



# From PSYOP to MindWar: The Psychology of Victory

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1980

## Introduction

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November 2003

In the later 1970s, Psychological Operations (PSYOP) doctrine in the U.S. Army had yet to emerge from the disappointment and frustration of the Vietnam War. Thus it was that in 1980 Colonel Paul Vallely<sup>1</sup>, Commander of the 7th PSYOP Group, asked me, as his Headquarters PSYOP Research & Analysis (FA) Team Leader, to draft a paper that would encourage some future thought within the PSYOP community. He did not want a Vietnam postmortem, but rather some fresh and innovative ideas concerning PSYOP's evolution and application.

I prepared an initial draft, which Colonel Vallely reviewed and annotated, which resulted in revised drafts and critiques until he was satisfied, and the result of that was this paper: *From PSYOP to MindWar: The Psychology of Victory*.<sup>2</sup>

Colonel Vallely sent copies of it to various governmental offices, agencies, commands, and publications involved or interested in PSYOP. He intended it not as an article for publication, but simply as a "talking paper" to stimulate dialogue. In this it was quite successful, judging by the extensive and lively letters he received concerning it over the next several months.

That should have been the end of *MindWar*: a minor "staff study" which had done its modest job.

With the arising of the Internet in the 1980s, however, *MindWar* received an entirely unexpected - and somewhat comic - resurrection. Allusions to it gradually proliferated, with its "sinister" title quickly winning it the most lurid, conspiracy-theory reputation. The rumor mill soon had it transformed into an Orwellian blueprint for *Manchurian Candidate* mind control and world domination. My own image as an occult personality added fuel to the wildfire: *MindWar* was now touted by the lunatic fringe as conclusive proof that the Pentagon was awash in Black Magic and Devil-worship.

Now that this absurdly comic opera has at least somewhat subsided, I thought that it might be interesting to make a complete and accurate copy of the paper available, together with an Introduction and some historical-hindsight annotations to place it in reasonable context. After all it did - and perhaps still does - have something worthwhile to say.

Within the U.S. military, PSYOP has habitually been relegated to a back-seat as a "force multiplier". The principal strategic decisions are made in consideration of traditional political and military interests and goals. Only then is PSYOP invited to the table, to help achieve already-agreed-upon missions more efficiently.

*MindWar* reverses this sequence. Psychological means for achieving victory - essentially through convincing the enemy that he really wants to bring his national policies into harmony with ours - are fashioned in support of basic political goals. The use of "ordinary" military force (bombs, bullets, etc.) is regarded as a "last resort" in circumstances wherein *MindWar* by itself fails.

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<sup>1</sup> Later Major General, USAR.

<sup>2</sup> The term "MindWar" was coined by another PSYOP officer, Colonel Richard Sutter, and myself in 1977. After seeing the recent film *Star Wars*, we played with a modification of its name as a futuristic replacement for the somewhat bland Army designation "Psychological Operations". An avowedly science-fictional treatment of *MindWar*, complete with a caricature of Sutter at its helm, appears in my *Star Wars* story *The Dark Side*, available at [www.xeper.org/maquino](http://www.xeper.org/maquino)

The advantage of MindWar is that it conducts wars in nonlethal, noninjurious, and nondestructive ways. Essentially you overwhelm your enemy with argument. You seize control of all of the means by which his government and populace process information to make up their minds, and you adjust it so that those minds are made up as you desire. Everyone is happy, no one gets hurt or killed, and nothing is destroyed.

Ordinary warfare, on the other hand, is characterized by its **lack** of reason. The antagonists just maim or kill each other's people, and steal or destroy each other's land, until one side is hurt so badly that it gives up [or both sides are hurt so badly that they agree to stop short of victory]. After such a war there is lasting misery, hate, and suffering.

The only loser in MindWar are the war profiteers: companies and corporations which grow fat on orders for helicopters, tanks, guns, munitions, etc. Consequently what President Dwight Eisenhower referred to as the "military/industrial complex" can be counted upon to resist implementation of MindWar as the governing strategic conflict doctrine.

