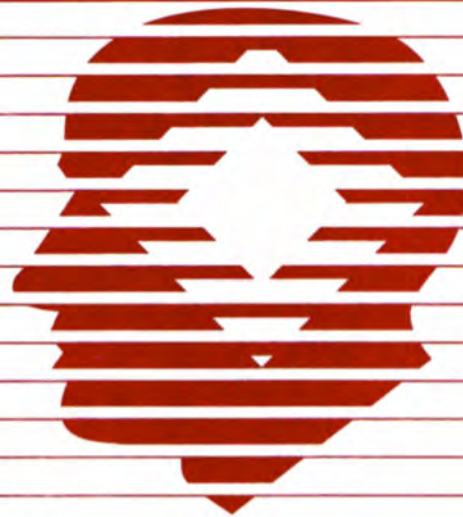


*Special Issue on
Sound and Light*

Volume I, Number 2



MEGABRAIN

R E P O R T

THE CONSCIOUSNESS TECHNOLOGY NEWSLETTER

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EDITORIAL

In this issue we describe over 20 different light and sound machines. Most of these devices have appeared on the market in the last year or two. More and more are emerging all the time. A similar explosion into the marketplace has happened with other types of consciousness technology—new CES devices, a flood of “brain synchronization” tapes using beat frequencies, a multitude of pulsed electromagnetic field generators and so on.

When I was writing the book *Megabrain* back in 1985 I ended it with a tongue-in-cheek vision of the future, a future in which there are chic mind gyms and brain fitness centers, the “brain-training counterparts” to physical fitness centers, in which brain athletes exercise their neurons and hang around the gym after the workout to compare their neuro-efficiency quotients and brag about their ability to produce high-amplitude theta waves. Pretty unlikely, huh?

Today such brain gyms are in operation all over the world. In Japan, among a variety of brain machine centers, a chain of multi-million dollar “Brain Mind Gyms” has opened in Tokyo, Osaka, Numazu, Sakura and other cities, with plans to open many more in the near future. In Germany, nearly 20 cities have brain fitness centers. Centers have opened as well in France, Italy, Spain, Norway, Denmark, England, Australia, Argentina, Brazil, Austria, Switzerland, and numerous other places, not to mention the multitude centers operating in the U.S.

It’s exciting to see an entirely new field, consciousness technology, blossoming so rapidly. We believe consciousness technology may represent an important step in human evolution; that such technology has the potential to enable large numbers of humans to function consistently at levels of mental efficiency, creativity, intelligence, pleasure and love that have in the past been attained, for the most part, only by the gifted few.

For this to happen, we need, first of all, *information*. Then we need *more* information. We in the field need to be able to obtain information, exchange information, create information, pool information, share information.

But for information to be of use, it must be accurate. Collections, statements or communications of data, details, events, items, conclusions, facts, and so on must be accurate, or they convey not information but *misinformation*. Misinformation can lead us into error, harm and confusion. Misinformation makes us *ignorant*.

Another way of saying this is that we who are involved in this field must be honest. To whatever degree we are dishonest in our actions and communications, we are creating misinformation.

A second necessity is that for information to be optimally useful it must flow freely. In a way, this is the same thing as the first necessity. People who attempt to restrict the flow of information are, in fact, being dishonest. It is also another way of creating misinformation, since to hinder the flow of information is to do damage to the information itself, and to do damage to all the people who would or could have received and used that information, and who without it have less information than they would have had. That is, to restrict the flow of information is to make the non-recipients *ignorant* of that information. Censors, then, and people who seek to influence or control the behavior of others by controlling information, just like those who transmit inaccurate

By emphasizing hard scientific research, integrity, responsibility and real information, the field can insure that it will avoid the dangers of suppression.

information, are breeders and creators of ignorance. They harm us all.

But what’s all this *about*? In part it’s about competition and cooperation. In this issue we describe over 20 different light and sound devices. The proliferation of these devices reminds me of the flood of PCs back in the early 80s—as the technology of microelectronics made the creation of these devices possible, a horde of entrepreneurs entered the market. What happened was competition. The result was that there was a “shaking out” of the field, with lots of lawsuits, corporate spying, attempts to protect or get access to “proprietary” information, and numerous small (and some large) companies falling by the wayside. Similarly, I believe that in the coming few years there will be a shaking out of light and sound devices, specifically, and of consciousness technology in general (including the increasingly numerous brain-tech gyms). But for the time being, what the crowded field means, particularly for manufacturers, entrepreneurs, distributors, and users, is competition.

As history sadly tells us, such competition can lead some of the competitors to seek to use

misinformation, or to restrict the flow of information, to get an advantage over some of their competitors or to attempt to damage competitors. This issue of the newsletter contains a detailed report on at least one manufacturer of light and sound machines who has apparently attempted to spread misinformation (see “A Long and Twisted Tale: Denis Gorges and the Synchro-Energizer”). As I noted, misinformation harms us all.

