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BULLETIN

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Crescat scientia vita excolatur (where knowledge increases, life is ennobled)
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10 June 1967, 12:00. Woonsocket, Rhode Island. Harold Trudel steadied his camera and snapped these two photographs of the object as it made its nearest approach to the witness in this photographic sequence. He took the pictures to Leonard Brodt for immediate development.

Photos from UFO Photographs Around the World, Vol. 2,

by Wendelle Stevens and August Roberts. © 1985

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PART ONE OF A THREE-PART
SERIES OF ARTICLES

SPECULATIONS ON UFO TECHNOLOGY

by Joseph Roser

A unified theory of UFO technology, behaviours; close encounter effects, physical traces, and origins based on a speculative interpretation of weak nuclear force violation Or parity conservation.

A thorough reading of available UFO literature has convinced this researcher that some sort of spacetime distortion is central to the overall phenomenon. Two known mechanisms for relativistic effects are ultradense concentration of matter and velocities closely approaching the speed of light. Neither of these would appear to provide a practical method for exploiting spacetime in a manner able to explain observed UFO behaviours. In looking to the quantum world for a matter spacetime coupling mechanism of greater utility, violation of conservation of parity by weak nuclear force reactions is of interest.

Scientists studying nuclear beta decay in the 1930s discovered that total energy of the products of beta decay reactions did not add to equal the total energy of the parent nucleus. The daughter nuclei plus the emitted electrons from any given parent nuclide instead produced a range of energies with varying deficits causing some scientists to speculate that a violation of energy

conservation was somehow occurring. This idea was an unpleasant alternative for physicists, but the situation was avoided when Wolfgang Pauli proposed that an unseen particle was carrying away differing amounts of kinetic energy from each reaction. Since the unseen particle must have neutral electric charge and negligible rest mass, Enrico Fermi proposed the name neutrino, for "little neutral one".

The existence of the neutrino was not confirmed until the 1950s in particle experiments, but that did not end the weak force's propensity to violate expected conservation laws.

In 1956, two Chinese born physicists, Taung-Dao Lee and Chen Ning Yang proposed that parity may not be conserved in weak force reactions. Up till then, it had been thought that the laws of physics are indifferent to mirror reflection and that it was impossible to distinguish clockwise from counterclockwise in fundamental reactions. Just one year later, it was experimentally confirmed that beta decay reactions do show a built in left or right handedness in component particle spin orientation. Specifically, a neutron transforming into a proton emits an electron and a right handed spin neutrino, now by convention termed the anti-neutrino, and a proton transforming into a neutron emits a positron and a left hand spin neutrino. A neutron may equivalently absorb a neutrino, or a proton may absorb an anti-neutrino, to initiate a transformation with subsequent emission of electron or positron alone. This dependence of weak force reactions on particle-spin orientation may be considered to imply an interaction between matter and spacetime.

A VIOLATION OF WEAK FORCE

According to Howard Georgi's article A Unified Theory of Elementary Particles and Forces appearing in the April 1981 issue of Scientific American, the weak force parity

violation may extend to massive sub-atomic particle spin orientation in interaction with neutrinos at low energies. Georgi interprets this as a violation of weak force "charge" conservation in analogy with electric charge, occurring through disappearance of weak force charge into the vacuum upon a reversal of particle spin handedness. If one instead uses the words "absorption ... by" the vacuum, an interaction or coupling between matter and spacetime based on spin orientation is implied. Since nuclear parity is amenable to manipulation using nuclear magnetic resonance (NMR) techniques to produce spin "flips", a potential matter/spacetime link on a quantum scale appears to offer a ready method of exploitation.

An equivalent alternative (and extradimensional) view of this matter spacetime link can be visualized through analogy with two dimensional enantiomorphs. An observer existing in the two dimensional world of Flatland cannot manipulate the orientation of the outline or a left hand in any way which can change its appearance into an outline of a right hand. However, an observer situated in three physical or spatial dimensions can easily turn over the two dimensional left hand in his third dimension to produce its enantiomorph. The Flatlander witnessing this transformation, since he cannot look "up", would observe only a quantum transition with no intermediate state of orientation. A left handed spin particle in 3-D Solid land could also be converted into its enantiomorph, a right handed spin particle by turning it over in a fourth spatial dimension. Appearing now to a Solidlander as a quantum transition, this interaction between a particle of matter and a higher dimension spacetime can be seen to be equivalent to quantum spin reversal as produced by application of NMR techniques. Whether one chooses Georgi's chirality-based disappearance and recovery of weak force "charge" from the spacetime vacuum or the

equivalence of particle spin flips with interaction with higher dimensional spacetime, a potential access to the properties of spacetime exploitable by man is revealed.

Matter/spacetime interaction may also be discussed on a more philosophical level.

ENERGY & SPACETIME

The infant fireball which evolved into our universe in the Big Bang theory of cosmology may have had a homogeneous composition at some level of organization dating back to the primordial singularity from which it sprang. If so, then the constituents of our universe: matter, energy, and spacetime, are all interchangeable under some set of circumstances. That matter and energy are interchangeable is well known from Einstein's famous equation $E = mc^2$. Were there to be yet another relation between energy and spacetime, then the phrase "draining ... energy from the vacuum" used in a later paragraph is in fact a way of saying "convert spacetime into energy".