That's the MindWar prospectus in its most simplified form.

While in the 1980s I had no reason to think that this paper had had any official effect upon U.S. PSYOP doctrine within or beyond the Army, it was with some fascination that I saw specific of its prescriptions applied during the first Gulf War, and recently even more obviously during the 2003 invasion of Iraq. In both instances extreme PSYOP was directed both against the object of the attack and upon U.S. domestic public perception and opinion, in 2003 to the extent of "embedding" journalists with military units to inevitably channel their perspectives and perceptions.

The impact of even these minor techniques of MindWar was remarkable. A psychological climate of inexorable U.S. victory was created and sustained in both the United States and Iraq, which accelerated that victory on the ground.

Somewhat less positively, the failure of MindWar in this instance to be guided by only the most rigorous principles of truth and ethics has just as inexorably led to a substantial post-victory evaporation of that euphoric climate. Therein lies the Achilles' heel of MindWar. Invoking as it does the most intense emotions and commitments of its audiences, it **must** deliver the goods **as they are judged by the target audiences**. If the ethical values of those audiences are not respected - if MindWar is used only in the service of ulterior motives and objectives - the resulting "disintoxication" can be socially shattering.

In 1987 I wrote a more extensive research paper for the National Defense University concerning the ethics of PSYOP. Particularly if MindWar is actually to be employed as a feature of U.S. foreign policy, I cannot stress too strongly the need for its subordination to the strictest and most enlightened principles of humanity as discussed in that paper. *Psychological Operations: The Ethical Dimension* is also available for download at [www.xeper.org/maquino](http://www.xeper.org/maquino)

Now let's take a look at the 1980 *MindWar* paper itself. In addition to its original footnotes (which generally identify quote-sources), I have added a few new ones to highlight/critique some of its themes. These new footnotes are identified by "[MA2003]" at their beginning.

## From PSYOP to MindWar: The Psychology of Victory

LTC John Alexander's *Military Review* article in support of "psychotronics" - intelligence and operational employment of ESP - was decidedly provocative.<sup>3</sup> Criticism of research in this area, based as it is on existing frontiers of scientific law, brings to mind the laughter that greeted the Italian scientist Spallanzani in 1794 when he suggested that bats navigate in the dark means of what we now call sonar. "If they see with their ears, then do they hear with their eyes?" went the joke, but I suspect that the U.S. Navy is glad someone took the idea seriously enough to pursue it.<sup>4</sup>

Psychotronic research is in its infancy, but the U.S. Army **already** possesses an operational weapons systems designed to do what LTC Alexander would like ESP to do - except that **this** weapons system uses **existing** communications media. It seeks to map the minds of neutral and enemy individuals and then to change them in accordance with U.S. national interests. It does this on a wide scale, embracing military units, regions, nations, and blocs. In its present form it is called **Psychological Operations** (PSYOP).

Does PSYOP work, or is it a merely a cosmetic with which field commanders would rather not be bothered?

Had the question been asked in 1970, the answer would have been that PSYOP works very well indeed. In 1967 and 1968 alone, a total of 29,276 armed Viet Cong/NVA (the equivalent of 95 enemy infantry battalions) surrendered to ARVN or MACV forces under the *Chieu Hoi* amnesty program - the major PSYOP effort in the Vietnam War. At the time MACV estimated that the elimination of that same number of troops in combat would of cost us 6,000 dead.<sup>5</sup>

On the other hand, we lost the war - not because we were out-fought, but because we were out-PSYOPed. Our national will to victory was attacked more effectively than we attacked that of the North Vietnamese and Viet Cong, and perception of this fact encouraged the enemy to hang on until the United States finally broke and ran for home.