On the other hand, the rapid growth of consciousness technology does not necessarily entail competition. I personally have found that many of the individuals involved in this field are eager to cooperate with each other—even their so-called competitors—since they see clearly that such cooperation will increase the flow of information, and will therefore in the long run help us all. As one small example, in the roundtable discussion with three manufacturers of light and sound devices, we asked them if it would be possible for them to make machines that were compatible, so that, as has happened in the computer industry, components such as goggles and consoles and the software that controls the light and sound stimulation could be interchangeable. They all agreed that this was possible, and all of them seemed interested in exploring the possibility.

These three, along with numerous other manufacturers, researchers, inventors, machine-users and others, have expressed to me their interest in forming some sort of consciousness technology organization (association, guild, league) that would insure greater cooperation in the field.

It’s a good idea. Such an organization could be beneficial in a variety of ways. First, it would be open to all—scientists, manufacturers, distributors, explorers, consumers, students, saints. For those who are interested in purchasing and using such devices, the organization could serve as an advocate and protector. It could, with the cooperation of the manufacturers and researchers, establish certain minimum standards for safety, quality and truth-in-advertising that all machines had to meet to gain the organization’s seal of approval. It could even work with a laboratory to oversee such work (Dr. Glen Rein, for example, whose discussion of scalar fields was featured in MEGABRAIN REPORT #1, has expressed interest in using his own Quantum Biology Research Laboratory to perform such investigative research into consciousness technology devices; he is only one of several scientists who have expressed interest in doing such work).

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THE MEGABRAIN REPORT SPECIAL ISSUE ON SOUND AND LIGHT TECHNOLOGIES

This issue features a rich consideration of Sound and Light: the machines, the magic, the field of study, the industry, the marketplace, the individuals who shape it, how they see it all, and the skeletons-in-goggles who people its closets.

We begin with the sound of shamanic drumming lit by the hypnotic flicker of tribal fires in *Time Flashes: A Short History of Sound and Light Technology* (next page) which reviews not just the history, but also the future, as well as the scientific research into this family of devices.

Today, the marketplace contains a bewildering array devices with varied features and designs, most of which are reviewed, evaluated and made comprehensible in *The Megabrain Report Consumers' Guide To Sound and Light Technology* (page 8).

This survey of the available equipment makes one point especially clear: this field is rapidly, *constantly* changing. What is the view from under the volcano? To find out, we held a roundtable discussion, over the phone, with three leading manufacturers of Sound and Light Devices, *Technological Revolutionaries: A Manufacturers' Roundtable* (see page 20).

In that conversation an old controversy surfaced, so we offered twin soapboxes to David Siever and Robert Austin. Will it be Red or White tonight? See *Shedding Some*

Light on Photic Driving: Two views of Red LEDs versus White Lights (see page 6).

Beyond mere controversy, however, are the complicated karmic threads of intrigue, resentment, and disinformation which surround one of the most bizarre entrepreneurs in the Sound and Light industry, Mr. Denis Gorges. As we set out to uncover the facts surrounding this remarkable individual, we were drawn into a bit of investigative journalism, and the resulting scoop is both a detective story and a contemporary techno-tragedy. *A Long and Twisted Tale: Denis Gorges and the Syncro-Energizer*, begins unspinning its tightly-wound yarn on page 40.

About This Issue...

When this issue was otherwise ready to go to press, MEGABRAIN REPORT's editorial staff was working at a fever pitch, investigating a remarkable and fast-breaking story. Tracing fishy-looking FDA letters back to their actual source, we knew we had happened upon a very important series of facts — one which was directly affecting many of our readers. Rather than deferring this exciting article into a future issue, we decided to "hold the presses" until it could be included. We think you'll appreciate our decision when you read (starting on page 40) what delayed us: *A Long and Twisted Tale: Denis Gorges and the Syncro-Energizer*.

It constitutes only a part of our "Special Issue on Sound and Light Technology." You will also find the MEGABRAIN REPORT Product Review beginning on page 30, which considers dual-induction audio tapes from Hypno-Peripheral Processing, The Changeworks, and Paraliminal Tapes; the MEGABRAIN REPORT Book Review on page 36 considers *The Anatomy of Sex and Power* by MEGABRAIN REPORT's own Michael Hutchison. Finally, on page 34, you'll find *Roll Your Own: The Megabrain Report Schematic*, featuring The Centron, a pulsed scalar field generator designed by Peter Lindemann.

We apologize for the delay in this issue's appearance. We hope subscribers will find that this jam-packed, almost double-sized issue is well worth the wait. Because of the delay, please consider Vol 1, No 1 a Summer issue, and this a Fall issue. Subscriptions that began with our first issue will continue through the Winter and Spring issues of MEGABRAIN REPORT. Thanks for your patience.