UFOs may be spacetime conversion devices, their emissivity a measure of how much vacuum converted into energy is needed to warp spacetime into an independent inertial, time, and gravitational frame of reference. It is this independent pocket of spacetime produced by a UFO, be it a natural phenomenon or a construct, which is able to explain in a coherent whole a broad range of UFO behaviours, close encounter effects, physical traces, and origins.

The known spacetime properties of the vacuum include three spatial dimensions, one timely dimension, and the pervasive gravitational curvature resulting from the influence of all mass in the universe. It could be inferred that a sophisticated ability

to manipulate spacetime developed from the Principle of matter/spacetime coupling might include the ability to time travel. Since the Earth's motions through space include our galaxy's movement at over 300 km/second, ($10^{-8} c$), travel through time without provision for travel through space could not allow a visit from Earth of the future to Earth of the past. A step through time alone of two thousand years by a contemporary adventurer would leave him stranded in place and in empty space more than two light years from Bethlehem and the birth of Jesus.

TIME TRAVEL

But while time travel is not a feasible way to travel from here to here, it yet could be an excellent way to go from here to there, as long as "there" is another solar system which at some time past or future happens to occupy the same region of space our Earth now occupies. In the theoretically ideal case, another system's inhabited planet could occupy the exact same portion of space our planet now occupies in a precise cross-time cosmic juxtaposition. This would allow the sophisticated traveller an opportunity to step back and forth between worlds dimensionally - through the time dimension despite the vast separation in the spatial dimensions as measured in any single era. Rough cross-time alignments spanning 10,000 or perhaps 10,000,000 years undoubtedly do occur in the non-deal cases, with alignment "durations" ranging to as high as several hundred years depending on relative motion. The utility of any one alignment for exploration purposes would of course still be dependent on actual space travel capabilities. In other words, a non-perfect alignment across time of two worlds in motion would be subject to and limited by propulsion technology for passage across the spatial distance separating them. Even so, it can be seen that time travel between worlds occupying the same region of space in different eras, at least in the more ideal cases, is able to effect a unification of the extraterrestrial, the time travel, and the interdimensional hypotheses.

To return to the technological basis for the UFO, calculated energy emissions in the

visible wavelengths of the electromagnetic spectrum, based on anecdotal observer evidence, are in the 10^6 to 10^7 megawatt range. One could imagine a direct energy conversion power source known as a magnetohydrodynamic generator using a molten metal working fluid. Instead of the usual thermal prime energy source, this device might be imagined to be driven to produce electric current through induced beta decays in working fluid nuclei with associated ionization of the fluid from energetic particle interactions. The beta decays would be induced through use of the solar neutrino flux given modification of the local spacetime properties existing within the power ring.

ENERGETIC PARTICLES

A proposed A127 and P31 working fluid, based initially on the analysis of the Bogota sample 7 given in Dr. Jacques Vallery's Confrontations, would utilize solar neutrinos to produce the reactions $A127 (\nu, B) Si27$ and $P31 (\nu, B) S31$. The beta emission produces free energetic electrons along with ionization in adjacent atoms. Energetic particles interacting with the phosphorus would also produce many photons from phosphorescence. Photons interacting with the silicon would in turn produce more ionization from the photoelectric effect. In addition, secondary gamma emission from excited nuclides would also act upon the silicon, would cause pair production of e^- and e^+ from nucleus grazing, and would further cause ionization from Compton scattering. Neutrino kinetic energies and flux from the sun are estimated to be 0.42 MeV at 6.3×10^{10} /cm second and 1.44 MeV at 1.6×10^{11} /cm second due to the $1H, p$ fusion reaction. Further neutrino production ranging from 0.38 MeV to 14.0 MeV at fluxes of 10^6 to 10^7 /cm second also occur. Added to these in the power ring would be the reverse decay products emitted when unstable Si27 and S31 cycle back to their starting identities. These particles include e^+ , gamma, and more neutrinos. Since the

being
 working fluid recycles without/consumed in this first approximation idealized model, there is no need for refueling the generator.

The major part of the neutrino flux exists at energies normally offering only a small probability of initiating a beta event in working fluid nuclei. However, the apparent kinetic energies of incoming neutrinos would be blue shifted to ranges offering greatly increased likelihood of interaction were they to enter a local spacetime region in which the rate of passage of time were slowed with respect to ambient time rate of passage in the vicinity of the sun. Known solar kinetic energies may provide a benchmark against which the intensity of spacetime modification needed for reactions to proceed may be calculated.

Slowing the time rate of passage within the power ring would also affect the weak force coupling constant, or strength of neutrino/matter coupling, through the Heisenberg Uncertainty Principle for the conjugate variables E t h.

With a slowing of time the uncertainty of position on the time axis of space-time is reduced until the production of virtual W particles is favoured. The reaction, depicted in the Feynman diagram which follows, more readily proceeds due to an increase in the apparent strength of the weak force resulting from the energy borrowed from the vacuum as allowed by the uncertainty relation.

