different only to the extent that 40% rather than 80% of their budget came from DOD." Pg. 202. 87. "...Thus A. Abraham's massive Principles of Nuclear Magnetism(Oxford, 1961) is above all else, a treatise on quantum electronics." 88. "...at Bell Labs some 2000 scientists and engineers were engaged in war work;" 89. "...Similarly, "the tremendous advances in the fundamental investigation of paramagnetic materials...is in great part due to the existence of microwave equipment and techniques which were evolved during the war," Pg. 208. 103. ..."In June 1952 an Air Force spokesman implied that slightly more than half of the research sponsored by that service at universities and university-affiliated laboratories was classified, but that three-fourths of that classified research was performed in six institutions where classified research was segregated in affiliated laboratories;... Pg. 214. "In September 1959...a symposium on "Quantum Electronics-Resonance Phenomena,"The Office of Naval Research,...realized the growing significance of the field of quantum electronics, which is actually producing a revolution in microwave techniques." Pg. 222. "...asking why those tilling the most fundamental of all fields of physics accepted such a "utilitarian and pragmatic, but fragmentary, concept of science with the consequent abandoning of its traditional aim of the unification of knowledge." In answer Cini, pointing particularly to the **Institute of Defense Analysis' "Jason" group**, and stressing that inclusion in this consultative elite functioned as a mark of scientific eminence among U.S. theorists, suggested that this drastic shift in epistemic goals "was not a mechanical adaptation [to] an environment...but an active identification of its own interests-in the widest sense-with the ...objectives...and the scale of values of the American society of those years by a leadership that came from within that environment."

Heims, Steven J.Cybernetics Group. MIT.

"Another group of physicists displayed their self-confidence after the war by invading the traditional domain of biology, proposing to unravel the code-script embodied in the genes as suggestion in Erwin Schrodinger's widely read book with the enticing title What is Life? (1944). A dedicated group of researchers who became known as the "phage group" formed around Max Delbruck and Salvador Luria and gathered in the summers at Cold Spring Harbor on Long Island: they were as narrowly goal-oriented as the designers of the atom bomb had been during the war. In this group young researchers obtained the training and orientation that eventually led to the discovery of the structure of the DNA molecule and creation of the new discipline of molecular biology."

Editor's note. There are many articles which show that scientists and the military were very interested deciphering the brain.

Halacy, Daniel S. Jr.(1960) Bionics Science of Living Machines. Holiday House.

"...Among the organizations that assisted are the Department of Defense and its individual services, Cornell Aeronautical Laboratory, Inc., Massachusetts Institute of Technology, the Applied Physics Laboratory of Johns Hopkins University, Stanford Research Institute, General Electric Company, Lockheed-California Company... ..**Dr. W.R. Adey** of the University of California at Los Angeles. Speaking of another scientific symposium in 1960, he said: "For collaborative engineering efforts to be fruitful, we would respectfully ask that the engineer first learn his biology." There were 30 speakers at the first Bionics Symposium, and about 700 in the audience representing engineers,

physicists, mathematicians, psychologists, psychiatrists, biologists... They listened to papers typified by the following titles: ...Problems in Bio-Computer Design, What Good are Artificial Neurons?

Rose, Frank.(1984).Into the Heart of the Mind.Pg. 42.

"The Sloan Foundation is betting \$20 million that it can, and that should count for something. **The Sloan foundation is the less splashy of New York's two great automobiles philanthropies.** Unlike the Ford Foundation, it doesn't conduct its business in a plate-glass cube on East Forty-second Street. Its headquarters are in a very private office suite, thickly carpeted and painted a safe beige, high above Fifth Avenue in Rockefeller Center. **Nor is it in the habit of supporting causes that might be considered questionable or avant-garde. Throughout its fifty years of existence, Sloan has... Its interest in cognition began in 1970 with the decision to support the emerging discipline of neuroscience-the study of the brain. Seven years and \$15 million later, with neuroscience established as a respected academic endeavor, the officers of the foundation began looking around for something else to support. The neuroscientists suggested cognitive science. In 1976 the foundation announced that it was following their advice, and the race for funding was on.**

Editor's note. **The Brain Research Institute.** This is just one example of how the **same top scientists may know of or have developed the technology for classified mind control related research under professional organizations with strong government connections.** The researchers include Dr. West(New York Times, CIA behavior control experiments, see CAHRA website, human rights abuse report, prisoners.), Dr. Brazier, Dr. Adey, Dr. Pribram, Dr. Lilly(government work), Dr. Sweet(mind manipulation for political purposes, according to Professor Alan Schefflin), Dr. Frey(microwave hearing, See CAHRA Timeline). The UCLA Office of Sponsored Research (at 310-825-4031) contract Specialist on 2-17-98 stated the policy on classified research at UCLA. **For the last ten years UCLA has not and does not conduct classified research.**

Steneck, Nicholas H.(1984). The Microwave Debate.MIT Press. Pg. 86.

"So it was that the Air Force Systems Command, a primary recipient of most of the translated Soviet reports, contacted the head of the Brain Research Institute at the University of California, Los Angeles, for the purpose of calling a conference on **Neurological Responses to External Electromagnetic Stimuli.** The announced purpose of the UCLA meeting was to discuss scientific explanations that might account for a number of reports of apparent central nervous system and behavioral effects being received by the air force."

Pg. 84. "One year after the conference and Knauf's report, Soviet scientist traveled to the United States to attend the Fourth International Conference on Medical Electronics. The papers they presented plainly indicated that Soviet researchers, unlike their U.S. counterparts, were extremely interested in the consequences of **low-level, athermal effects, particularly on the central nervous system.** ...A.N. Obrosof, noted that **Soviet scientists had been studying personnel effects since 1942.** ...If there

were important discoveries to be made, the United States could not be caught napping, as it had been with the launch of Sputnik in October 1957. ...Translators working for the National Aeronautics and Space Administration, the air force, the army and Bell Labs in Whippany, New Jersey, began pouring through Soviet journals to find out just how much they knew about RF bioeffects. ...Lewis Bach ..."These reports have been going on for many, many years and I think we ought to ...on likely clues and likely lines and push them very hard to see if there is something or if there is not something..." ...Following the UCLA conference, the military, which controlled the RF bioeffects pursestrings and therefore made the major policy decisions, decided both to fish and cut bait. **Publicly talk of athermal effects was downplayed. Open contracts were not awarded for athermal or central nervous system studies, and in fact efforts were even made to keep information about central nervous system research from circulating too widely. Privately, however, the military and the State Department began work to try to determine whether there was any factual basis for a belief in the direct effect of RF radiation on human behavior and whether perhaps the Soviets had gotten the jump in exploiting such effects for espionage and military purposes.**"

Brain Research Institute, UCLA. Third Annual Report. July 1, 1963 to June 30 1964.

Pg. 35. "...**Dr. Adey, with the association of Mr. Kado and Dr. Porter, developed a method of measuring impedance in brain tissue, providing an entirely new dimension in which to study the functional capacity of neural tissue.** Having been used extensively in animals, the method was used during the past year in assessing brain function of patients where, in general, comparable responses were obtained.

P 61. Conferences. "Conference on Speech, Language and Communication. Sponsored jointly by the United States Air Force Office of Scientific Research ...1963." Participants included ...**Lilly, John C. Communication Research Institute, Coconut Grove, Miami, Florida, Pribram, Karl H. Dept of Psychiatry, Stanford U., Sweet William H. Neurological Surgery, Adey, W. Ross.**

Pg. 64. Air Force Conference on Neurological Responses to External Electromagnetic Energy ...1963. Participants included **Frey, Allen W.** Institute for Research State College, Pennsylvania, **Institute of Defense Analysis, Ad Hoc Committee for Secretary of Defense McNamara.**

Pg. 71 Consultants or Advisors to State, Federal or International Agencies. International Brain Research Organization Council(Brazier...) ..Weizmann Institute, Israel-**Medical Electronic and Biocomputing** (Estrin).

Wright, Stephen.(1994,Jan.29).Weapons of Control.New Scientist.Pg.55.

"...Way back in 1970, US congressman James Scheur commented that: '**As a result of spinoffs from medical, military aerospace and industrial research, we are now in the process of developing devices and products capable of controlling violent mobs without injury. We can tranquilize, impede, immobilise, harass, shock, upset, stupefy, nauseate, chill, temporarily**

blind, deafen or just plain scare the wits out of anyone the police have a proper need to control and restrain.' The 1972 Security Planning Corporation report on nonlethal weapons to the National Science Foundation listed 34 different types using electrical, optical, acoustic, thermal, kinetic impact, chemical irritant and barrier devices to produce control effects. ...any of us might become future targets, since in reality these weapons will form part of the future's technology of political control.

Tigner, Brooks.(1996, April 7). Israel To Join EU in Tech Research. Defense News. Pg. 3.