So our PSYOP failed. It failed not because its principles were unsound, but rather because it was outmatched by the PSYOP of the enemy. The Army's efforts enjoyed some impressive successes, but our own PSYOP did not really change the minds of the enemy populace, nor did it defend the U.S. populace at home against the propaganda of the enemy. Furthermore the enemy's PSYOP was so strong that it - not bigger armies or better weapons - overcame all of the Cobras and Spookys and ACAVs and B52s we fielded. The lesson is not to ignore our own PSYOP capability, but rather to change it and strengthen it so that it can do precisely **that** kind of thing to our enemy in the next war. Better hardware is nice, but by itself it will change nothing if we do not win the war for the mind.

The first thing it is necessary to overcome is a view of PSYOP that limits it to routine, predictable, over-obvious, and hence marginally effective "leaflet and loudspeaker" applications. Battlefield devices of this sort have their place, but it should be that of an accessory to the main effort. That main effort cannot begin at the company or division level; it must originate at the national level. It must strengthen our national will to victory

<sup>3</sup> Alexander, Lieutenant Colonel John B., "The New Mental Battlefield: Beam me up, Spock" in *Military Review*, Vol LX, No. 12 December 1980.

<sup>4</sup> [MA2003] Alexander (later Colonel) was involved with "parapsychological" ideas and experiments such as ESP and "remote viewing". These have no connection whatever with either traditional PSYOP or MindWar. Cf. my paper *Project Star Gate: \$20 Million up in Smoke [and Mirrors]* at [www.xeper.org/maquino](http://www.xeper.org/maquino).

<sup>5</sup> "Chieu Hoi: The Winning Ticket". MACV Command Information Pamphlet 6-69, March 1969.

and it must attack and ultimately destroy that of our enemy. It both causes and is affected by physical combat, but it is a type of war which is fought on a far more subtle basis as well - in the minds of the national populations involved.

So let us begin with a simple name change. We shall rid ourselves of the self-conscious, almost “embarrassed” concept of “psychological operations”. In its place we shall create **MindWar**. The term is harsh and fear-inspiring, and so it should be: It is a term of **attack and victory** - not one of the rationalization and coaxing and conciliation. The enemy may be offended by it; that is quite all right as long as he is **defeated** by it. A definition is offered:

**MindWar is the deliberate, aggressive convincing of  
all participants in a war that we will win that war.**

It is **deliberate** in that it is planned, systematic, and comprehensive effort involving all levels of activity from the strategic to the tactical. It is **aggressive** because opinions and attitudes must be actively changed from those antagonistic to us to those supportive of us if we are to achieve victory. We will not win if we content ourselves with countering opinions and attitudes instilled by enemy governments. We must reach the people **before** they resolve to support their armies, and we must reach those armies **before** our combat troops ever see them on battlefields.

Compare this definition with that of psychological warfare as first offered by General William Donovan of the OSS in his World War II-era “Basic Estimate of Psychological Warfare”:

Psychological warfare is the coordination and use of all means, including moral and physical, by which the end is attained - other than those of recognized military operations, but including the psychological exploitation of the result of those recognized military actions - which tend to destroy the will of the enemy to achieve victory and to damage his political or economic capacity to do so; which tend to deprive the enemy of the support, assistance, or sympathy of his allies or associates or of neutrals, or to prevent his acquisition of such support, assistance, or sympathy; or which tend to create, maintain, or increase the will to victory of our own people and allies and to acquire, maintain, or to increase the support, assistance, and sympathy of neutrals.<sup>6</sup>

If the euphemism “psychological operations” resulted from, as one general officer put it in a 1917 letter, “a great need for a synonym which would be used in peacetime that would not shock the sensibilities of a citizen of democracy”, then it may have succeeded domestically.<sup>7</sup> On the other hand it does not seem to have reassured the sensibilities of the Soviets, who in 1980 described the U.S. Army PSYOP as including:

... unpardonable methods of ideological sabotage including not just blackmail, provocation, and terror.<sup>8</sup>

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<sup>6</sup> Roosevelt, Kermit (Ed.) *War Report of the OSS*. New York: Walker and Company, 1976, Volume I, page 99.