WATCH FOR PART TWO IN THE NEXT ISSUE

REMOTE MIND CONTROL

TECHNOLOGY

By
 Anna Keeler

There has been an ongoing controversy over health effects of electromagnetic fields (EMF) for years (e.g., extremely low frequent radiation and the Navy's Project Seafarer: emissions of high power lines and video display terminals; radar and other military and industrial sources of radio frequencies and microwaves, such as plastic sealers and moulders) Less is known of Department of Defense (DOD) and Central Intelligence Agency (CIA) interest in anti-personnel applications of the invisible energies. The ability of certain parameters of EMF to cause health effects, including neurological and behavioral disturbances, has been part of the military and CIA arsenal for years.

Capabilities of the energies to cause predictable and exploitable effects or damages can be gleaned from discussion of health effects from environmental exposures. Interestingly, some scientists funded by the DOD or CIA to research and develop invisible electromagnetic weapons have voiced strong concern (perhaps even superior knowledge or compensatory to guilt) over potentially serious consequences of environmental exposures.

Eldon Byrd who worked for Naval Surface Weapons Office of Non-Lethal Weapons, was commissioned in 1981 to develop electromagnetic devices for purposes including "riot control", clandestine operations and hostage removal. In the context of a controversy over reproductive hazards to Video Display Terminal (VDT) operators, he wrote of alterations in brain function of animals exposed to low intensity fields. Offspring of exposed animals "exhibited a drastic degradation of intelligence later in life ... couldn't learn

easy tasks . . . indicating a very definite and irreversible damage to the central nervous system of the fetus". With VDT operators exposed to weak fields, there have been clusters of miscarriages and birth defects (with evidence of central nervous system damage to the fetus). Byrd also wrote of experiments where behaviour of animals was controlled by exposure to weak electromagnetic fields. At a certain frequency and power intensity, they could make the animal purr, lay down and roll over."

Jose Delgado, advocate of a psychocivilized society through mind control, no longer implants electrodes in the brains of mental patients and prisoners: He now induces profound behavioral changes (hyperactivity, passivity, etc..) by exposing animals to precisely tuned EMF's. He has also written of genetic damage produced by weak EMF fields, similar to those emitted by VDTs. Invariably, brain tissue damage and skeletal deformation was observed in new born chicks that had been exposed. He was concerned enough to check emissions from the appliances in his kitchen.

Ross Adey induces calcium efflux in brain tissue with low power level fields (a basis for the CIA and military's confusion weaponry") and has done behavioral experiments with radar modulated at electroencephalogram (EEG) rhythms. He is understandably concerned about environmental exposures within 1 to 34 Hz cycles per second) either as a low frequency or an amplitude, modulation on a microwave or radio frequency as these can physiologically interact with the brain even at very low power densities.

Microwaves

Microwave health effects is a juncture where Department of Defense and environmental concerns collide and part ways. Security concerns, according to Sam Koslov of

Defense Advanced Research Project Agency (DARPA), first prompted U.S. study of health effects of low intensity (or non-terminal) microwaves. At times, up to 70-80% of the research was funded by the military. From 1965 to 1970, a study dubbed Project Pandora was undertaken to determine the health and psychological effects of low intensity microwaves, the so called "Moscow signal" registered at the American Embassy in Moscow. Initially, there was confusion over whether the signal was an attempt to activate bugging devices or for some other purpose. There was suspicion that the microwave irradiation ^{was} being used as a mind control system. CIA agents asked scientists involved in microwave research whether microwaves beamed at humans from a distance could affect the brain and alter behaviour. Milton Zaret who undertook to analyze Soviet literature on microwaves for the CIA. wrote: "For non-thermal irradiations, they believe that the electromagnetic field induced by the microwave environment affects the cell membrane, and this results in an increase of excitability or an increase in the level of excitation of nerve cells. With repeated or continued exposure, the increased excitability leads to a state of exhaustion of the cells of the cerebral cortex.

Employees first learned of the irradiation ten years after Project Pandora began. Before that, information had been parcelled out on a strict "need to know basis which excluded most employees at the compound. Due to secrecy, and probably reports like Dr. Zaret' s, Jack Anderson speculated that the C.I.A. was trying to cover up a Soviet effort at behaviour modification through irradiation of the U.S. diplomats, and that the cover up was created to protect the CIA's own mind control secrets.

RARE BLOOD DISEASE

Finally, an unusually large number of illnesses were reported among the residents of the compound. U.S. Ambassador Walter Stoessel developed a rare blood disease similar to leukaemia; he was suffering headaches and bleeding from the eyes. A source at the State Department informally admitted that excessive radiation had been leaking from his telephone: An American high frequency radio transmitter on the roof of the building had, when operating, induced high frequency signals well above the U.S. safety standard through the phones in the political section, as well as in lines to Stoessel's office. No doubt, National Security Agency or CIA electronic devices also contributed to the electromagnetic environment at the embassy, although values for these were never released, as they are secret. Stoessel was reported as telling his staff that the microwaves could cause leukemia, skin cancer; cataracts and various forms of emotional illness. White blood cell counts were estimated to be as high as 40% above normal in one third of the staff, and serious chromosome damage was uncovered.