"Israeli companies are preparing to join a broad range of strategic high-technology research projects funded by the European Union (EU) following an unprecedented accord signed last week between Brussels and Tel Aviv. ...Scientific and research contacts between Israel and the European Union date back to 1975 and include work on nearly 100 joint research projects in material engineering, opto-electronics and **neurosciences.**

Editor's note. This book is long so just skim to the area you are interested in! The purpose of this book is to show the interest in mind control, to show similarities to what the victims describe and the goals of military neurological researchers, to show the money invested in this technology and how classified it is. These are the main points. The following articles are **examples of the search in the 1940s by scientists for the basis of human consciousness and for its control.**

Heims, Steven.(1991). Cybernetics Group. MIT

Preface. "The subject of this book is the series of multidisciplinary conferences, supported by the Macy Foundation and held between 1946 and 1953, to discuss a wide array of topics that eventually came to be called **cybernetics.**" Pg. 11. ...included several mathematicians (Norbert Wiener, John von Neumann), engineers (Julian Bigelow, Claude Shannon), a neuropsychiatrist (Warren McCulloch), and a polymathic genius (Walter Pitts). Some members of this group had proposed that their concepts useful in engineering and biology,... For lack of a better collective name we shall refer to this group as the cyberneticians, although they would never have used this term themselves. ..."Fremont-Smith [Josiah Macy Foundation] was so cautious that I got the impression he was anxious to keep something private- ...Much later I learned of the CIA involvement, **...(the Macy Foundation's records have not been open for researchers).** At the Macy meetings, as the unedited transcript shows, the political conditions were discussed explicitly from time to time. **Some participants were government consultants who worked on "classified" topics kept secret from other researchers; their priorities were such that they skipped attendance at the conferences whenever the government called.** McCulloch described the situation at the beginning of the ninth meeting **in 1952:** I would like to say that two things have interfered with our gathering this time. One of those is an increasing source of anxiety to me...**Thing after thing that one or another person has wanted to discuss at this meeting has been locked up for "secret."** I have no idea how far that process will go in time to come. **I know that von Neumann had something he wanted to talk to us about and that it is secret. I know that some stuff that Bavelas wanted to talk about to us has become secret. And so it goes.** Pg. 251.

"I looked up Bateson in Sea Life Park in 1968. I had written to him in connection with my interest in the history of the Macy cybernetics meetings. His response was, **"There is certainly a piece of scientific history to be dug out of these meetings-I believe more profound and dramatic than The Double Helix."** Pg. 256. "John Stroud, who also used cybernetics to give form to his personal metaphysics and synthesis, was a lively, active participant at the Macy meetings. Everyone at the conferences agreed he was a bright and talented young scientist, but a quarter-century after the meetings several participants asked me, "Whatever became of John Stroud?" ... He is something of a mystery figure. A McCulloch protege, ...He spent most of the rest of his working life as a civilian employee of **the U.S. Navy, his work hidden from the scientific community by the veil of military secrecy.**

McCorduck, Pamela.(1979).Machines who Think.P.46

"In 1942, at a meeting sponsored by the Josiah Macy Foundations in New York, Arturo Rosenblueth presented the ideas that would appear the following year in the Philosophy of Science paper. In the audience was Dr. Warren McCulloch of the University of Illinois Medical School, who had long been interested in the organization of the cortex of the brain. McCulloch, a neurophysiologist, had already begun working with Walter Pitts, a mathematician, on a mathematical description of certain neural behavior. In 1943, the same year that the Rosenbueh-Wiener-Bigelow paper would appear. McCulloch and Pitts would publish **"A Logical Calculus of the Ideas Immanent in Nervous Activity"** in **Bulletin of Mathematical Biophysics**....the paper goes on to describe a logical calculus and principles for constructing a class of computing machines that would permit the embodiment of any theory of mind or behavior ...their publication could well be taken as the birth of explicit cybernetics."

Editor's note. Here is just one of numerous similar articles.

"A Method for the Remote control of Electrical Stimulation of the Nervous System-E. Leon Chaffe, Professor of Physics, Harvard University, and Richard U. Light, Instructor in Surgery, Yale University School of Medicine. Yale Journal of Biology and Medicine Volume 7, Number 2 December 1934.

Editors note. I.I. Rabi may have consulted with the government to decode the brain. It is one of the many research leads to follow. I.Rabi worked for the MIT Radiation Lab to develop radar for World War II along with a who's who of physicists, Hans Bethe, Luis Alvarez, Ed McMillan, to name a few. Radar is a device that can detect invisible or distant objects by means of reflected radio waves and is capable of locating them accurately in space. He is known as the discoverer of Nuclear Magnetic Resonance in Molecular Beams.

"Isidor Isaac Rabi(The scientist in public affairs) has been Associate Director of the Radiation Laboratory of the Massachusetts Institute of Technology, and Chairman of the general advisory committee to the Atomic Energy Commission. He has been Higgins Professor of Physics at Columbia University since 1950, and is a member of the President's Science Advisory Committee. He was **awarded the Nobel Prize for Physics in 1944.**"

Calder, Nigel, editor. 1968. Unless Peace Comes, Scientific Forecast of new Weapons. Viking Press.

Ramsey, Norman.(1956)Molecular Beams.Oxford at the Clarendon Press.

"The molecular beam magnetic resonance was first introduced by **Rabi** and his associates (RAB 38 KEL 39) in 1938. ...Precision measurements of nuclear, molecular, and atomic properties began in 1938 with the introduction of the molecular-beam resonance method by Rabi and his associates (RAB 38,KEL 39). At first, the resonance method was applied to the measurement of nuclear magnetic moments only, but it was soon extended as a more general technique of radiofrequency spectroscopy initially by Kellogg, **Rabi**, Ramsey, and Zacharias (KEL 39a) in applications to molecules ...

Bar-Ilan University Press.(1996).Pioneers of NMR and Magnetic Resonance in Medicine: the Story of MRI. Pg. 567-8

Richard R. Ernst. Pioneer of Fourier-Transform NMR and Two-Dimensional NMR Spectroscopy and Imaging. "...improving the sensitivity of the technique tenfold or even hundredfold... ..Fourier transformation and pulse techniques, what is that? Let me try to illustrate it through an analogy. Remember first that spectroscopy is very much concerned with the detection of signals from a sample containing some compound. Assume that you are interested in finding out how well tuned a piano is. ...The traditional, "old-fashioned" way of doing this would of course be to hit each key in succession and record the frequencies-the signals from our sample if you wish. ...Now there is a much faster way of getting the same results: ...hit all keys at once. You have now performed a pulse experiment. ...But how could you possibly extract the individual tones from the cacophony? ...Fourier transformation. ...Savings in time can be used in another way, to increase sensitivity. To continue our analogy, ..."signals" from the [piano]strings barely audible about the background noise in the room. Now you could improve the detection of these weak signals by hitting the keys of this same piano 100 times every sixth second and adding the result. This would improve the signal-to-noise ratio tenfold... ..When Fourier transform NMR was introduced around 1970 it had a tremendous impact on the applicability of NMR technique to chemistry.

Cannon, Martin(1980?). The Controllers.Internet.

"...In his autobiography The Scientist, **John C. Lilly**....records a conversation he had with the director of the National Institute of Mental Health--in 1953. The director asked Lilly to brief the CIA, FBI, **NSA**, and the various military intelligence services on his work using electrodes to stimulate directly the pleasure and pain centers of the brain. Lilly refused, noting, in his reply: **Dr. Antoine Remond**, using our techniques in Paris, has demonstrated that **this method of stimulation of the brain can be applied to the human without the help of the neurosurgeon**; he is doing it in his office in Paris without neurosurgical supervision. This means that anybody with the proper apparatus **can carry this out on a person covertly, with no external signs that electrodes have been used on that person**. I feel that if this techniques got into the hands of a secret agency, they would have total control over a human being and be able to change his beliefs extremely quickly, leaving little evidence of what they had done."

Editors note. **Dr. Antoine Remond, Centre National de la Recherche Scientifique, Paris(France)** is on the Handbook Editorial Committee of the International Federation of Societies for EEG and Clinical Neurophysiology, 1978. **J Lilly, K Pribram** Dr. Adey and many other top scientists attended Brain and Behavior Conference in 1961 and many other similar conferences. **There are many research leads to follow.** A.S. Gevins, co-editor with Dr. Remond conducts eeg research funded by "Office of Naval Research, the Air Force Office of Scientific research..." The following articles demonstrate the active search to solve the mysteries of the brain and to develop this knowledge, continuing up to the present time.

Pribram Karl H. (1996)?.Rethinking Neural Networks Quantum Fields and Biological Data. Pg. 156-7.