MEGABRAIN® REPORT

The Consciousness Technology Newsletter

Volume 1, Number 2

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MEGABRAIN REPORT is published four times a year by Megabrain, Inc., 4000 Bridgeway, Suite 401, Sausalito, CA 94965. Editorial and circulation address is: MEGABRAIN REPORT, P.O. Box 2744, Sausalito, CA 94965. U.S. subscriptions are \$36/year, Canadian and Mexican subscriptions are \$41/yr, and other foreign subscriptions are \$48/yr, payable to MEGABRAIN REPORT. Subscription inquiries: send new or renewal notices or change of address (send both new and old addresses) to MEGABRAIN REPORT, P.O. Box 2744, Sausalito, CA 94965.

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TIME FLASHES: A SHORT HISTORY OF SOUND AND LIGHT TECHNIQUES

by Michael Hutchison

To those seeing them for the first time, sound and light devices may seem bizarre, like something out of a science fiction movie—the users seem laid back, *out there* somewhere, wired into a small box listening through headphones to some unheard sounds while eerie light pulsations flicker inside futuristic goggles. And to those encountering these devices from a background of meditative practice, the idea that one can attain heightened or meditative states of consciousness by using a machine, and the sheer technical computerized hardware of the devices themselves, must seem coldly materialistic. But while the hardware may seem new, the techniques being used are ancient.

Light

The knowledge that a flickering light can cause mysterious visual hallucinations and alterations in consciousness is something humans have known since the discovery of fire. It must have been knowledge of great value to the ancient shamans and poets, who learned how to use the images in the flames to enhance their magic. Ancient scientists were also intrigued by this phenomenon, and explored its practical applications. In 125 A.D. Apuleius experimented with a flickering light stimulus produced by the rotation of a potter's wheel, and found it could be used to reveal a type of epilepsy. Around 200 A.D. Ptolemy noted that when he placed a spinning spoked wheel between an observer and the sun, the flickering of the sunlight through the spokes of the spinning wheel could cause patterns and colors to appear before the eyes of the observer and could produce a feeling of euphoria.

In his research into the effects of light, David Siever has found that in the 17th century, a Belgian scientist, Plateau, used the flickering of light through a strobe wheel to study the diagnostic significance of the *flicker fusion* phenomenon. As he caused the light flickers to come faster and faster, he found that at a certain point the flickers seemed to "fuse" into a steady, unflickering light pattern. Plateau discovered that healthy people were able to see separate flashes of light at much higher flicker speeds than were sick people. (In recent years, studies using light sources such as a tachistoscope to provide rapid light flashes have revealed that long-term meditators are able to see discrete flashes of light at much higher flicker rates than non-meditators.) At the turn of the century, French psychologist Pierre

Janet noticed that when patients at the Salpetriere Hospital in Paris were exposed to flickering lights they experienced reductions in hysteria and increases in relaxation.

Sound

Similarly, humans had always been enthralled by the effects of rhythmic sounds, and aware of the mind-altering and brain wave entrainment effects of rhythmic noises, as evidenced for example by the sophisticated auditory-driving techniques developed over thousands of years by shamans and priests. As anthropologist and shamanism authority Michael Harner, points out, "Basic tools for entering the SSC [Shamanic State of Consciousness] are the drum and rattle. The shaman generally

tones of their music.

Sound and Light Together

Humans have also long been intrigued by the possibilities for influencing mental functioning that emerge from combining *both* rhythmic light and rhythmic sound stimulation. Ancient rituals for entering trance states often involved both rhythmic sounds in the form of drumbeats, clapping or chanting, and flickering lights produced by candles, torches, bonfires or long lines of human bodies rhythmically dancing, their forms passing before the fire and chopping the light into mesmerizing rhythmic flashes. Some composers of the past, such as the visionary Scriabin, actually created music intended to be experienced in combination with rhythmic light displays.

Technological advances made possible even more powerful combinations of sound and light. Moving pictures developed soundtracks, and moviemakers quickly exploited the potentials of sound to enhance the power of the flickering images onscreen, so that movies like "Gone With the Wind," "The Wizard of Oz" and others that followed became true audio-visual experiences in which the rhythmic

soundtrack was fused with the flickering light and the rhythmic flickering of montage editing techniques to create alterations in the consciousness of the audience that would have been impossible using only sound or only light. The interplay of electronic musical instruments and amplified sound with stroboscopic "psychedelic light shows" that took place in the rock concerts of the 1960s could produce rapid and profound alterations in consciousness.

Modern scientific research into the effects of rhythmic light and sound began in the mid-1930s when scientists discovered that the electrical rhythms of the brain tended to assume the rhythm of a flashing light stimulus, a process called *entrainment*. Research shifted into high gear in the late 1940s when the great British neuroscientist W. Gray Walter used an electronic strobe and advanced EEG equipment to investigate what he called the "flicker phenomenon." He found that rhythmic flashing lights quickly altered brainwave activity, producing trancelike states of profound relaxation and vivid mental imagery. He was also startled to find that the flickering seemed to alter the brain-wave activity of the whole cortex instead of just the areas associated with

Ptolemy noted that flickering sunlight through the spokes of a spinning wheel could produce patterns and colors and a feeling of euphoria.

restricts use of his drum and rattle to evoking and maintaining the SSC. . . . The repetitive sound of the drum is usually fundamental to undertaking shamanic tasks in the SSC. With good reason, Siberian and other shamans sometimes refer to their drums as the 'horse' or 'canoe' that transports them into the Lowerworld or Upperworld. The steady, monotonous beat of the drum acts like a carrier wave, first to help the shaman enter the SSC, and then to sustain him on his journey."