The Soviets began research on biological effects of microwaves in 1953. A special laboratory was set up at the Institute of Hygiene and Occupational Diseases, Academy of Medical Sciences. Other labs were set up in the U.S.S.R. and in Eastern Europe that study both effects of microwaves and low frequency electromagnetic radiation. Years ago, in the halls of science, complaints could be heard that Soviet experiments regarding bioeffects couldn't be duplicated due to insufficient details in their scientific literature, although, according to one DOD official, 75% of the U.S. papers on the subject carried insufficient parameters for duplication. Scientists even questioned, with McCarthy-like sentiments, whether the Soviets were attempting to frighten or

disinform with false scientific reporting of bioeffects. It was unthinkable according to cruder scientific theory, that non-thermal levels of microwaves could cause harm. Impetus for a study of such effects came not from concern for the public, but rather in the military and intelligence community's suspicion of the Soviets, and their equally strong interest in developing exploitable anti-personnel effects - an interest that continues unabated today.

The CIA and DOD "security" concerns metamorphosized into research and development of invisible weapons capable of impacting on health and psychological processes. In fact, due to the finding of startling effects, DARPA's security became even tighter, and a new code name "Bizarre" - was assigned to the project.

PROJECT PANDORA

Scientist Allen Frey of Randomline, Inc. was always more interested in low intensity microwave hazards: thermal effects were known. During Project Pandora, the Navy funded such projects of his as how to use low average power intensities, to induce heart seizures, create leaks in the blood brain barrier, which would allow neurotoxins in the blood to cross and cause neurological damage or behavioral disorders: and how to produce auditory hallucinations or microwave hearing during which the persons can hear tones that seem to be coming from within the head or from directly behind it.

In 1976, the Defense Intelligence Agency (DIA) released a report in which they attributed the results of Dr. Frey's studies to the Soviets. According to Dr. Frey, who acknowledges his work was misattributed, he had thought up the project himself. The DIA, but not the CIA, is allowed to use "mirror imaging" and "net assessment" in

their reports. ie. respectively, the attribution of one's own motives and weapons capabilities to "the other side," in this case the Soviets. It follows that there is nothing to prevent them from releasing a report prepared in this manner, and thus muddy the water of decision making, pervert public opinion, stoke up congressional funding or enlist the support of naive scientists to counter "the threat." There was strong concern over CIA disinformation abroad leaking back to the home front, though the American press, but apparently the DIA, at least on some issues, can dish it up with impunity.

The 1976 DIA report also credits the Soviets with other capabilities, stating "Sounds and possibly even words which appear to be originating intercranially, can be induced by signal modulation at very low power densities". Dr Sharp, a Pandora researcher at Water Reed Army Institute of Research, some of whose work was so secret that he couldn't tell his boss, conducted an experiment in which the human brain has received a message carried to it by microwave transmission. Sharp was able to recognize spoken words that were modulated on a microwave carrier frequency by an "audiogram," an analog of the words' sound vibrations, and carried into his head in a chamber where he sat.

PULSED MICROWAVES

Dr James Lin of Wayne State University has written a book entitled *Microwaves Auditory Effects and Applications*. It explores the possible mechanism for the phenomenon and discusses possibilities for the deaf, as persons with certain types of hearing loss can still hear pulsed microwaves (as tones or clicks and buzzes, if words aren't modulated on). Lin mentions the Sharp experiment and comments, "The capability of communicating directly with humans by

pulsed microwaves is obviously not limited to the field of therapeutic medicine.

Dr. R.O. Becker, twice nominated for the Nobel Prize for his health work in bio-electromagnetism, was more explicit in his concern over illicit government activity. He wrote of "obvious applications in covert operations designed to drive a target crazy with "voices". What is frightening is that words, transmitted via low density microwaves or radio frequencies or by other covert methods, might be used to create influence. For instance, according to a 1984 U.S. House of Representatives report, a large number of stores throughout the country use high frequency transmitted words (above the range of human hearing) to discourage shoplifting. Stealing is reported to be reduced by as much as 80% in some cases. Surely, the CIA and military haven't overlooked such useful technology.

Dr. Frey also did experiments on reduction of aggression. Rats who were accustomed to fighting viciously when their tails were pinched, accepted the pinching with relative passivity when irradiated with pulsed microwaves in the ultra high frequency range (UHF) at a power density of less than 1.000 microwatt/cm². He has also done low intensity microwave experiments degrading motor coordination and balance. When asked about weapons applications of his work he answered by referring to himself as "just a biological theorist" and his work for the Navy, "basic medical research".

BEFORE CONGRESS

In 1976, George H. Heilmeier, director of Defense Advanced Research Projects Agency (DARPA) responded to a mailgram to President Ford from Don Johnson of Oakland, paraphrasing Johnson's concern, and assuring him that the DARPA sponsored Army/Navy Pandora experiments were

"never directed at the use of microwaves as a surveillance tool, nor in a weapons concept". Don Johnson lingered in the memories of one DOD official who sponsored microwave research in the 1970s. Johnson was enigmatically described as brilliant ... schizophrenic.... he knew too much .. a former mental patient...buildings where work was done." (Scientists who have disagreed with the DOD on health effects of microwaves and on the U.S. exposure standard, have received scant more respect and have their funding cut.)