"B. Multiple Personality "Personality" is a consistent pattern of responses to stimuli and situations. In QND, the personality of the stochastic filter is determined by the locally homotopic mappings of experience onto the neural domain and by the configuration of discontinuities between homotopic domains. **A conscious train of thought consists of a well-formed wave packet propagating within the neural domain in response to the combination of inputs from a number of sources, including the sensory apparatus and the outputs of other domains at various levels of abstraction.** When the probability density corresponding to this wave packet produces an expectation that does not compare well with the actual ensemble of inputs, the result is a potential field gradient (or "barrier", if it is sufficiently steep) that deflects the wave packet toward states associated with less prediction error. Suppose that when the network's personality is being formed, it experiences a deliberately consistent "diabolical" training in which certain common experiences are interrupted with frustrating or painful intervention. QND learning will encode the painful experience on the trajectory so that it will be properly predicted as a consequence of the prior experience. (Incidentally, QND learning models classical conditioning even though it is simple Hebbian, because of the causal dynamics of the Schroedinger equation.) whenever the common experience subsequently occurs without the intervention of the diabolical agent, the extreme difference between the expected punishment and the benign experience drives the conscious wave packet away from the states where the pain was stored. This "avoidance" has two consequences, one obvious and the other subtle. The obvious effect is that the deflected wave packet will generate an **altered behavior pattern**. The subtle effect is that the neurons where the painful patterns are encoded will be prevented from receiving enough probability to allow the patterns to be corrected. Now suppose that the diabolical training is "extensive", both figuratively and literally. that is, suppose that it succeeds in placing other **avoidance patterns** into a geometry that surrounds and isolates a large cognitive domain from the rest of the neural network. Subsequently, wavepackets that form in that domain will be trapped there, and that domain will then develop a personality that is distinct from the personality of the exterior domain(s). But the entrapment is not permanent: **Quantum tunneling provides a mechanism for penetration of the barrier, after which another distinct personality emerges.**"

Editor's note. Dr. Pribram is a Stanford University Professor, a very credible professional. The above excerpt was a quantum level description of multiple personality. (See Operation Mind Control by Walter Bowart,1978 and 1995,Flatland Publishing for

military involvement in this area of research). **This is very significant proof that the brain code has been discovered.**

Baker, CB. ELF Biological Warfare Upon America. Youth Action News. PO box 312 Alexandria, Virginia 22313.

"...neurophysiologist Karl Pribram has spent most of his career documenting the holographic model of the human brain. ...holography is a method of lensless photography in which the wave field of light scattered by an object is recorded on a plate as an interference pattern. when the photographic record --the hologram --is placed in a coherent light beam like a laser, the original wave pattern is regenerated. A three-dimensional image appears. ...Any piece of the hologram will reconstruct the entire image." Ken Wilbur[wrote Holographic Paradigm, 1982] described the work of the great quantum physicist David Bohm who "says that the hologram is a starting point for a new description of reality: the enfolded order. ...Also electron beams could do the same thing or sound waves could make holograms, any form of movement could constitute a hologram... ...Marilyn Ferguson[wrote Brain Revolution1970?] who stated: "the holographic supertheory says that our brains mathematically construct 'hard' reality by interpreting frequencies from a dimension transcending time and space. The brain is a hologram. Michael Talbot [wrote The Holographic Universe, 1991] "Any wavelike phenomena can create an interference pattern, including light and radio waves... ...described the work of an eighteenth century Frenchman named Jean B.J.. **Fourier who "developed a mathematical way of converting any pattern, no matter how complex, into a language of simple waves. He also showed how these wave forms could be converted back into the original pattern."** ...could be achieved mathematically,...Fourier transforms...These enable the Nobel Prize winner Dennis Gabor (in 1947) to convert a picture of an object into a blur of interference patterns on a piece of holographic film. ... **In 1979, Berkeley neurophysiologists Russell and Karen DaValois discovered that the human brain utilizes Fourier mathematics--"the same mathematics holography employed--to convert visual images into the Fourier language of wave forms."** Other scientists "discovered that the brain's visual cortex was responding not to patterns, but to the frequencies of various wave forms." Another group of scientists had discovered that "the human ear was a frequency analyzer" and that our "our skin was sensitive to frequencies of vibrations."

Adey W. Ross, Proctor, Lorne, Technical Editors.(1964, Oct29-30). **Symposium the Analysis of Central Nervous System and Cardiovascular Data Using Computer Methods.** Washington, D.C.NASA

Contents... Visually-Evoked Potentials Recorded Transcranially in Man. ...Antoine Remond. ...Concepts of Cerebral Organization Arising from Time Series Analysis of Neurophysiological Data...W. Ross Adey. ...Frank Ervin."

Editor's note. And yet another lead to follow, Alan Gevins, electroencephalography, President SAM Technology, Inc. San Francisco, CA. Gevin is listed as a Contributor to the 1996 USAF SAB which contains the drastic predictions of electromagnetic weapons on humans(see CAHRA website, Intelligence Tools). He also authored the article Obstacles to Progress in 1987 EEG Handbook Volume 1 p 668 and makes a telling

comment. "...Another line of advanced research which may temper the strict epiphenominalist view suggests that **low-intensity, low frequency electromagnetic fields have the capability of influencing the metabolic activity of individual neurons (see review in Adey 1981). If so, such fields could play a significant role in mass neural information processing.**

Lawrence Albert & Adey W.Ross.(1982)Nonlinear Wave Mechanisms in Interactions between Excitable Tissue and Electromagnetic Fields.Neurological research, Vol. 4 Number 1/2 p 115.

"It is now well established that intrinsic electromagnetic fields play a key role in a broad range of tissue functions, including embryonic morphogenesis, wound healing, and information transmission in the nervous system. These same processes may be profoundly influenced by electromagnetic fields induced by an external force. **Tissue exposure to extremely low frequency(ELF) and ELF-modulated microwave fields at levels below those inducing significant thermal effects has revealed highly nonlinear mechanisms as a basis for observed effects.** ...A model is proposed for interaction between excitable tissue and electromagnetic fields, based on nonlinear waves in the cell membrane, with ionic interactions as an essential step."

Mackay, Donald.(1980).Brains, machines and Persons.

"One of the most powerful computational techniques for extracting significant information from brain signals is called 'cross-correlation'. To take a simple example from the work of one of my former colleagues, Dr. D.M.Regan, a flickering light in front of a patient's eyes elicits a weak flickering electrical response from the brain. Often this is less than one millionth of a volt in strength, as recorded from the scalp, and so is normally swamped by the background of general brain activity (typically 10 to 50 millionths of a volt in strength). Dr. Regan devised a simple analogue computer system to multiply together the signal controlling the flickering of the light and the mixture of signals from the brain. Cross-multiplying, followed by averaging, has the effect of steadily enhancing any brain signals that are in step with the flickering input, and averaging out those that are not. As a result, even the feeble responses to flickering light from a nervous system damaged by multiple sclerosis can be easily measured.

Jastrow, Robert.(1981).Enchanted Loom.Simon & Schuster.

"...This research has barely started, but the pace of the progress is astonishing. In one recent experiment, scientists attached electrodes to the rear of a subject's skull, just above the brain's center of vision. They discovered that this region emitted different electrical patterns, depending on what the subject was looking at. Circles, squares or straight lines-each had its special pattern of electrical waves. In another experiment, scientists detected a special signal that seemed to signify excitement or elation, coming from the seat of feelings and emotions in the brain. Looking at these electrical records, the scientist can tell something about the thoughts and feelings in a person's mind, and the impressions that are passing into his memory.

Rose, Frank.(1984). Into the Heart of the Mind.P.189.

"...in which NASA cosmologist **Robert Jastrow** foresees the day when brain scientists will be able to dump contents of the mind directly into the circuitry of an electronic computer.

Macay, Donald M. A Mind's Eye View of the Brain. Cybernetics of the Nervous System.Volume17.Elsevier.

"...Few scientists have been more successful than Norbert Wiener... **...The time-honoured problem of relating mind and brain has recently received a new twist with the evolution of artifacts capable of mind-like behavior.** ... "I am greatly indebted to the RAND Corporation for assistance in transcribing the talk, given in their Santa Monica Laboratories,...

Wiener, Norbert.(1965).Cybernetics of the Nervous System.Schade Elsevier.

"...The big new principles in the field of physics were slowly being contemplated. Men like Wiener searched for basic concepts, like the random distribution of matter, **and relation of matter and electromagnetic radiation**, the quantum state of energy in matter, relativity, etc. ...In this early period of Wiener, culmination with his production of the book **The Fourier Integral and Certain of its Applications in 1933**,... ... Another consideration of Wiener at this time was the phenomenon of **harmonic analysis of particles**. This is related to the study of Brownian motion , and is the natural outgrowth from quantum mechanics' representations of matter in the form of wave functions. With harmonic analysis this clearly is Wiener's earliest work into 'rhythmic systems.'" This would later come to dominate all his work, and he stressed the importance for **neurophysiology**. **...a statement by the Russian neurophysiologist A.V. Napalkov. "We believe that new research methods, engendered by the development of cybernetics lead to a radical change in the methods which so far have been used in the study of the brain.** ...In Wiener's belief the property of brain waves is one of **highly specific microradiation**. **...Dr. Wiener find that his ideas about specific types of radiation associated with nucleic acid complexes randomly scattered within neurons, when applied to encephalography should bring about productive results.** "Encephalography has been too much in recognizing wave patterns subjectively. Too little has been done for determining what actually happens there....We have not done enough work making **atlases of frequency distributions**...This method is looking for specific numbers."