Researcher Andrew Neher investigated the effects of drumming on EEG patterns in the early 1960s and found the rhythmic pounding dramatically altered brain wave activity. Other researchers of shamanistic rituals, Harner observes, have "found that drum beat frequencies in the theta wave EEG frequency range . . . predominated during initiation procedures."

And humans have always been keenly appreciative of the consciousness-heightening powers of music, which is of course, among other things, a succession of rhythmic auditory signals. For thousands of years musicians and composers have consciously and intentionally influenced the brain states of listeners by manipulating the frequency of the rhythms and

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vision. Wrote Walter: "The rhythmic series of flashes appear to be breaking down some of the physiologic barriers between different regions of the brain. This means the stimulus of flicker received by the visual projection area of the cortex was breaking bounds—its ripples were overflowing into other areas." The subjective experiences of those receiving the flashes were even more intriguing: "Subjects reported lights like comets, ultra-unearthly colors, mental colors, not deep visual ones."

Walter's research aroused the attention of many artists, including the American novelist William Burroughs, and they put together a simple flicker device called the Dreammachine. As Burroughs described it in the 1960s, "Subjects report dazzling lights of unearthly brilliance and color. . . .

Elaborate geometric constructions of incredible intricacy build up from multi-dimensional mosaic into living fireballs like the mandalas of Eastern mysticism or resolve momentarily into apparently individual images and powerfully dramatic scenes like brightly colored dreams."

A flood of subsequent scientific research in the 1960s and 70s revealed that such flicker effects at certain frequencies seemed to have amazing powers. Various scientists discovered that such photic stimulation could have a variety of beneficial effects, such as increasing I.Q. scores, enhancing intellectual functioning and producing greater synchronization between the two hemispheres of the brain. Other researchers found that the addition of rhythmic auditory signals dramatically increased the mind-enhancing effects.

Throughout history technological advances, such as those in cinema, have quickly been seized upon to stimulate the human fascination with rhythmic sound and light. Throughout the 1970s and early 1980s, technological advances also made it possible for scientists to understand more fully how sounds and lights influenced the electrochemical activity of the brain. The result was the flood of studies mentioned above, dealing with photic and auditory entrainment, and hemispheric synchronization.

In the early 1970s, Jack Schwarz, known for his feats of self-healing and self-regulation, began selling a device known as the ISIS, which used variable frequency lights mounted in goggles combined with rhythmic sounds to produce heightened mental states. In 1973, scientist Richard Townsend published a description of his research with a device using

goggle-mounted lights for photic entrainment. In 1974 a scientist at City College of New York, Seymour Charas, obtained the first patent on a combined sound and light stimulation device, though it was never put into commercial production. But by the early 1980s the time was right for a breakthrough in the combination of sound and light.

The catalyst was the revolution in microelectronics that was taking place at that time, a revolution that allowed home electronics buffs and garage inventors to put together astonishingly sophisticated and complex devices for producing and combining sound and light—devices that could produce a rich assortment of tones, chords and even beat frequencies; that permitted the selection of a variety of light-

Ancient rituals for entering trance states often involved rhythmic sounds and flickering lights.

flash patterns and intensities; that enabled the user to select the mode of interplay between lights and sound; that contained a number of preset "programs" designed to produce specific states of consciousness, ranging from sleep to meditation to extreme alertness, at the push of a button; and that permitted the users to design and store in the device's computerized memory a variety of their own programs. Before the breakthroughs in microelectronics, such complex computerized devices would have been enormously expensive to build, and like the old UNIVAC vacuum-tube computers, their circuitry and components would have been huge and unwieldy. But these new sound and light stimulators were relatively small—some of the first models were about the size of a portable typewriter, and soon models were being made with consoles not much larger than a pack of cards.

As happened with personal computers, there seem to be new advances, new machines, and new generations of older devices appearing almost constantly; and as with PCs, the advances have included smaller size, greater versatility and power, and steep reductions in price. As this is written, there are well over 20 sound and light machines in commercial production around the world, and we seem on the

verge of an entirely new generation of devices that combine sound and light stimulation with

biofeedback capabilities. These new devices enable the machine to read the user's dominant brainwave activity, and then provide the optimal frequency of sound and light to entrain brainwave activity toward the "target" frequency. One such device (the DreamWave) is already on the market.