The next year, Heilmeyer elaborated in a written response to an inquiry before Congress. "... This agency (DARPA) is not aware of any research projects, classified or unclassified, conducted under the auspices of the Defense Department, now ongoing, or in the past, which would have probed possibilities of utilizing microwave radiation in a form of what is popularly known as 'mind control'. We do not foresee the development by DARPA of weapons using microwaves and actively being directed toward altering nervous system function or behaviour. Neither are we aware of any of our own forces.. developing such weapons...

ADVANCE SENSOR PROGRAM

Finally, memoranda were released that rendered the goals of Pandora transparent. Richard Cesaro, initiator of Pandora and director of DARPA's Advance Sensor program justified the project in that "little or no work has been done in investigation of the subtle behavioral changes which may be evolved by a low-level electromagnetic field. Research had long ago established that direct stimulus of the brain could alter behaviour. The question raised by radio frequencies - microwaves or radio frequencies of the UHF or VHF - was whether the electromagnetic could have a similar effect at very low levels. Pandora's initial goal: to discover whether a carefully constructed microwave

signal could control the mind. In the context of long term, low-level effects: Cesaro felt that central nervous system effects could be important and urged their study "for potential weapons applications". After testing a low-level modulated microwave signal on a chimpanzee, and within approximately a week causing stark performance decrements and behavioral disorganization, Cesaro wrote, "the potential of exerting a degree of control on human behaviour by low-level microwaves seems to exist". On the basis of the primate study, extensive discussions took place and plans were made to extend the studies to humans.

According to a former DOD security analyst, one such microwave experiment with human subjects took place at Lorton Prison in the early 1970s. He said that such research (in a weapons context) has occurred on behavioral effects of microwaves since 1976. He also asked, "Why are you so concerned about them? What about now? They can call anyone a terrorist. Who are they using it on now?"

BEHAVIORAL EFFECTS

In June, 1970, a government think tank. Rand Corporation, published a report by R.J. MacGregor, entitled "A Brief Survey of Literature Relating to Influence of Low Intensity Microwaves on Nervous Function". After noting that the U.S. microwave guideline in effect in 1970 for the public, 10,000 microwatts/2 (now the industrial and military "guidelines"), is proscribed from consideration of the rate that thermal effects are dissipated, the author, a specialist in modelling neural networks, states that scientific studies have consistently shown that humans exhibit behavioral disturbances when subjected to non-thermal levels of microwaves, well below this level. The symptoms that MacGregor lists for those humans exposed more or less regularly at

work or in the living environment are insomnia, irritability, loss of memory, fatigue, headache, tremor, hallucination, automatic disorders and disturbed sensory functioning. He reports that swelling and distention of nerve cells have been produced at intensities as low as 1,000 microwatts/cm² (the current U.S. guideline for the public. In a companion Rand paper, June 1970, entitled "A Direct Influence of Microwave Radiation on Neuroelectric Function", MacGregor sets forth the idea that the electrical component of microwave radiation induces transmembrane potentials in nerve cells and thereby disturbs nervous functions and behaviour. Microwaves penetrate and are absorbed more deeply so that they can produce a direct effect on the central nervous system. With smaller wavelengths the principal absorption occurs near the body surface and causes peripheral or "lower" nervous system effects.

Dr. Milton Zaret who analyzed neurological effects for the CIA during Project Pandora (he is now one of the few doctors, willing to take the government on by testifying on behalf of plaintiffs filing claims for microwave health damage), wrote that, "receptors of the brain are susceptible and react to extremely low intensities of microwave irradiation if this is delivered in accordance with appropriate "coding." Coding is reported to be influenced by the character of the signal so as to be a function, for example, of the shape and amplitude of the pulse or waveform.

Dr. Ross Adey, formerly of the Brain Research Center at University of Southern California, Los Angeles, now at Loma Linda University Medical School, Loma Linda, California, was among the first of the Pandora researchers. His work is more precise in inducing specific behaviour, rather than merely causing, disorganization, or decrements in performance-that is, apart from his studies on inducing calcium efflux in brain tissue, which causes interference

with the functioning of the brain and is one basis of "confusion weaponry."

More specifically, Adey's thesis is that if the electroencephalogram (EEG) has informational significance, one can induce behavioral changes if one imposes environmental fields that look like EEG. During Adey's career, he has correlated a wide variety of behavioral states with EEG, including emotional States (e.g. stress in hostile questioning), increments of decision making and conditioning, correct versus incorrect performance, etc., and he has imposed electromagnetic fields that look like EEG, which has resulted in altered EEG and behaviour.

In published accounts of Adey's work he has shown that it is possible to apply low biologic frequencies by using a radio frequency carrier modulated at specific brain frequencies. He demonstrated that if the biological modulation on the carrier frequency is close to frequencies in the natural EEG of the subject, it will reinforce or increase the number of manifestations of the imposed rhythms, and modulate behaviour.

SPECIFIC BRAIN WAVES

The conditioning paradigm: animals were trained through aversion to produce specific brain wave rhythms; animals trained in a field with the same rhythm amplitude modulated on it, differed significantly from control animals in both accuracy and resistance to extinction (at least 50 days versus 10 in the controls). When the fields were used on untrained animals, occurrence of the applied rhythm increased in the animals EEG.