Wiener, Norbert. Rhythms in Physiology with Particular Reference to Encephalography.

"...I am not a physician, I am a mathematician. ...In this lecture I have intended merely to give you a general idea of what my concepts are concerning brain waves. Research work in this line is under way at several places; it is going on in the laboratory of Dr. Lindsley and Dr. Gray Walter, and I hear that an interest in this field is developing in Germany and Russia.

Editors note. Top scientist such as **Wiener and Dr. Mary Brazier of the UCLA**

Brain Research Institute and many others, worked or collaborated together and with the same government and private funding. This is where to look for mind control research. The following article states one problem in deciphering brain signals. But current technology could overcome this obstacle.

McCulloch, Warren S.(1965).Embodiments of Mind.M.T.T. Press.

P v. "There are two kinds of goals directing the current arts of artificial intelligence(AI), parallel distributed processing(PDP), and the hard-wired nets that process images or sounds. The first are products that are useful to industry and the military. This pays for the research. ...**Signal-to-noise relations limit considerably the observations that can be made on a living system.** ...When Warren, Walter, Pat Wall, and I came to MIT, it was with the aim of marrying **physiological data to advanced speculation on how a nervous system works.** ...Wiener's letter at the end of three weeks was a lively diatribe on **noisy nonlinear systems** that were clearly designed to frustrate right-thinking analysts. ...McCulloch and Pitts ...1943 paper which provides for the first time a set of mathematical instruments sufficiently powerful for the conceptual description... and the investigation of the frog's visual system that culminated in the brilliant experiments... [McCulloch] still held that in the end there would be an **algorithmic description of the processes that engendered what "perceptual" operations** we found. ..The **retina is a machine...** logical gates but **more complex analog processors.**" Pg.3. "...in 1952, I went to the **Research Laboratory of Electronics of the Massachusetts Institute of Technology to work on the circuit theory of brains.**"

Pg. 230. J.Y. Lettvin, H.R. Maturana, W.S. McCulloch, and W.H. Pitts. (1959). What the Frog's Eye Tells the Frog's Brain.IRE.

"This work was supported in part by the ..USAF Office of Sci. Res, ...US Navy(Office of Naval Res.); and in part by Bell Telephone Labs, Inc. Editor's note. This is a very important and interesting paper.

Pg. 216. "McCulloch, Warren S. M.D. Since 1952 Dr. Warren S. McCulloch has been a staff member engaged in the Research Laboratory of Electronics at the Massachusetts Institute of Technology. ..is also well known as one of the founders of the group who have developed Cybernetics. He was Chairman of the Macy Conference on Cybernetics during its life from 1946 to 1951... ...But Gentleman the title of my paper is not facetious. At the **behest of the Mathematical Sciences Division of the Office of Naval Research(ONR), I spent two months abroad, questioning "Where is fancy bred?"** ...Dr. Sem Jacobsen spoke well, but gingerly, about implanted electrodes;...hostility ..in the press and lost him financial support for implanted electrodes...has made trouble for Dr. Sherwood[in England] But France is a Catholic country. ...facilitated the work in New Orleans and at Rochester. Percival Bailey, who was one of the first to implant electrodes keeps his copy of the Pope's letter in his desk. In Boston Jim White and **Bill Sweet** have just been blessed, not merely for implanted electrodes, but...So much for implanted electrodes. **They are here to stay. Through them we will record activities in structures heretofore inaccessible,** locating the womb of Fancy. ...But let us get back to Salpetriere, where there were many good anatomic and psychologic papers. But the work **of Antoine Remond was the**

crowning success of the meeting. Long years ago he had come to my laboratory in Chicago... combined with accumulators that let him use hundreds of repeated stimulations and so raise the signals way above the noise. **The resulting maps of the first special derivative on the surface of the head are impressive. To go from these to the second derivative, which locates the nervous activity as well as possible, is still done by a laborious longhand computation. ...Today it can be done electronically, ..It may take three years to build the gadgets. Remond's work was so impressive that the National Institutes of Health and the European Office, Air Research and Development Command, are now backing it financially,** but I understand that Bugnard and Alajouanine are of the opinion that it will raise the envy of those who have done nothing new. ...**John Lilly** failed to show, and I, as his fellow-American, was commanded to speak on a mathematics suited to neurology. ...Between visits to laboratories and lectures to theoretical physicists, engineers, psychiatrists, and physiologist, I found time to work with **Sherwood on the third component of the Laplacian of the cerebral cortex.** ...But my principal business in England was the study of artificial intelligence. ...When I reached the National Physical Laboratory for Uttley's symposium on "**The Mechanization of Thought Processes,**" ...But what I saw in Russian faces was that their scientists, like ours, know they are confronted by the problem of the Rabbi of Chelm with his Golem,...**The vigil must be endured, even if it entail "Q" clearance.**{Q is a national security clearance.} ...On the landing here, I made my bow to ONR and began to contact my Human Factors friends in Astronautics. They could use these circuits. ..Let me recapitulate its discoveries. **1. For the good of patients, implanted electrodes are here to stay; and through them, whether psychiatrists like it or not, we will learn where fancy is bred."**

Jeffress, Lloyd A.(1961), Facsimile of the 1951 Edition). Cerebral Mechanisms In Behavior. The Hixon Symposium.Hafner Publishing Co.

"Members of the Hixon Symposium...Warren S. McCulloch, John von Neuman, Linus Pauling...the Hixon Fund was established in 1938 by a grant to the California Institute of Technology ...to support scientific endeavor which offers promise of increased understanding of human behavior.

Editor's note. This article demonstrates the continuing research for figuring out the process of sight, the same line of research based on the same theory, over twenty years later.

Marsh, Alton K.(1979, Jan.29).Special Report: US Air Force; Research and Development: Changing Patterns USAF Studies Arming Weapons Vocally. Aviation Week. Pg. 239.

"...If you could pull off the brain waves through sensors in a helmet," laboratory commander Col. Roy L. DeHart said, "just the thought wave could be used to activate various devices on the airplane by the turn of the century. I'm implying the pilot could call up switching, or select things[such as head-up displays] through thinking about it". ...**Fundamental visual process research, headed by Capt. Arthur P.Ginsburg and Mark W. Cannon, is aimed at providing a mathematical description of man's visual capabilities.**

Editor's note. For many reasons, most scientists have not protested scientific research for military purposes. Here are a few who did.

Gray, Chris Hables.(1997).Postmodern War.Guilford Press.

Pg. 234-5"**...Norbert Wiener, ...did substantial war work at MIT, but by the end of 1946 he said..."I do not expect to publish any future work of mine which may do damage in the hands of irresponsible militarists". Pg. 237. "Or Prof. Joseph Weizenbaum of MIT, who has called on computer scientists not to do vision research since it is framed by military priorities."**

Editor's note. People do make a difference. Here is another example from Gray. Pg.255-6. "...a woman named Katya went into the Vandenberg Air Force Base and smashed some computers for the Navstar system, part of World War IV command-and-control network set up by the Pentagon with secret Black Budget funds. The economy of punishments paid her back with three years in a cage to try and forge the link in all our heads: protest=prison. **She has moved to subvert such an equation by earning early release and then graduating from Harvard Law School."**

Chapter Seven

Sensors technology has been highly classified and billions of tax dollars were spent for its development during the Vietnam War. The U.S. military and corporations then sold this technology to Europe. Many parallels to mind control technology can be drawn. The importance and funding of bionics, replacing man with electronic eyes and ears, to the military can be seen in the following examples. Sensors development is like the development of the atomic bomb. It is a science-corporation-military-government bureaucracy which has national security classification, no accountability, massive funding and military goals to develop lethal technology. This cold war bureaucracy rationalized government radiation experiments in order to defeat the diabolical communist enemy. Sensors technology has been found guilty of the similar crimes. Now mind control victims are alleging the same problems. This is how the unthinkable can happen, how something horrible like radiation experiments and now mind control experiments happen.

Sensors technology is a part of the revolutionary change in military thinking. Technology has and is changing the nature of war. The use of sensors and the electronic battlefield in Vietnam was a turning point for waging wars. Many analogies to mind control technology development can be drawn from this example. It is clear that the political will at that time and today, favors the military-corporation goals. It becomes clear that mind control experimentation could take place and with the approval of top officials. The role of secrecy, the interest of the military to develop high

technology and the serious implications of a lack of oversight are all contributing factors to the **proliferation** of sensors and now mind control technology.

Barnaby, Frank.(1984). Future War Armed Conflict in the Next Decade.Facts on File Publications.