Another significant development is the advent of a sound and light system on a simple board that can be plugged into your computer's expansion slot. One example currently on the market is the MindsEye Synergizer, a hardware-software combination that turns an IBM PC XT/AT/386 or clone into a research laboratory grade audio-visual synchronizer, permitting users to program hundreds of sessions of almost any length and complexity, to program each eye and ear independently (this permits extraordinary effects, such as combining alpha and theta frequencies, or setting up visual "beat frequencies"), create sounds, chords and beat frequencies on the computer with a stereo synthesizer, and program thousands of time ramps and sound-light levels into a single session.

These developments point the way toward the future. I believe it will be only a short time until we have a fully computerized integrated and interactive system that would allow the user to put on a few electrodes that would monitor EEG as well as other physiological indicators (muscle tension [EMG], skin potential, heart rate, skin temperature, breathing, etc.) and display them on the computer screen in real time; would use this information to provide the optimal type of sound and light stimulation (as well as cranial electrostimulation and appropriate digitized music selections or preprogrammed audio suggestions, hypnotic inductions, information for accelerated learning, etc.); and would permit the storage of thousands of sessions, with individual users able to select desired mind states or experiences with the ease of selecting a channel on the TV, or play back or re-experience past sessions. The technology for such a system is already available.

■ TIME FLASHES: A SHORT HISTORY OF SOUND AND LIGHT TECHNOLOGY CONTINUED

Sound and Light Research

It has been well established that these devices can rapidly produce states of deep relaxation, and may increase suggestibility, receptivity to new information, and enhance access to sub-conscious material. New work into the effects of these devices is being undertaken around the world, and preliminary results suggest that the machines may be beneficial in the treatment of migraine headaches and learning disorders, alleviation of pain, enhancement of immune function, and much more. Here's a summary of some of the most interesting work done in the last decade.

In one preliminary 1980 study of one of the sound and light machines, Dr. Thomas Budzynski, biofeedback researcher and clinician, found that "Results ranged from production of drowsy, hypnagogic-like states (with theta frequency used), to vivid, holograph-like images. At times, images from childhood were experienced." This led Budzynski to speak of the device as a "Hypnotic Facilitator," and a "Facilitator of 'Unconscious Retrieval,'" that could have therapeutic value, since the device seemed "to allow the subject to recall past childhood events with a high degree of 'being there' quality." He also suggested that the device could be effective for accelerated learning, since it seemed capable of putting users in the theta (or "twilight state") of hyper-suggestibility and heightened receptivity to new information.

Medical researcher Dr. Gene W. Brockopp of Buffalo, New York, speculated that sound and light stimulation could perhaps "actively induce a state of deactivation in which the brain is passive, but not asleep; awake, but not involved with the 'clutter' of an ongoing existence. If this is true, then it may be a state in which new cognitive strategies could be designed and developed." Brockopp also suggested that "If we can help a person to experience different brain-wave states consciously through driving them with external stimulation, we may facilitate the individuals' ability to allow more variations in their functioning through the breakup up of patterns at the neural level. This may help them develop the ability to shift gears or 'shuttle' and move them away from habit patterns of behavior to become more flexible and creative, and to develop more elegant strategies of functioning."

In a study of "The Effect of Repetitive Audio/Visual Stimulation on Skeletomotor and Vasomotor Activity," performed by Dr. Norman

Thomas and his associate David Siever, at the University of Alberta, a group of experimental subjects were given audio/visual stimulation (using a DAVID device) at a frequency of 10 Hz (in the alpha range) for 15 minutes, while being monitored for muscle tension, using an EMG, and for finger temperature. A control group, similarly monitored, was simply asked to relax and to visualize a tranquil scene, without audio-visual stimulation, for the same 15 minute period. Significantly, both the experimental group and the control group were what the researchers called "resistant" or "non-hypnotisable" subjects. While the control subjects expressed a sense of relaxation, the EMG and finger temperature monitors showed that, quite to the contrary, they were actually experiencing *increased* amounts of muscle tension and decreases in finger temperature (associated with tension or stress). On the other hand, the group using the sound and light machine showed dramatic increases in relaxation, reaching profound relaxation states that continued for long periods after the 15 minutes of audio-visual stimulation. The researchers wrote: "It is concluded that autosuggestion relaxation is not as effective as audio-visually produced relaxation. Electroencephalography shows that a frequency following cortical response is evoked in the audio-visually stimulated subjects. It appears that audio-visual stimulation offers a simple hypnotic device in otherwise resistant subjects."

In 1988, anesthesiologist Robert Cosgrove Jr., Ph.D., M.D., undertook preliminary studies of sound and light stimulation. In his initial evaluations, in which he used the Alpha-Pacer II device, Cosgrove, an authority in

The machines may be beneficial in the treatment of migraine headaches and learning disorders, alleviation of pain, enhancement of immune function and more.

pharmaceutics and biomedical engineering, noted that audio-visual stimulation was "clearly very powerful in its ability to cause deep relaxation in most subjects. Its effectiveness has been so great that we are very enthusiastic about the prospect of evaluating the [device] for its sedative properties in patients prior to, during, and immediately following surgery. We are also undertaking studies to prove [its] utility in chronic stress."