Dr. Adey is an accomplished scientist, which leads one to believe the significance of this sort of experiment goes beyond mere reinforcement of the animal's

brain waves. Did the rhythms that he chose to apply have special significance with relation to information processing or conditioning? The 4.5 theta rhythm that he applied was the natural reoccurring frequency that he had measured in the hippocampus during a phase of avoidance learning. The hippocampus, as Adey wrote in an earlier paper, "involves neural processes connected with consolidation of memory traces."

It relates closely to the need for focusing attention and the degree to which recapitulation of past experience is imposed." One might add to ensure survival.

Does it follow that an EEG modulated carrier frequency can be used to enhance human avoidance learning? You bet, provided the same careful procedures are followed with humans as were with animals, the same result would accrue. Recall again the goals of Pandora - to discover whether a carefully constructed electromagnetic signal could direct the mind.

FRAMES OF MIND

The obvious question becomes, how many and with how much accuracy can behavioral states or "frames of mind" be intentionally imposed, that is, apart from the certain technological capability to promote disorganization and degradation of perception and performance through use of the fields. In fact many components of learning or conditioning including affect (i.e. "feeling" or emotional states) can be imposed through use of the fields from a distance e.g. behavioral arousal orienting reflex, subliminal stress (alarm reaction without realization of the contextual significance), so-called levels of consciousness, inhibition of cerebral functioning which would render one more susceptible to suggestion or influence and so

on. All components necessary to produce behavioral conditioning including ways to provide contextual significance, can be applied from a distance (i.e. without direct brain contact, as was necessary in older behaviour modification experiments.)

Another indication that the government entertained notions of behaviour control through use of fields and sound, is a 1974 research proposal by J.F.Schapitz. To test his theory, his plan was to record EEG correlates induced by various drugs, and then to modulate these biological frequencies on a microwave carrier. Could the same states be produced by imposing these brain wave frequencies on human subjects? His plan went further and included inducing hypnotic states and using words modulated on a microwave carrier frequency to attempt to covertly condition subjects to perform various acts. The plan as released (through the Freedom of information Act) seems less part of a careful recipe for influence than Adey's and other DOD scientists' work, and may have been released to mislead by lending an "information beam" science fiction-like quality to the work.

The end of Project Pandora may have signified the end of research into the cause of effects of the varying frequencies registered at the American embassy in Moscow - some known to be due to CIA and National Security Agency equipment, but interest in microwave and biological frequency weapons did not wane. Indeed, there are indications of applications. As we have seen, research that began in response to a security concern, transformed almost overnight into a search for weapons applications, while cloaked in disinformation about the Soviets. What types of weapons?

There Are Three Possibilities:

(1) That microwaves, perhaps modulated with low biological frequency, are used from a distance to cause performance and

disorganization by interfering with neuro-electric function; or by causing central nervous system effects, subjective feelings of ill health, or health syndrome associated with periodic exposures at intensities below 10,000 microwatt/cm²:

(2) That microwaves are used to ^{create} organ specific effects e.g., tissues with less blood circulation like the gall bladder, lens of the eye, etc., can compensate less to increased heating; heart disfunctions can be caused; lesions or necrosis of internal tissues can be induced without a subject necessarily feeling heat and symptoms might manifest later, at certain frequencies, slight heating or "hot spots" can be created at the center of the head; there is an ongoing Navy contract to find parameters to disrupt human metabolic functions; or

(3) That they are used in an interdisciplinary approach to remote conditioning by creating information processing effects, as Dr. Adey's work shows, or to induce "feeling" or "emotional" elements of cognition, such as excitatory reactions, subliminal stress, behavioral arousal, enhanced suggestibility by inhibition of higher functions, or various other EEG or behavioral effects. There are strong indications that microwaves have been used to cause the decrements. There is no question but that the U.S. military and the CIA know the behavioral or psychoactive significance of applied biological rhythms and other frequencies, as this was part of the thrust of their work during Pandora. Inducing emotion or feelings through use of electromagnetic fields, and then synchronizing the feelings with words (symbolic of ideas) would be an effective way to induce preferences or attitude change, because it would mirror natural thought processes. The ^{question} seems less whether conditioning through use of covert technology is possible, than whether there has been a policy choice to use it. If the results of their research are used as part of a system that can condition behavioral

responses from a distance, it is a secret that they hold close like a baby.

Richard Helms wrote of such a system in the mid-1960s while he was CIA Plans Director. He spoke of "sophisticated approaches to the 'coding' of information for transmittal to population targets in the 'battle' for the minds of men and of an "approach integrating biologic, social and physical-mathematical research in attempts... to control behaviour." He found particularly notable, use of modern information theory automata theory, and feedback concepts... for a technology for controlling behaviour ... using information inputs as causative agents". Due to Project Pandora, it is now known that applied biological (and other) frequencies can also be used as direct "information inputs" (e.g.. of feeling or emotion) and to reinforce brain rhythms associated with conditioning and information processing. One way to get such a signal into a human may be through use of a high frequency carrier frequency. Results of research into information processing unconscious processes, decision making memory processes and evoked brain potentials would likely be exploited or integrated in an interdisciplinary system.