Pg. 72 "...On the battlefield of the future, enemy forces will be located, tracked and targeted almost instantaneously through the use of data links, computer assisted intelligence evaluation, and automated fire control. With first round kill probabilities approaching certainty, and **with surveillance devices** that can continually track the enemy, the need for large forces to fix the opposition physically will be less important. I see battlefields on which we can destroy anything we locate through instant communications and ..." This version of the **automated battlefield was described as long ago as 1969 by General W.C. Westmoreland, then Chief of Staff, US Army. The General based his statements on his experiences of new war technologies in the Vietnam war. Like most wars in the Third World, the Vietnam war was used enthusiastically by military scientists to test their new inventions under operational conditions.**"

Pg. 74. "Sensors. A sensor is a device used to detect the presence of matter or energy and locate it. The sensors on the automated battlefield may be sensitive among other things to light, sound, magnetic fields, pressure and infra-red radiation. They can transmit information about enemy forces by radio over long distances."

Barnaby, Frank & Huisken, Ronald.(1975).Arms Uncontrolled. SIPRI.

Pg. 60. The Automated Battlefield. ...The sensors on the automated battlefield can be sensitive either to the same physical stimuli as the human senses, for example light or sound, although usually with greater sensitivity, or to physical stimuli which is not directly detectable by a human being, such as infrared radiation, magnetic fields, electromagnetic waves, and so on."

Editor's note; For more information, see World Armaments and Disarmament SIPRI Yearbook 1974. Chap. 11. Here is a list of some sensors **available in 1975. Acoustic seismic, radiofrequency, magnetic, chemical radar and infrared.** Homing devices(infrared seeking and radar-seeking, laser guided and television cameras were also available at this time. The **above book also quoted General W.C. Westmoreland..."Currently we have hundreds of surveillance, target acquisition, night observation and information processing systems either in being, in development or in engineering. These range from field computers to advanced airborne sensors and new night vision devices...** SIPRI goes on to say "...The fully automated battlefield as envisaged by General Westmoreland...should probably not be anticipated, at least on such a scale, for some time to come. **"The main concern in the recent public debate has been focused on the possibility that indiscriminate use of weapons might follow from the introduction of automated battlefield systems."**

U.S. Senate, Electronic Battlefield Subcommittee of the Preparedness Investigating Subcommittee of the Committee on Armed Services, Wed. Nov. 18, 1970 Pg. 1-5.

Senator Cannon. "...I want to make it very clear at the outset that the electronic battlefield program is not a clearly definable program as such. This term is used as the most readily available phrase to describe the many and varied types of equipment whose mission is to detect and locate enemy troops. ...Essentially, the key area of interest that gave rise to this inquiry was the development and use of sensor surveillance equipment which constitutes a new technique and innovation in locating enemy forces in South Vietnam. **Former Secretary of Defense McNamara made the decision in 1966 to place in operation a military concept known as the McNamara Wall.** Although this concept was never fully implemented, it did lead to the development and production of many types of sensor devices. These sensor devices were placed in operation in Vietnam on a very high priority basis. ...I do want to make one thing very clear to all the witnesses who will appear before this subcommittee. **...we do not want nor will we entertain any testimony that would jeopardize the safety and security of our forces or operations in Vietnam....we will receive this testimony later in executive[closed, classified]session.** ...General Deane. ..."I personally think **it has the possibility of being one of the greatest steps forward in warfare since gunpowder.** ... There has been a lot of **misinformation about this program on the floor of the Senate because we have not been able to release information that has been properly very highly classified.** Statement of Maj. Gen. John R. Deane, JR, USA Director, Defense Communications Planning Group[DCPG]. "...I welcome the opportunity to report to you regarding the activities of DCPG. I shall briefly cover the history of DCPG; the sensor-aided combat surveillance systems... ...DCPG Established. In August of 1966, a scientific group known as the **JASON Committee proposed** to the Secretary of Defense a concept for inhibiting enemy troop and supply infiltration into South Vietnam by means of an air-supported barrier system, supplemented, of necessity, by a conventional barrier system. These systems basically called for the use of electronic sensors to detect enemy personnel and vehicles...

Editor's note. Please see article under section six for more information on the Jason group.

SESPA(1972). Science Against The People. The Story of Jason. Pg. 18.

"...Extracurricular Activities. A number of Jason scientists also involve themselves in the interaction of science with politics through non-governmental organizations. Drell, Goldberger, Glaser and Townes are all leading figures in the **Federation of American Scientists (FAS)**, a 26-year old group of liberal, establishment scientists which tries to influence government policies on weapons development through Congressional lobbying. In a recent mailing, FAS Chairman Goldberger[a Jason member] asks scientists to "join with us in asking the Administration for a full accounting of past and present Executive Branch actions" concerning work on weather-modification in Vietnam and elsewhere. ...SESPA would ask FAS whether they also judge American pioneering in the use of the automated battlefield to be an intolerable misuse of science, and whether the many former (and current) Jason and PSAC people in the FAS should be expected to cooperate in a "full disclosure" of these and other weapons they have studied for the military.

SESPA (1971, Jul).

Pg. 28 "Electronic Battlefield, Inc. by Chris Robinson ...article describing the Pentagon's development of the electronic battlefield. Utilizing sensors systems... **Companies involved include RCA, Westinghouse, Hughes, Honeywell, General Electric, Litton, Motorola, and ITT.**"

SESPA(1973,Jan.).

""Humint" (human intelligence) seeks to detect people by amplifying their heartbeats and eyeball reflections."

Dickson, Paul. (1976). The Electronic Battlefield. Indiana University Press.

Pg. 37. "Anyone collecting bizarre weapons, weapons concept, and associated equipment will find the Vietnam era to be an especially fertile time for such things."

Pg. 41. "People sniffers-these pieces of equipment, which are more properly designated Aircraft Mounted Concealed Personnel Detector, were built to pick up ammonia in human sweat and urine as well as engine exhaust. ...proved invaluable in detecting the unseen enemy.

Pg. 42. "Ground target radars-....an important class of item in the overall collection were small ground target radars that were not too different from the older and larger models that saw service in Korea."

Pg. 72. "And if the Westmoreland speech served to give the electronic battlefield formal expression as a new military dream, the three-day, officially secret National Security Industrial Association (NSIA) symposium on the same concept showed it was becoming a contractor's dream as well. Some 850 industry representatives with secret clearances were seated for the meeting at the National Bureau of Standards in Gaithersburg, Maryland. Meanwhile an additional 1,450 were turned away due to the lack of space."

Pg. 102. "Finally on July 6, 1970, Congressional inattention was interrupted when Senator William Proxmire said, "Mr. President, I rise today to point out a classic example of the Pentagon's 'foot in the door technique,' one of the main reasons why the military budget is out of control. I am informed that **the Pentagon has already spent some \$2 billion on a secret weapons system called the electronic battlefield...**" Congressional control- ...information on this program had been kept from Congress and its costs hidden within the Defense Department budget request.

Pg. 116. "...the program attracting more than the **\$3.25 billion** in appropriations uncovered by the Subcommittee...Proxmire and the Subcommittee agreed, however, **that the electronic or automated battlefield represented a whole series of technologies and programs that were combining to form a totally new American way of war**, and that the investigation had only touched on one part of the whole. In other words it was a classic tip of the iceberg situation that seem to be begging for deeper examination...

Pg. 118. "While the misplaced millions paved the way for DCPG's dismantling, its actual demise was ordered by Congress when it began moving into new realms. ...Deputy

Defense Secretary David Packard ordered the group to expand its activities from Southeast Asia,... **to the rest of the world, especially Europe.** Neither Packard's order nor an April change in the name of the group to Defense Special Projects Group (DSPG) were reported to Congress.

Pg. 122. "Having had great impact on the technology of jungle war in general and on the Southeast Asian War in particular, DCPG was given one more major job before going out of business. Under the specific orders of Secretary of Defense Melvin Laird, DCPG began work on a project with the code name Mystic Mission at the beginning of 1971. the goal of Mystic Mission was to get the sensors and related equipment into improved, streamline shape for their European debut. ...\$17 million bill for the Mystic Mission preparations..."

Pg. 130. "Formed in 1963, the Crows act as a booster group for electronic warfare (EW), which is that rich collection of esoteric equipment used to electronically detect, mislead, and evade enemy weapons efforts. They enjoy an almost legendary reputation in military circles for what they and their network of chapters have **accomplished in creating a strong and burgeoning market for EW hardware.** Like the Crows, the nascent Cricket Society[formed in 1974 to promote sensor technology] is open to people from government and industry and will have chapters dotted across the country.