"We are also," Cosgrove continued, "quantitating the electroencephalographic (brainwave, EEG) effects . . . in both volunteers and patients. Our preliminary results show strong EEG entrainment."

The device, Cosgrove noted, "with appropriately selected stimulation protocols has been observed by us to be an excellent neuropathway exerciser. As such we believe it has great potential for use in promoting optimal cerebral performance. . . . Furthermore, the long-term effects of regular use of the device on maintaining and improving cerebral performance throughout life and possibly delaying for decades the deterioration of the brain traditionally associated with aging is very exciting. We plan to test this hypothesis in brain injured patients where the degree of recovery has been proven to be related to sensory and cerebral stimulus, with the results having implications for long-term use in healthy normal brains."

In 1989, another researcher, D.J. Anderson, used photic stimulation using red LED goggles to treat seven sufferers of migraine headaches—none of whom had been able to relieve their migraines with drug treatments. He found that out of 50 migraines noted, 49 were rated by subjects as being "helped," and 36 stopped by the photic stimulation. Significantly, brighter lights were found to be more effective.

Further evidence of the potential therapeutic value of photic stimulation has come from researcher Jill Ammon-Wexler, Ph.D., of the Innerspace Biofeedback and Therapy Center in Los Gatos, CA, using a device that uses a flickering light stimulus without an accompanying sound stimulus. The device, called a Lumatron, uses a strobe light with color filters to provide rhythmic photic stimulation in variable frequencies and in selected wavelength or color bands [MEGABRAIN REPORT will devote a full-length article to this device in a future issue]. Ammon-Wexler did a controlled study of twenty subjects suffering from phobias and found that "remarkable resolution of the subjects' phobic systems had occurred over the process of the 20 experimental sessions. There was also 'across the board' evidence for enhanced self-concept, and clinically-significant reductions in both anxiety and depression."

Dr. Ammon-Wexler's findings have encouraged her to undertake another study that will investigate the effectiveness of both the Lumatron and a sound and light machine, the IM-1, in the treatment of drug addiction and withdrawal from drug addiction.



Dr. Ammon-Wexler's findings about the potential medical benefits of photic stimulation have been echoed recently by William Harris, M.D., director of the Penwell Foundation, an organization for the investigation, research and application of different modalities for the treatment of those with AIDS/HIV. In preliminary work with a number of AIDS sufferers he has experimented with the use of a sound and

The study found "‘across the board’ evidence for enhanced self-concept, and clinically-significant reductions in both anxiety and depression."

light machine (the IM-1) and found it extremely effective. According to Dr. Harris, the device is extremely effective in helping subjects with "clear focusing," or learning to accept and gain a clear perspective on the fact of the disease and the ramifications of it. He also finds that it helps the patients to fall asleep more easily (many AIDS patients find it difficult to sleep), and to sleep for longer periods of time, which not only helps produce greater relaxation in general, but also allows the liver to detoxify the body more effectively. He speculates that the device may boost immune function by producing states of deep relaxation, by enhancing the patients' receptivity to suggestions for healing, by improving patients' ability to visualize and the clarity of their visualizations. "At this point it's conjecture," says Harris, "But I think that this type of machine may actually be stimulating . . . the body to produce its own chemical substances," and that these natural substances may enhance immune function and healing.

In 1990 Bruce Harrah-Conforth, Ph.D., of Indiana University completed a controlled study of one of the computerized sound and light machines (the MindsEye Plus) the result of over two years of research into the field of brain entrainment, and found that compared to the control group, which listened to pink noise with eyes closed, the group receiving sound and light stimulation showed dramatic alterations in their EEG patterns responding to the frequency of the sound and light device, and also showed evidence of hemispheric synchronization. Participants in the study were asked to describe their experiences. According to Dr. Harrah-Conforth, "the subjects' comments were such typical descriptions as 'I lost all sense of my body,' 'I felt like I was flying,' 'I

was deeply relaxed,' 'I felt like I was out of my body,' etc."

The report by Harrah-Conforth suggests that sound and light devices may cause simultaneous *ergotropic arousal*, or arousal of the sympathetic nervous system and the cerebral cortex, associated with "creative" and "ecstatic experiences," and *trophotropic arousal*, or the arousal of the parasympathetic system, associated with deep relaxation and "the timeless, 'oceanic' mode of the mystic experience." In humans, Dr. Harrah-Conforth concludes, "these two states may be interpreted as hyper- and hypo- arousal, or ecstasy and samadhi."