<sup>7</sup> Letter, Major General W.C. Wyman to Major General Lauris Norsted, 22 July 1947, quoted to Paddock, Colonel Alfred H., “Psychological and Unconventional Warfare, 1941-1952: Origins of a ‘Special Warfare’ Capability for the United States Army”. Carlisle Barracks: U.S. Army War College.

<sup>8</sup> Belashchenko, T., “‘Black Propaganda’ from Fort Bragg” in *Sovetskiy Voin*. Moscow, June 1980, pages 46-47.

The reluctance with which the Army has accepted even an “antiseptic” PSYOP component is well-documented in Colonel Alfred Paddock’s brilliant treatise on the history of PSYOP establishment. Again and again efforts to forge this weapon into its most effective configuration were frustrated by leaders who could not or should not see that wars are fought and won or lost not on battlefields but in the **minds** of men. As Colonel Paddock so aptly concludes:

In a real sense, the manner in which psychological and unconventional warfare evolved from 1941 until their union as a formal Army capability in 1952 suggests a theme that runs throughout the history of special warfare: the story of a hesitant and reluctant Army attempting to cope with concepts and organizations of an unconventional nature.<sup>9</sup>

According to the present doctrine, PSYOP is considered an **accessory** to the main effort of winning battles and wars; the term usually used is “force multiplier”. It is certainly **not** considered a precondition to command decisions. Thus PSYOP cannot **predetermine** the political or psychological effectiveness of a given military action. It can only be used to point that action in the best possible colors **as** it is taken.

MindWar cannot be so relegated. It is, in fact, the strategy to which tactical warfare must conform if it is to achieve maximum effectiveness. The MindWar scenario must be **preeminent** in the mind of the commander and must be the **principal** factor in his every field decision. Otherwise he sacrifices measures which actually contribute to winning the war to measures of immediate, tangible satisfaction. [Consider the rationale for “body counts” in Vietnam.]

Accordingly PSYOP “combat support” units as we now know them must become a thing of the past. MindWar teams must offer technical expertise to the commander **from the onset of the planning process**, and at all levels down to that of the battalion. Such teams cannot be composed - as they are now - of branch-immaterial officers and NCOs who know simply the basics of tactical propaganda operations. They must be composed of full-time experts who strive to translate the strategy of national MindWar into tactical goals maximize the effective winning of the war and minimize loss of life. Such MindWar teams will win commanders respect only if they can deliver on their promises.<sup>10</sup>

What the Army now considers to be the most effective PSYOP - tactical PSYOP - is actually the most limited and primitive effort, due to the difficulties of formulating and delivering messages under battlefield constraints. Such efforts must continue, but they are properly seen as **reinforcement** of the main MindWar effort. If we do not attack the enemy’s will until he reaches the battlefield, his nation will have strengthened it as best it can. We must attack **that** will **before** it is thus locked in place. We must instill in it a predisposition to inevitable defeat.

Strategic MindWar must begin the moment war is considered to be inevitable. It must seek out the attention of the enemy nation through every available medium, and it must strike at the nation’s potential soldiers **before** they put on their uniforms. It is in their homes and their communities that they are most vulnerable to MindWar. Was the United States defeated in the jungles of Vietnam, or was it defeated in the streets of American cities?

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<sup>9</sup> Paddock, *op. cit.*, page 258.

<sup>10</sup> [MA2003] In 1980 neither PSYOP nor Special Forces were career branches in the Army. Rather they were “branch-immaterial”, meaning that assignments to them were relatively brief and at the long-term risk of promotion within one’s basic branch. Later SF would become both an officer and an enlisted branch, and PSYOP would gain an enlisted branch, but PSYOP does not yet have an officer career branch.