Pg. 169. "**He added that if I was hoping to write about "the automated battlefield in the large sense of the word" than I would hit a lot of dead ends marked secret, and that I would be lucky if I got a hint of what was going on. ...the electronic battlefield has already dwarfed most other huge Federal efforts and should soon be in the price class of the Apollo Program for space exploration. ...This is a "revolution in conventional warfare" talked about by Pentagon planners that will usher in abilities that existed only in science fiction magazines a few years ago.**

Pg. 174. "**There are others, but none is more intriguing than the "death ray" application first put to use by the likes of Flash Gordon and Buck Rogers in their scrapes with the forces of evil. Although few effort are so heavily wrapped in secrecy, enough is known to conclude that "high energy lasers loom very large in the military scheme of things.**

Pg. 206. "**The only major, sustained effort to educate the public about the electronic battlefield has been by NARMIC[National Action Research on the Military Industrial Complex, a branch of the American Friends Service Committee based in Philadelphia.] Its major effort at public education in this matter began in 1972 with the production and distribution of some 1,300 copies of a filmstrip and script entitled "The Automated Air War," which concentrated mainly on Igloo White. It was widely shown in the United States, Canada, and Europe. The NARMIC expose is a well-documented, strong condemnation of the electronic battlefield innovations used in Southeast Asia."**

Pg. 208. "The "Winter Soldier" hearings staged in 1972. ...Eric Herter, grandson of the former Secretary of State Christian Herter which said in part: We have been participants in the new forms of war that are to replace the unpopular struggle of infantry and patrol

against guerrilla bands. Replace it with a greater atrocity than a hundred My Lais: the systematic destruction of thousands of innocent persons, of entire cultures by an automated electronic and mechanical death machine whose killing will be one-sided, unseen and universal..."

Pg. 212. **"The plans are drawn, the multibillion-dollar down payment has been made, parts of it have already been tested in real war, and the rest of the wiring is going in right now."**

Chapter Eight

This chapter is about targeting whole populations with electromagnetic mind control. Distinguished government officials state unequivocally that it can be developed and there have been many rumors over the years reported in major newspapers. The goal of controlling man for political purposes continues. Scientists at the top of their field such as Dr. Wiener, of MIT and Dr. W. Ross Adey of NASA & UCLA are cited in articles concerning mind control. Here are a few of the many examples.

Calder, Nigel. 1965. *The World in 1984* Vol 1 & 2. Penguin Books.

Notes on Contributors. **"Nigel Calder has been editor of New Scientist since 1962. Educated at Cambridge he worked for two years as a physicist for Mullard Research Laboratories** before joining the staff of new Scientist at its inception in 1956."

p. 181. *How to Wreck the Environment* by Gordon J.F. MacDonald, United States. **"Professor MacDonald is associate director of the Institute of Geophysics and Planetary Physics and Planetary Physics at the University of California, Los Angeles. ...He is a member of President Johnson's Science Advisory Committee."**

"Brain Waves around the World? ...The enhanced low-frequency electrical oscillations in the earth-ionosphere cavity relate to possible weapons systems through a little-understood aspect of brain physiology. Electrical activity in the brain is concentrated at certain frequencies, some of it extremely slow, a little around five cycles per second, and very conspicuous activity (the so-called alpha rhythm) around ten cycles per second. Some experiments have been done in the use of a flickering light to pull the brain's alpha rhythm into unnatural synchrony with it; the visual stimulation leads to electrical stimulation. There has also been work on direct electrical driving of the brain. **In experiments discussed by Norbert Wiener, a sheet of tin is suspended from the ceiling and connected to a generator**

working at ten cycles per second. With large field strengths of one or two volts per centimeter oscillating at the alpha-rhythm frequency, decidedly unpleasant sensations are noted by human subjects."

"The Brain Research Institute of the University of California is investigating the effect of weak oscillating fields on human behavior. The field strengths in these experiments are of the order of a few hundredths of a volt per centimeter. Subjects show small but measurable degradation in performance when exposed to oscillating fields for periods of up to fifteen minutes."

"The field strengths in these experiments are still much stronger, by a factor of about 1000, than the observed natural oscillations in the earth-ionosphere cavity. However, as previously noted, the intensity of the natural fluctuations could be increased substantially and in principle could be maintained for a long time, as tropical thunderstorms are always available for manipulation. The proper geographical location of the source of lightning, coupled with accurately timed, artificially excited strokes, could lead to a pattern of oscillations that produced relatively high power levels over certain regions of the earth and substantially lower levels over other regions. **In this way, one could develop a system that would seriously impair brain performance in very large populations in selected regions over an extended period."**

"The scheme I have suggested is admittedly far-fetched, but I have used it to indicate that rather subtle connections between variations in man's environmental conditions and its behavior. Perturbation of the environment can produce changes in behavior patterns. Since our understanding of both behavioral and environmental manipulation is rudimentary, schemes of behavioral alteration on the surface seem unrealistic. No matter how deeply disturbing the thought of using the environment to manipulate behavior for national advantage is to some, **the technology permitting such use will very probably develop within the next few decades**" **"Author's note:I am grateful to J. Homer and W. Ross Adey, of the Brain Research Institute of the University of California at Los Angeles, for information on the experimental investigation of the influence of magnetic fields on human behavior."**

References. **"Wiener, N., Rosenblueth, A., 1946: "The mathematical formulation of the problem of conduction of impulses in a network of connected excitable elements, specifically in cardiac muscle", Arch.Inst. Cardiol. Mex. 16 (3-4) 205-265.**

p. 21. Dynamical Systems in Physics and Biology by Professor **Norbert Wiener, Department of Mathematics, Massachusetts Institute of Technology.** "...It is becoming abundantly clear that the nucleic acid complexes not only play a fundamental role in genetic memory, but that they probably play an analogous role in nervous memory. ...Dr. Edmond Dewan of Brandeis University and the Massachusetts General Hospital has pointed out to me that the disorganization of the nervous system which is found in schizophrenia and other mental diseases may not be entirely independent of the type of genetic disorganization which occurs in cancer."

"In connexion with nervous memory and the role of the nucleic acid complexes, I think it

is quite possible that the memory properties of such complexes may be used in machines which need an artificial memory and that, just as we have the peak of the technique of solid-state physics, so that the next generation will see the use of nucleic acids as valuable engineering materials."

"In any case, I am reasonably confident that the studies of dynamical systems which I have mentioned are relevant to problems of biological organization. **The apparent role of the nucleic acids in the nervous system is going to lead to a new neurology in which long-time storage of information will probably be largely dependent on the nucleic acids or associated compounds.** The nervous system will have to be regarded more and more, not as a static network, but as a network which is alive and changing its internal configurations with experience....Still we cannot treat it as if it were a computing machine network fixed for all time, and we shall have to consider the interplay of what Professor Francis Schmitt of M.I.T. calls 'dry' neurophysiology, dealing with the established nervous network, and 'wet' physiology, which is going to centre more and more about the nucleic acids."

"With an ever increasing understanding of memory and its mechanism, psychology, which has been largely a phenomenological science, is going to become more and more tied up with neurophysiology. Many other considerations which have up to the present been situated in a somewhat shameful background, **such as the study of direct communication at a distance between nervous systems, possibly by some sort of radiative phenomenon,** are going to be subjected to a real trend in scientific examinations which will not be corrupted by the unscientific assumption that we are dealing with phenomena with no physical correlates."

"...**The taking of signals in and out of the body higher up in the nervous system than in our sense organs and muscles, by the amplification and manipulation of nerve impulses, is well under way in work conducted jointly by members of the Massachusetts General Hospital and M.I.T.** This bids fair for the development of artificial limbs which can be used in a thoroughly voluntary way by the employment of existing nerve channels and with a **minimum distortion of the personality.**"

Editor's note. Please see Dr. Robert Beckers books, Crosscurrents and Body Electric for details on the U.S. GWEN Ground-Wave Emergency Network and his opinion that it has potential for behavioral and cognitive alterations. See Dr. Nic Begich and his book Angel Don't Play This Haarp on the U.S. HAARP and his belief that it could be used for mind control. Please see CAHRA website, Timeline 1976 for description of the Russian woodpecker radio signal broadcast over the United States. See also CAHRA website International Documents for UN documents describing this technology in 1975 and Russia's request to ban these weapons. See also CAHRA website, Nonlethal weapons in which both sides officially deny the existence and development of psychotronic and radio-frequency weapons in separate 1980 and 1990 news articles!

There are many professionals over the years who warn that there are behavioral effects from signals generated between Russia and United states since the 1960s, as far as is known. The U.S. and Russian governments are concerned about electromagnetic weapons as the documents state clearly. More research and freedom of information act

requests are needed. Below are the published rumors on this technology.

Anderson, Jack.(1972, May 10). 'Brainwash' Attempt by Russian? Washington Post. B15.

"Hidden in the Central Intelligence Agency's most secret files is an account of a possible Soviet attempt to "brain-wash" our embassy personnel in Moscow with mysterious microwaves. The fantastic **details are contained in the file marked "Operation Pandora," ...In the 60,U.S. security men discovered the strange microwave impulses, some steady, some pulsating, directed into our Moscow embassy from a neighboring building. ...**At the June 1967 Glassboro meeting between President Lyndon Johnson and Soviet Premier Aleksei Kosygin, the question of the microwave rays came up. One informant insists Johnson personally asked Kosygin to end the ray bombardment, although other sources say the request was made at a lower level....Footnote: We have spoken with Cesaro, Pollack, Sharp, Zaret and Grove. **All acknowledged they worked on "Operation Pandora," but all refuse to go into details. As Sharp put it: "Pandora," was classified in those days and still is."**

No author.(1976, Mar.22). The Microwave Furor. Time. Pg. 15.