Covert technological influence is not so foreign to the American way of life as one may think. It was reported in a 1984 U.S. House of Representatives hearing that high frequency audio transmissions are applied, for instance in some department stores to prevent theft (one East Coast department store chain was reported to have saved \$600,000 over a nine-month period) and in some grocery stores with the result that employee induced cash shortages significantly decreased and employees are better mannered. In other words, as Helms wrote of, verbal messages are delivered at frequencies above human hearing. Technology for commercial applications is relatively sophisticated (one studio uses a "layered" approach and 31 channels in

preparing tapes; some employ a "dual coding" approach, integrating scientific knowledge of information processing modes of the two brain hemispheres and others use techniques where a consumer is spoken to as a three year old child). There is no U.S. law specifically regulating these types of transmission (over radio and TV a Federal Communication Commission 'catch all' provision might apply). If industry uses undetectable audio transmissions to meet security concerns, it seems that the military and CIA would exploit the same technology and would have developed much more sophisticated technology for applications. The public conception of "subliminals is naive compared to capabilities.

The military has studied and considered for usefulness in a warfare and psychological warfare context a wide range of biological or pharmacological substances. In the memo referred to above, Helms wrote that the U.S. is five years ahead of the Soviets in pharmacological agents producing behavioral effects. Some of these substances would increase susceptibility to influence if incorporated in the multidisciplinary approach he wrote of.

A side effect of lowered resistance to sub-threshold stimulus might be that some would become aware of illicit influence (even under normal circumstances there is a wide variation in sensitivity among individuals to sub-threshold stimulus; normal individuals whom psychology terms "reducers" are much more sensitive in this way: actually most schizophrenics are extreme reducers and therefore, much more aware of stimulus that others aren't cognizant of). Convenient to the agencies involved in covert influence, is that among primary symptoms of schizophrenia or mental illness are ideas that one is being influenced by transmissions" (e.g. radio frequencies) "voices" or even telepathy: unless complaints about covert psychological weapons are well organized, they would

tend to be discounted as indicative of mental imbalance.

There are many ways to create temporary or permanent states that increase receptivity to suggestion and/or conditioning. It is interesting to note that scientific studies have correlated exposure to electromagnetic fields alone with mental hospital admissions and worsening of symptoms of mental patients, even as an etiological factor in the onset of mental illness. (A marker disease for exposure to microwaves is damage behind the lens of the eye; a disproportionate number so damaged also suffer from mental disease or neurological impairment)

Specific Targets

Weapons against whom ? Safe to say in order to enlist the aid of scientists, the military and CIA would act true to form, that is, to motivate and overcome reluctance due to dictates of conscience, they would evoke a serious security rule during initial phases of development. In fact, on the "unclassified" face of it a number of reports have openly suggested use of microwaves against terrorists."

Los Alamos National Laboratory, now under supervision of University of California, prepared a report for Federal Emergency Management Agency (FEMA) setting forth that use of microwave radiation on terrorists could kill them, stun them or at least modify their behaviour by changing their "Perceptions." At this point the cloak is donned, and the report continues: "There are reports of Eurasian communist countries performing research with combined fields of signals from several different microwave frequencies to produce at least perceptual distortions in humans."

Cable News Network recently aired a report on electromagnetic weapons and showed an official document that was a contingency plan to use electromagnetic weapons against

terrorists. It wasn't made clear who the terrorists were or where the contingency was. Prior to the news show, however, reports had surfaced, the source a DOD medical engineer, that in the context of conditioning, microwave and other modalities had regularly been used against Palestinians.

Greenham Common

When DOD develops a weapon it can be said with certainty that it will be tested and, if possible where it would be useful to meet their goals. Women peace activists have kept an ongoing vigil at the periphery of the US Air Force base at Greenham in England since 1981. They are protesting build-up of nuclear weapons. The UPS Cruise missiles, which are nuclear warheads small enough to be mounted on the back of a truck called a launcher vehicle, arrived at the base in March of 1984. Since then, the women in the encampment and members of the Cruisewatch network ensured that when the launcher vehicle and its convoy are taken out into the British countryside, the dispersal exercises aren't as secret as the military intended them, to be. The women of the network, non-violent activists, have been subjected to intense harassment in an effort to be rid of their presence.

In the Fall of 1984, things changed dramatically; many, if not most of the women began suffering illnesses: and, simultaneously, the massive police and their military presence at the base virtually disappeared and new and different antenna were installed at the base. In a report prepared by Rosalie Bertell, commissioner for International Commission of Health Professionals for Human Rights, a non-governmental organization based in Geneva, Switzerland, the unusual patterns of illness range from severe headaches, drowsiness, menstrual bleeding at abnormal times • post-menopausal, to bouts of temporary paralysis, faulty speech coordination and in

one case apparent circulatory failure requiring hospitalization."

Other symptoms documented by peace activist Kim Bealy, who coordinates investigations into reports of illness at specific places around the base, included: vertigo, retinal bleeding, burnt face (even at night), nausea, sleep disturbances and palpitations. Psychological symptoms included lack of concentration, disorientation, loss of memory, irritability and a sense of panic in a non-panic situation. The symptoms have virtually all been associated in medical literature with exposure to microwaves and most listed can be induced through low intensity or non-thermal exposures. (Editor's note: Such devices were utilized as "psychological deterrents during the siege of the Branch Davidian Compound at Waco."