To this end MindWar must be strategic in emphasis, with tactical applications playing a reinforcing, supplementary role. In its strategic context, MindWar must reach out to friends, enemies, and neutrals alike across the globe - neither through primitive “battlefield” leaflets and loudspeakers of PSYOP nor through the weak, imprecise, and narrow effort of psychotronics<sup>11</sup> - but through the media possessed by the United States which have the capabilities to reach virtually all people on the face of the Earth.

These media are, of course, the **electronic** media - television and radio. State of the art developments in satellite communication, video recording techniques, and laser and optical transmission of broadcasts make possible a penetration of the minds of the world such as would have been inconceivable just a few years ago. Like the sword Excalibur, we have but to reach out and seize this tool; and it can transform the world for us if we have the courage and the integrity to enhance civilization with it. If we do not accept Excalibur, then we relinquish our ability to inspire foreign cultures with our morality. If they then desire moralities unsatisfactory to us, we have no choice but to fight them on a more brutish level.

MindWar must target **all** participants if it is to be effective. It must not only weaken the enemy; it must strengthen the United States. It strengthens the United States by denying enemy propaganda access to our people, and by explaining and emphasizing to our people the rationale for our national interest in a specific war.

Under existing United States law, PSYOP units may not target American citizens.<sup>12</sup> That prohibition is based upon the presumption that “propaganda” is necessarily a lie or at least a misleading half-truth, and that the government has no right to lie to the people. The Propaganda Ministry of Goebbels must not be a part of the American way of life.

Quite right, and so it must be axiomatic of MindWar that it **always** speaks the truth. Its power lies in its ability to focus recipients’ attention on the truth of the **future** as well as that of the present. MindWar thus involves the stated promise of the truth that the United States has resolved to make real if it is not already so.

MindWar is not new. Nations’ greatest - and least costly - victories have resulted from it, both in time of actual combat and in time of threatened combat. Consider the atomic attacks on Hiroshima and Nagasaki. The physical destruction of those two cities did not destroy Japan’s ability to continue fighting. Rather the psychological shock of the weapons destroyed what remained of Japan’s national will to fight. Surrender followed; a long and costly ground invasion was averted.<sup>13</sup>

MindWar’s effectiveness is a function of its own skillful use of communications media, but no greater error could be made than to confuse MindWar with merely a greater and more unprincipled propaganda effort. “Propaganda” as defined by Harold Lasswell, is:

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<sup>11</sup> [MA2003] “Psychotronics” was a term applied to concepts such as ESP and “remote viewing” by some government agencies in the 1970s-80s, possibly to make them sound more “scientific”.

<sup>12</sup> [MA2003] This law was established after World War II, purportedly both out of distaste for the extreme domestic propaganda of the fascist powers and because of misgivings about American domestic propaganda, particularly during World War I. At the time of this paper (1980), the law was so strict that, for example, printing presses of Army PSYOP units were prohibited from being used to run off posters for local military recruiting stations.

<sup>13</sup> [MA2003] Nevertheless Hiroshima and Nagasaki are not very good examples of MindWar, because - despite their psychological impact - they involved the killing and injuring of a great many people. MindWar is perfect when no one is physically harmed.

... the expression of opinions or actions carried out deliberately by individuals or groups with a view to influence the opinions or actions of other individuals or groups for predetermined ends and through psychological manipulations.<sup>14</sup>

Propaganda, when it is recognized as such - and anything produced by a “PSYOP” unit is so recognized - is automatically assumed to be a lie or at least a distortion of the truth. Therefore it works only to the extent that a militarily-pressed enemy is willing to do what we want him to. It does **not** work because we have convinced him to see the truth as we see it.