"...Last month the U.S. confirmed that for some 15 years the Soviet Union has been beaming microwaves at the hulking nine-story U.S. embassy... ...why is Washington being so closemouthed about the affair? "Maybe we're doing the same thing back in triple spades," suggested a former Moscow resident. Another theory is that Kissinger has soft-pedaled the issue for fear of further damaging detente. In any case, Time has learned that the State Department last week decided to launch a full-scale medical investigation of the thousands of U.S.

Gwertzman, Bernard.(1976,Jul.8). Soviet Dims Beam at U.S. Embassy **But Kissinger Aide Wanted the Microwave Radiation Eliminated Altogether.** New York Times.Pg.1.

"According to Mr. Funseth,[State Department spokesman] **the level of radiation aimed at the embassy was now less than two microwatts per square centimeter. ... American industrial safety standard, Mr. Funseth said, permit as much as 10,000 microwatts per square centimeter. The Soviet Union's stricter industrial standards permit only 10 microwatts. ...the continued beams caused a psychological problem.**

UPI.(1978,Mar.28).Mystery Radio Signals May Cause Illness.Chico(Calif.) Enterprise-Record. Pg. 3C.

"Engineer and state health officials investigating reports of mysterious and disturbing radio signals rising across Oregon say they could be coming from anywhere-even outer space. The powerful shortwave radio pulses have been detected in Portland and Bend..."At the same time this electromagnetic sources has been detected, people have reported noises in the head, stuffiness and reddened skin. ...the Federal Communications Commission, the National Bureau of Standards, and the Environmental Protection Agency have been asked to help...The 4.75-megahertz

frequency, far from the usual microwave-oven frequency, is in the range usually assigned to the federal government and for international overseas communications, he [Clifford Schrock, an electronic engineer Pacific Northwest Center for the Study of Non-Ionizing Radiation] said."

Chapter Nine

The development of mind control technology has been and is the goal of many governments and is a reality today. Here is a summary of the main points and their application to mind control experimentation. With all of the facts taken together, it can be concluded that the brain was decoded and the information was applied to intelligence tools and military technology in the 1940s to about 1965. Victims began reporting experimentation in the 1960s. The level of brain research matches this timetable. The discovery of the secret of life was linked to DNA in the 1950s and the genetic code was broken in the 1960s. As a result there is a massive gene mapping federal and worldwide program to apply the knowledge of DNA. Similarly, the teams and groups of the world class scientists, engineers, physicists, etc. were assembled in major universities, think tanks and government labs by the military to solve military problems in the 1940s, 50s and 60s. Research on the brain was well-funded and classified as a result of the arms race with Russia, beginning with the Korean brainwashing scare of the early 1950s.

Enough independence sources of information over the last 50 years corroborate the fact that the Soviet Union was interested in and were developing weapons with electromagnetic effects on biological organisms. The CIA's reaction to the Korean brainwashing scare is an example of what a fearful and important capability mind control weapons were to the U.S. government officials. Behavior experiments were conducted covertly for about 20 years.

Since the 1930s science has been working on the mysteries of mental processes and how the brain works as a system. A few famous researchers included Wilder Penfield and Dr. James Olds both of whom used implanted electrodes and locate the brain's different areas such as visual and auditory locations. Sir Charles Sherrington described the brain as "an enchanted loom..." Sir John Eccles worked at the neuronal level with the electron microscope in the 1950s, as did the noted W. Grey Walter. Eccles believes that a quantum physical effect mediates our spiritual souls and our physical brains. "Our conscious brains, he declares, are woven from subtle physical ingredients that somehow enable us to take advantage of the profound organization of our mathematically underpinned universe..."

Wiener and McCulloch were examples of scientists looking for the mathematical formulas and the quantum basis for brain mechanisms. McCulloch also worked on the phenomena of vision. Wiener stated that "highly specific microradiation is a property of

brain waves". He further stated that "specific types of radiation associated with nucleic acid complexes randomly scattered within neurons, when applied to encephalography should bring productive results". **Brain and electromagnetic phenomena on a quantum level are repeatedly described by the leading researchers of the day.**

Several scientists described the mathematical formulas involved in wave theory and applying this to visual processes(McCulloch) and to memory(Pribram), for example. This is a necessary step to read brainwaves remotely. The visual system has been intensely studied by the military and the process was solved. Both Remond and Wiener spoke about the necessity of detecting and mathematically analyzing brainwaves in a language of simple waves. In the 1940s and 50s, Dr. McCulloch knew of Remonds outstanding work as did Dr. Lilly. Dr.Lilly stated that Remonds work could be used to stimulate the brain without electrodes and that it could be carried out on a person covertly at that time. In the 1960s Pribram, Lilly, Adey and the Institute for Defense Analysis attended Brain Research Institute Conferences with funding in part by the USAF.

Wiener stated that encephalography has been too much in recognizing wave patterns subjectively. "Too little has been done for determining what actually happens there...We have not done enough work making atlases of frequency distributions. ...This method is looking for specific numbers". Both Remond and Wiener applied wave theory and mathematics which computers could eventually do. This part of the research, mapping of brain signals would require a massive project involving many scientists. The National Institutes of Health funded Remonds work and along with many other facts demonstrates that he was on the right track. **Mapping the frequencies of the brain was another step closer to mind reading.**

The U.S. pioneers in mind control development are Dr. Jose Delgado and Dr. Ross Adey. There are several but they are representative. Dr. Delgado, extensively cited in mind control literature for stopping a charging bull with remote signal to implants in the bulls brain also demonstrated in animal experiments that electromagnetic signals without implants could accomplish the same effect. Dr. Adey is widely quoted for describing the key to actually communicating with the brain remotely. Dr. Adey is a leading electromagnetic researcher who has spoken before congressional hearings on related topics, stated the following. "It is now well established that intrinsic electromagnetic fields play a key role in a broad range of tissue functions, including ...information transmission in the nervous system. These same processes may be profoundly influenced by electromagnetic fields induced by an external force." **This is the fact that the U.S. government has suppressed since the 1940s, the nonthermal effects of electromagnetic radiation.**

Dr. Adey, Pribram, Hameroff and Dr. Moravec, among others, researched the brain and described electromagnetic wave properties of the brain functions **as a method of direct communication with the brain.** Dr. Possony, the Stanford Hoover Institute Fellow, Stated "Nothing is as yet know or is known publicly, on how the soliton can be aimed to produce desired effects ...will have a crucial bearing both on the body and on the brain and on defense." **All of the above are discussing communication with the brain on a quantum level using sub atomic physics and optical**

biophysics. The development of SQUID, MRI and the developing HTSC are all based on similar principles. This can be related to the Tennenbaum articles on Soviet electromagnetic weapons. These are the main principles behind mind control technology. **The key to consciousness is a mathematical definition of the brain processes on a quantum level.**

The many articles on MRI and brain mapping described the interest and ability to measure and decipher signals of the brain and since classified research is usually estimated to be about 20 years ahead, it is reasonable to conclude that a person's brain can be read remotely. **Penrose and Hameroff described what they felt may be the site of consciousness, where classical physical activity interacts with quantum physics. The groups of neurons transmit images, thoughts and feelings. In the article by Hameroff, Pribram and others, the abstract stated, (pg. 32) "Laser-like long-range coherent quantum phenomena may occur biologically within cytoskeletal microtubules. ...may provide a basis for biomolecular cognition and a substrate for consciousness.** This article was published in 1993, agrees with Soviet research and all of the previously cited sources of information. **This is the Holy Grail of consciousness, the precise point.**

The Tennenbaum quotes are worth repeating for their clarity. The point to remember is that the mind control technology uses highly non-linear effects of electromagnetic radiation upon living organisms. And this can range from ELF to hundreds of gigahertz. **The key is that molecules themselves are nothing but electromagnetic configurations. That is, the molecules act via electromagnetic fields by exchange of electromagnetic energy with other molecules. Scientists have identified the precise geometrical characteristics of the electromagnetic action associated with the given substance, and then just mimic the molecular action by a carefully tailored signal. This is the basis of the mind control weapons. In this research, deep secrets having far-reaching military implications have been discovered and developed.**

But it was the Soviets who discovered the key to mind control technology first. The pioneers were V.I. Vernadsky, who's research program coined the military slogan "Who controls the entire electromagnetic spectrum will dominate the world". Alexander Gurvich followed Vernadsky in biophysical research and was the first to systematically demonstrate that absorption of minute amounts of "tuned" electromagnetic radiation, down to individual quanta, can decisively influence the course of biological events." This is called the "informational role of electromagnetic radiation in biological systems". This is the key and was further developed for military purposes. Litisitsyn, wrote a paper in the 1960s which stated that the Soviets broke the genetic code of the human mind". Much more research on this topic is needed but this is the foundation of this historic but classified discovery. The fact that Wiener and others have mentioned similar theories during the last 50 years is further support.