In a separate letter to MEGABRAIN REPORT, Harrah-Conforth writes: "I have little doubt that brain entrainment technology is a highly effective means of inducing changes in consciousness." He continues, "Brain entrainment, at least within my own research, has shown itself to be virtually foolproof and does indeed facilitate whole brain experiences." While pointing out that our current understanding of brain entrainment technology is only in its infancy, he writes "there seems to be little doubt that this technology has a remarkable future. The evidence, my own and others, clearly indicates that brain-wave entrainment is produced by these machines. EMG tests have also made it quite clear that one of the byproducts of this entrainment can be the relaxation response. And subjective reports range from heightened creativity, to beautiful visual trips, to increased alertness, and many other states." He concludes that "the early indications are strong that this now-developing technology will profoundly revolutionize both our concepts of, and interaction with, our consciousness. . . . The evolution of human consciousness is a tangibly manipulable process. We can control our destiny. . . . It would appear as though brain entrainment will be among the technologies leading the way."

California psychologist Julian Isaacs, Ph.D., working with a private research group, is now engaged in an ongoing study of the brain-wave effects of sound and light as well as other mind-altering devices. Megabrain, Inc. is cooperating in this research by, among other things, making available a number of devices. Isaacs and his colleagues are using a 24 electrode color brainmapping EEG, with newly developed software that permits extremely precise and sensitive measurement and statistical analysis of whole brain electrical activity. In a discussion of his preliminary findings, he told me that there was "very clear evidence of brainwave driving" using sound and light. He

also said he'd found a very strong correlation between the intensity of the lights used (whether red LEDs or incandescent bulbs) and the brain-entrainment: the brighter the lights, the more entrainment. He mentioned one device he had tested that used dim lights, and found it had "no brain driving capacity at all."

However, Isaacs pointed out that it was easiest to entrain brain-wave activity in the alpha range, while it seems much more difficult to drive the slower brain frequencies, such as theta (a fact discussed by the machine manufacturers in the roundtable discussion elsewhere in this issue). However, the EEG evidence was quite clear that people using the devices did indeed spend much of their sessions in theta. Often, however, their dominant theta frequency was very different from the theta frequency being flashed by the sound and light machine. How to explain this? Isaacs suggested the possibility that while the devices can clearly and quickly entrain brainwave activity into the low alpha range, what happens next is that the brain becomes habituated to the repetitive stimulus and the Reticular Activating System—the volume control and attention-directing part of the brain—simply tires of the repetitive stimulus and ignores it, or "blank out" the conscious perception of the lights. As a result, the brain drops into the theta state.

One study finds sound and light produce simultaneous hyper- and hypo-arousal, or ecstasy and samadhi. The effect, that is, may be very much like that of the *ganzfeld*, which uses a featureless and unvarying visual field to cause the "blank out" effect. This theory brought to my mind the work of Dr. Gene Brockopp mentioned above, who suggested that sound and light stimulation could perhaps "actively induce a state of deactivation in which the brain is passive, but not asleep; awake, but not involved with the 'clutter' of an ongoing existence. If this is true, then it may be a state in which new cognitive strategies could be designed and developed."

Further discussions of recent scientific research into the effects of sound and light machines can be found in the "Sound and Light Interviews," and in the separate discussions of the "red LED controversy" by Robert Austin and David Siever, elsewhere in this issue.



SHEDDING SOME LIGHT ON PHOTIC DRIVING: TWO VIEWS OF RED

Why Use Red LEDs Instead of White Lights?

by Robert Austin

Synetic Systems Inc. (makers of the MindsEye, Courier, Synergizer, etc.)

There has been a certain amount of controversy recently regarding the optimal light source for light/sound devices. Although personal preference is important, there are certain technical concerns of which the user should be aware.

Most published research involving photic driving has utilized special flash lamps, similar to the familiar strobe light of dance floor fame. These lamps typically produce a white light with an emphasis on the blue end of the spectra, and are very effective at producing spikes in the EEG (brainwave) pattern, known as *visual evoked potentials (VEPs)*. Irregularities in the structure of these signals can alert the clinical diagnostician to such conditions as multiple sclerosis. Rhythmic stimulation can also induce the characteristic brainwave activity called the photoconvulsive response in individuals who may suffer from epilepsy; these high amplitude delta waves sometimes presage the extremely high amplitude alpha waves associated with grand mal seizures.

Such flash lamps generate very short, intense pulses of light. The very fast transition from "off" to "on" has the advantage of quickly firing many nerve impulses simultaneously from the retina, producing a well-defined VEP. However, it is very hard to control the brightness of the flashlamp, and there is virtually no way to control the ratio of "on" time to "off" time. Finally, most flashlamps suffer from relatively short life expectancies, and replacement bulbs are fragile, hard to obtain, and expensive.