Measurements were taken around the base by members of Electronics for Peace and by others. Strong signals, up to one hundred times the normal background level were detected on a number of occasions. In fact, signals ten times stronger than those felt to be emanating from normal base transmitting systems were found.

The strongest signals generally appeared in the areas where the women said that they suffered ill effects. For instance, they were found to cover the womens encampment near the "green gate" (gates to the base are designated by color), but stopped abruptly at the edge of the road leading to the gate. The strength of the signals were also found to reflect the activity of the women: e.g., they increased rapidly when the women started a demonstration. Visitors to the encampment, both men and women, reported experiencing the same types of symptoms and the same pattern of variation as the Greenham women.

In a review prepared by National Bureau of Standards, Law Enforcement Standards

Laboratory, for Nuclear Defense Agency, Intelligence and Security Directorate, use of low intensity microwaves was considered for application as a "psychological deterrent" The report stated, "...microwave radiation has frequently been cited as being responsible for non-thermal effects in integrating central nervous systems activity. The behavioral consequences most frequently reported have been disability, listlessness and increased irritability." The report fails to mention just as frequently cited low intensity microwave health effects as chromosome damage, congenital birth defects; autonomic nervous system disregulation including disruption of biocycles: impaired immune function; brain damage and other neurological abnormalities, including leaks in the blood brain barrier and depletion of some neuro transmitters among a host of other health impairments. As activist Kim Bealy put it "It would now appear that we are protecting the missiles by killing people slowly."

It is not necessary that the transmission take place from equipment in the vicinity of a target (although the Greenham women seemed to be suffering from transmissions made from within the base." Propagation of microwaves has been very well studied and is very sophisticated e.g., a 2 inch beam can be sent from a satellite point to point, to a receiving dish on earth; and, it was reported in 1978, that CIA had a program called Operation Pique, which included bouncing radio signals or micro waves off the ionosphere to effect the mental functions of people in selected areas including Eastern European nuclear installations.

In the U.S. at this time, there is no legally enforceable micro-wave standard. There never has been an enforceable standard for the public or the workplace. Microwaves at intensities within the suggested "guidelines" have finally been shown, even by US research, to cause health damage.

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Book Review of "Alien Identities-Ancient Insights into Modern UFO Phenomena",

by Richard L. Thompson, Ph.D.

Review by Lawrence J. Fenwick

The author of this 492-page soft-cover book has done what no one has done before-written a comparison of ancient India's Vedic culture accounts of UFOs and modern UFO reports. He has done this with a maximum of research and a minimum of unfounded speculation. Thompson's scholarly approach is based on his acquaintance with Vedic culture and knowledge of Sanskrit. He shows us numerous parallels between the two eras in writing a classic book on Ufology. His account of modern ufology's history is equal to the best ever done. Nearly half of this work dwells on the modern age of UFOs.

It might be difficult for some North American or European readers to fathom the Indian culture. He says in his introduction that "this response is often one of Culture shock." Vedic thinking and ways of expressing themselves is 'alien' to our Western thought processes. Once you have adjusted to it, about half way through the second part, it becomes clearer as to what he is getting at. The language and culture may be different, but the UFOs are the same. If you think this book is just a rehash of what you've already read, you're wrong. There is little repetition. This is surprising because this is his first book about UFOs. One of his achievements in "Alien Identities" is to show us that UFOs, or vimanas in Sanskrit, were as common to the old Vedic era as airplanes are to humanity today. Contacts with aliens in vimanas occurred regularly over several thousand years of Vedic history, he notes.

Thompson uses an unusual mix of very

readable prose and sometimes excessively long quotes from Vedic texts. He uses rhetorical questions at times. For some people this could be a bit tiresome, but it is largely effective. He asks the reader to think about his questions. One gets the urge to do research on certain aspects of ufology while reading it. He expressed his conclusions in the two parts of the book. This means that you have to refer back to the first set of conclusions after you've read the second one. I find this a trifle awkward. This is a minor point, however. If you're looking for a modern UFO event or theory, you'll find a lot of them in this superb book. Everything's in it from MIB's and the psychical factor to abductions, the Roswell-Corona crash retrieval, "Billy" Meier, and MJ-12.

There are quotes from many books throughout it. The appendices at the end are very interesting. One is a table of U.S. Air Force UFO sightings taken from Richard Hall's "The UFO Evidence.", the other two are entitled "On the Interpretation of Vedic Literature", and "Contemporary Indian Cases".

The book has an 11 page bibliography, 11 pages of footnote at the end, a 13 page index, nine promotional comments about the book, and a really spectacular full colour glossy cover painting.

The acknowledgements mention 171 people, including six former or present CUFORN members. There are only six typographical errors in the book. It was published in 1993 by Govardhan Hill Publishing, 1380 Garnet Avenue, #E-5, San Diego, CA 92109, U.S.A. It costs \$22.95 in Canada and the U.S., and \$23.45 in other countries. Buy it. Read it twice. it's a monumental book with a huge impact.