If his “Conclusions” chapter to the Army’s exhaustive 1976 case-study of PSYOP techniques, L. John Martin affirms this coldly and bluntly:

What this all boils down to is that if our persuasive communication ends up with a near positive effect, we must attribute it to luck, not science... The effectiveness of propaganda may be even less predictable and controllable than the effectiveness of mere persuasive communication.<sup>15</sup>

Correspondingly propagandists are assumed to be liars and hypocrites, willing to paint anything attractive colors to dupe the gullible. As Jacques Ellul puts it:

The propagandist is not, and cannot be, a “believer”. Moreover he cannot believe in the ideology he must use in his propaganda. He is merely a man at the service of a party, a state, or some other organization, and his task is to insure the efficiency of that organization ... If the propagandist has any political conviction he must put it aside in order to be able to use some popular mass ideology. He cannot even share that ideology, for he must use it as an object and manipulate it without the respect that he would have for it if he believed in it. He quickly acquires contempt for these popular images and beliefs...<sup>16</sup>

Unlike PSYOP, MindWar has nothing to do with deception or even with “selected” - and therefore misleading - truth. Rather it states a **whole** truth that, if it does not now exist, will be forced into existence by the will of the United States. The examples of Kennedy’s ultimatum to Khrushchev during the Cuban Missile Crisis and Hitler’s stance at Munich might be cited.

A MindWar message does not have to fit conditions of abstract credibility as do PSYOP themes; its source **makes** it credible. As Livy once said:

The terror of the Roman name will be such that the world shall know that, once a Roman army has laid siege to a city, **nothing** will move it - not the rigors or winter nor the weariness of months and years - that it knows no end but victory and is ready, if a swift and sudden stroke will not serve, to preserve until that victory is achieved.<sup>17</sup>

Unlike Ellul’s cynical propagandist, the MindWar operative must **know** that he speaks the truth, and he must be **personally committed** to it. What he says is only a part of MindWar; the rest - and the test of its effectiveness - lies in the conviction he projects to his

<sup>14</sup> Lasswell, Harold D. in Ellul, Jacques, *Propaganda: The Formation of Men’s Attitudes*. New York: Random House, 1965, pages xi-xii.

<sup>15</sup> Martin, L. John, “Effectiveness of International Propaganda” in Department of the Army Pamphlet 525-7-2 *The Art and Science of Psychological Operations: Case Studies of Military Application*, Volume Two. Washington, D.C.: American Institutes for Research, 1976, page 1020.

<sup>16</sup> Ellul, Jacques, *Propaganda: The Formation of Men’s Attitudes*. New York: Random House, 1965, pages 196-197.

<sup>17</sup> Keller, Werner, *The Etruscans*. New York: Alfred A. Knopf, 1974, page 262.



audience, in the rapport he establishes with it.

And this is nothing that can be easily faked, if in fact it can be faked at all. “Rapport”, which the *Comprehensive Dictionary of Psychological and Psychoanalytical Terms* defines as “unconstrained relations of mutual confidence”, approaches the subliminal; some researchers have suggested that it is itself a subconscious and even perhaps even ESP-based “accent” to an overt exchange of information.

Why does one believe one television newsman more than another, even though both may report the same headlines? The answer is that there is **rapport** in the former case; and it is a rapport which has been recognized and cultivated by the most successful broadcasters.

We have covered the statement of inevitable truth and the conviction behind that statement; these are qualities of the MindWar operative **himself**. The recipient of the statement will judge such messages not only by his conscious understanding of them, but also by the mental conditions under which he receives them. The theory behind “brainwashing” was that physical torture and deprivation would weaken the mind’s resistance to suggestion, and this was true to a point. But in the long run brainwashing does not work, because intelligent minds later realize their suggestibility under such conditions and therefore discount impressions and options inculcated accordingly.<sup>18</sup>

For the mind to believe in its own decisions, it must feel that it made those decisions **without** coercion. Coercive measures used by the operative, consequently, must not be detectable by ordinary means. There is no need to resort to mind-weakening drugs such as those explored by the CIA; in fact the exposure of a single such method would do unacceptable damage to MindWar’s reputation for truth.