Michael Liebig discussed the soviet design of mind control technology, include principles of lasers, particle beams, and non-linear electromagnetic pulse effects. Sub-atomic physics, modern high-energy physics, especially the use of "force free" status of plasmas, show that sub-atomic phase space has a distinct, Kepler-Gauss sort of inherent curvature. It involves the curvature of "force-free," least-action states in the sub-atomic

domain. Modern optical biophysics or bioelectromagnetics and non-linear spectroscopy of living processes is combined with lessons of high-energy physics of force-free plasma states and is the key to these weapons. This was corroborated by the many article excerpts on solitons, HTSC, SQUID and MRI. The Soviet Union **had** the technological base to develop electromagnetic weapons, while the U.S. does to this day.

Tannenbaum also stated that direct coupling of highspeed computers to solid state radar was needed to optimally exploit non-linear biological effects. He mentioned HTSC as a major improvement. A sophisticated EP weapon must project a specific geometry of electromagnetic field onto a distant object, over a given terrain and in given surroundings. By choosing the right geometry, the signal can be focused into any desired area, such as the brain. He discussed one relevant techniques, phased array radar. The U.S. has advanced computers and the best radar systems in the world, for example the NSA(National Security Agency) equipment.

The answer to how a victim can be targeted and tracked can be explained with this technique, phased array radar technology. Tannenbaum described the phased-array antennae and the importance of holography, which would measure fields rather than one-dimensional electromagnetic signals. The antenna is capable of locking on to a target and can track objects using computers and inverse-scattering computations within a fraction of a second. There are satellites that can use GPS or global position system anywhere in the world and it too has been classified and developed for years. If a person gives off an identifiable electromagnetic signal, then an antenna can lock onto and track the target 24 hours a day anywhere in the world. A simplistic example would be an airport traffic controller's radar system to track numerous planes at once. Antennas today can pick up and track the individual target's signals. It is complicated and difficult to summarize but it definitely can be done.

Mind Control Technology Correlates with Victim Allegations

By breaking the problem down to manageable size, mind control technology used in mind control nonconsensual experimentation can be described. SQUID can read minute magnetic signals from the brain and with mathematic computations correlate this to processing of light stimuli by the brain, for example. In the development of MRI in the early 1970s, fourier transforms and pulse techniques were described as a way to decipher the very minute brain signals among all the electromagnetic background noise. And in 1980, Dr. Mackay described cross-correlation as one of the most powerful computational techniques for extracting significant information from brain signals. And now Tannenbaum and many articles describe the future use of HTSC for reading minute biological signals in the late 1980s. The theory behind detecting thought processes is passing the test of time.

MEG was used to pick up the magnetic signals which are oscillating millisecond fluxes of the brain in real time. If there were electromagnetic codes and programs for the brains processes that have already been discovered, (as in the gene mapping project), then the signals would have meaning.

Victims report that their thoughts can be read instantly and replied to, that pictures and dreams, memories and feelings can be remotely manipulated and controlled. Every nerve and muscle of the body can now be controlled. Again, breaking the problem down to manageable amounts is very helpful in describing the technology available that could account for victim's allegations. One previous example was the artificial retina chip, a copy of the neural organization of the retina and visual processing as the human brain does. This and the visual processing of the brain by frequencies mentioned previously could have been discovered and would account for dreams, pictures and implanted visualizations reported by victims.

The hearing of voices has been described elsewhere via microwave effects by the military to be used against terrorists (see CAHRA, Intelligence tools). The manipulation of memory could be accounted for with Wiener's theory of the storage via nucleic acid complexes. Others have made the hypothesis of a molecular code that may be searched out and finally mastered, according to discussions at the American Association for the Advancement of Science (Lessing, 1967, DNA Pg. 56.). Long and short term memory may use different mechanisms and Pribram's theory of holography may be a key process. Pribram has suggested that sensory information is relayed and reconstructed by neuron interaction and also the sensory cells can interact to form a type of hologram [which is made up of electromagnetic waves]. This information combined with previously described techniques demonstrate how in principle, this could be done without a chip or implant. From the many facts, it can be concluded that the functioning of the brain has been discovered and applied to military applications. The underlying principles have been discovered.

Manipulation of feelings could be done via electromagnetic signals. Penfield described the experiments in the 1930s of stimulating areas of the cortex while surgically treating epileptic patients and patients would describe reliving of a previous memory, a flashback, smelling certain smells and feeling physical sensations. The process for targeting areas of the brain for rage, happiness, and many other feelings most likely have been located.

Manipulation of every nerve in the body can be explained via electromagnetic signals to specific locations of the brain. The process of sensations and movement may be catalogued in the atlas of signals which Wiener predicted. And the underlying brain mechanism for processing sensations have been determined. This does not seem so farfetched now that very weak signals can be detected and correlated to specific stimulus. The location of the electromagnetic source is possible with MEGs, magnetoencephalography, as stated in a previous article, (pg. 40) and therefore could be targeted by remote means. Recording the signals and then playing them back has been described as the means for direct communication with the brain. Any sensation could be created if a specifically tailored electromagnetic signal were known or mimicked and transmitted. The military interest in solving very complicated brain processes has created the funding needed for scientific projects such as this.

The robotic effects or street theatre that many victims describe is worth mentioning. Behavior of people can now be engineered as if they were puppets. Delgado's research with implants which stopped a charging bull and then with remote electromagnetic signals is one part of this puzzle. The military has done extensive research on hypnosis

(see Operation Mind Control, Walter Bowart 1978). The electromagnetic signal or command is directed to the subconscious, and as in hypnosis the target will do whatever the command states. This has been demonstrated by J.F. Schapitz in government experiments (See The Controller, Martin Cannon). The brain is a complex system and there are no easy explanations. This was meant to be the beginning of a solid foundation of proof of government mind control technology that would overcome the lack of government documents that are classified under the National Security Act.

Conclusion

The capability to read and communicate remotely with the brain is a technology that governments would go to great lengths to develop, especially to surpass an enemy that is developing mind control technology also. Over 25 articles on Russian mind control are available (see also CAHRA UN Report) and a few of the many examples were presented here. The Soviets have had a documented history and interest in mind control weapons from the 1940s to the 1990s. The emerging technologies of quantum physics, brain biology and electromagnetic technology combined with cold war military funding and mind control technology was developed because of an arms race to control man.

The history of the Vietnam sensors technology and targeting of populations firmly established that the military has a bureaucracy for conducting classified research that would be similar for mind control technology. It is clear that remote surveillance is very sophisticated. DARPA and IDA, both active in sensors research, are two organizations to research further and would be likely conduits for mind control technology. Here is an absolutely classic summary of the science and government atmosphere in the early 60s in which mind control would proliferate. Charles Townes, who won the Nobel prize for invention of the laser in 1964 along with two Russian researchers, discussed DARPA in his book *Making Waves*, 1995. "The proposed position for me was Vice President and Director of Research for the Institute for Defense Analysis. The Institute was a non-profit "think-tank with a very important role, run by five or six prominent universities on the East Coast, Columbia University being one of them. It managed what was known as the Weapons Systems Evaluation Group. We had to pick the right people who would be responsible for analyzing how and whether a weapon worked and its effectiveness. We also advised a new organization, the Advanced Research Projects Agency, whose aim was to consider what could be done in space, and to help initiate new ideas and technologies of importance to national security. We also advised the State Department on arms control problems. ...I met with Allen Dulles, then head of the CIA... It was a lengthy presentation of all the highly classified evidence we had. Finally he {Dulles} asked me, "What do you think?" (Townes, Pg. 199).

Tennenbaum felt that SDI, the Strategic Defense Initiative was a cover for electromagnetic weapons as the same technology is involved. He stated that in 1983, the

beginning of SDI, Russian biophysics research went underground. This is when the strategic expert, Dr. Possony published his article on direct communication with the brain. So much more research is needed.

It is difficult to describe scientific technology while it is classified and has not officially been used. Several independent sources support claims of the existence of government mind control and many scientists worldwide have stated that mind control technology is possible. The bureaucracy is in place and the victims are alleging serious human rights abuse. This is a serious issue worthy of further investigation.

This is more than enough evidence to establish the need for an investigation. The burden of proof of obtaining the classified documents and/or tying the electromagnetic signals used on victims to the government or corporations involved, is too high and victims are suffering and dying. It is cruel to make alleged victims of mind control experimentation and use, meet this burden of proof in order to get help. The government has been and is developing a weapon used against the brain and mind. This fact alone deserves special attention. The claims made by victims may sound crazy, but not in light of the facts. Knowing past government motive and behavior, victims deserve a compensating government mechanism for an investigation into alleged abuses. Please share your thoughts, ideas, suggestions and conclusions with CAHRA.