Existing PSYOP identifies purely-sociological factors which suggest appropriate idioms for messages. Doctrine in this area is highly developed, and the task is basically one of assembling and maintaining individuals and teams with enough expertise and experience to apply the doctrine effectively. This, however, is only the sociological dimension of target receptiveness measures. There are some purely natural conditions under which minds may become more or less receptive to ideas, and MindWar should take full advantage of such

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<sup>18</sup> Cf. John Marks, *The Search for the “Manchurian Candidate”*. New York: Times Books, 1979.

phenomena as atmospheric electromagnetic activity<sup>19</sup>, air ionization<sup>20</sup>, and extremely low frequency waves<sup>21</sup>.

At the root of any decision to institute MindWar in the U.S. defense establishment is a very simple question: Do we wish to win the next war in which we choose to become involved, and do we wish to do so with minimum loss of human life, at minimum expense, and in the least amount of time? If the answer is yes, then MindWar is a necessity. If we wish to trade that kind of victory for more American lives, economic disaster, and negotiated stalemates, then MindWar is inappropriate, and if used superficially will actually contribute to our defeat.

In MindWar there is no substitute for victory.<sup>22</sup>

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<sup>19</sup> **Atmospheric electromagnetic (EM) activity:** The Human body communicates internally by EM and electrochemical impulses. The EM field displayed in Kirlian photographs, the effectiveness of acupuncture, and the body's physical responses to various types of EM radiation (X-rays, infrared radiation, visible light spectra, etc.) are all examples of human sensitivity to EM forces and fields. Atmospheric EM activity is regularly altered by such phenomena as sunspot eruptions and gravitational stresses which distort the Earth's magnetic field. Under varying external EM conditions, humans are more or less disposed to the consideration of new ideas. MindWar should be timed accordingly. Per Dr. L.J. Ravitz:

Electromagnetic field constructs add fuel to the assumption unifying living matter harmoniously with the operations of nature, the expression of an electromagnetic field no less than non-living systems; and that as points on spectrums, these two entities may at last take their positions in the organization of the universe in a way both explicable and rational ... A tenable theory has been provided for emergence of the nervous system, developing not from functional demands, but instead deriving as a result of dynamic forces imposed on cell groups by the total field pattern. Living matter on has a definition of state based on relativity field physics, through which it has been possible to detect a measurable property of total state functions. (Ravitz, State-Function, Including Hypnotic States" in *Journal of American Society of Psychosomatic Dentistry and Medicine*, Vol. 17, No. 4, 1970.)

<sup>20</sup> **Ionization of the air:** An abundance of negative condensation nuclei ("air ions") in ingested air enhances alertness and exhilaration, while an excess of positive ions enhances drowsiness and depression. Calculation of the ionic balance of a target audience's atmospheric environment will be correspondingly useful. Again this is a naturally-occurring condition - caused by such varying agents as solar ultraviolet light, lightning, and rapidly-moving water - rather than one which must be artificially created. (Detonation of nuclear weapons, however, will alter atmospheric ionization levels.) Cf. Soyke, Fred and Edmonds, Alan, *The Ion Effect*. New York: E.P. Dutton, 1977.

<sup>21</sup> **Extremely Low Frequency (ELF) waves:** ELF waves up to 100 Hz are once more naturally occurring, but they can also be produced artificially (such as for the Navy's Project Sanguine for submarine communication). ELF-waves are not normally noticed by the unaided senses, yet their resonant effect upon the human body has been connected to both physiological disorders and emotional distortion. Infrasound vibration (up to 20 Hz) can subliminally influence brain activity to align itself to *delta*, *theta*, *alpha*, or *beta* wave patterns, inclining an audience toward everything from alertness to passivity. Infrasound could be used tactically, as ELF-waves endure for great distances; and it could be used in conjunction with media broadcasts as well. See Playfair, Guy L. and Hill, Scott, *The Cycles of Heaven*. New York: St. Martin's Press, 1978, pages 130-140.

<sup>22</sup> [MA2003] After General of the Army Douglas MacArthur's famous aphorism: "In war there is no substitute for victory."