Superbright light-emitting diodes (LEDs) possess many of the advantages of strobe flash lamps, while avoiding some major disadvantages. As with the strobe, the very fast transition from "off" to "on" causes simultaneous firing of large numbers of retinal neurons, allowing the induction of the desired brain-wave activity with relatively dim lights. In addition, the ratio of lamp on to off time (*duty cycle*) may be precisely controlled with the LED; this is not possible with either strobes or incandescent bulbs. Varying the pulse width affects the visual imagery noted by most users

without impacting the benefits of photic driving. This is of considerable value to those users or therapists who are utilizing this technique for guided imagery or lucid dreams. Evidence suggests that wider pulse widths are more effective than narrow for a given average brightness when photic driving at low theta/delta frequencies.¹

LEDs have a typical life expectancy of 50,000 to 100,000 hours - far longer than incandescent bulbs - when driven by properly designed circuitry. In other words, they are extremely efficient and reliable, though the special high-brightness LEDs used by most manufacturers are rather costly. Although several colors are commercially available, the red lamps possess the maximum potential brightness. Moreover, there is considerable evidence suggesting that red light is more effective than white or other color light sources at inducing the desired electrical activity in the brain.² The results of one study suggests that deep red light may be as much as 100 times more efficient than white light.³

Most incandescent bulbs suffer from an unfortunate limitation: they cannot be switched on and off very rapidly. This is due to the fact that the filament within the bulb must be electrically heated before it can glow at maximum brightness, a process that typically requires 10-100 milliseconds for small bulbs. Likewise, the filament must cool off over a similar period before it switches fully "off." Attempting to switch such bulbs on/off with any degree of rapidity causes the brightness output to approximate a sine wave, centered between but never reaching full "on" and "off."⁴ The result is inefficient photic driving.

Those claiming special benefits for "full spectrum" white light neglect to mention that the full spectrum does not make it past the fine network of blood vessels in the eyelids. Indeed, it is often pointed out in the literature that the eyelids pass mainly red or red-orange light. The eyelids are also very efficient diffusing screens, blurring point sources of light into a ganzfeld. You can easily verify these facts for yourself by closing your eyes and facing a small, bright source of light, such as the sun.

Preliminary results imply that there may be specific medical benefits from red LED-based devices. A recent study found that red LED-based photic stimulation provided relief from migraine pain.⁵ There appear to be other potential health benefits from exposure to red light.⁶

As previously mentioned, personal preference does play an important role in the selection of a light/sound (or light only) device. Although red light has been shown to be a more efficient source for photic driving than white, the nature of the visual imagery that appears behind the closed eyelids under photic stimulation is different for white and red LED light, and in the latter case varies further with pulse width. Our experience has indicated that users tend to prefer whichever color they were first exposed to. Finally, there is evidence that mechanisms in addition to or other than photic driving (and aural entrainment) are involved in the relaxation benefits of these devices, as we have seen cases of individuals who showed little entrainment who nevertheless fell quickly asleep. Needless to say, we are investigating this effect further.

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Both sine wave modulated and pulsed light were examined. "As to be expected the responses to (pulsed light) are larger than those to modulated light." (p. 9) And, "At a repetition rate of 3.3 cps the responses are higher with a light-dark ratio of 1/1 than with 1/8 with the same average intensity."

2. Influence of Red Light and Pattern on Photic Driving. Takeo Takahashi. Yasuo Tsukahara. *Tohoku Journal of Experimental Medicine.* 1979;127: 45-52

This study compares the efficiency of white strobe lights and red "flicker" with eyes open and closed; flickering dot patterns viewed with eyes open are also examined. Relevant quotes include: "These results suggest that the effect of evoking (photic driving) by (white strobe lights) to the eyes closed closely resembles that of red-flicker, although the former has less effect than the latter (at a given brightness level)." (p.50) And, "... it has been documented that the white light under a condition of eyes closed is changed to a diffuse red light by a red filter and ganzfeld effect of the eye lids." (ibid.) Finally, "It should be stressed that high amplitude (photic driving was) more frequently evoked by... red flicker than (white strobe lights) to the eyes closed." This study included 108 subjects.

3. "Color and Photosensitive Epilepsy." C.D. Binnie, O. Estevez, D.G. A. Kasteleijn-Nolst Trenite, A. Peters. *Electroencephalography and Clinical Neurophysiology.* 1984;58: 387-391.

This report, despite its ominous title, considers the relative efficiency of red and green flicker vs. white for photic driving. The authors point out that deep red light can be as much as one hundred times more efficient as white as a driving source and point out that "it is... a feature of the color opponent system that mutual inhibition exists between cones of different spectral sensitivities. Thus the response of luminosity-sensitive cortical units to stimulation of cones of one type is reduced by stimulating others with a different (color) sensitivity." Therefore stimulation of only the red cones avoids that mutual inhibition, making it a more efficient source for photic driving.

4. A device for generation and presentation of modulated light stimuli. Townsend, Richard E.

RED LEDs VERSUS WHITE LIGHTS

The Case for White Rather Than Red LEDs

by David Siever

Comptronic Devices Ltd. (Makers of the DAVID I, DAVID Jr., Paradise, etc.)

Recent developments in research and technology allow us to safely and effortlessly recreate brain wave states associated with deep relaxation and meditation through the use of pulsing tones and flashes of lights. These devices are commonly referred to as "light and sound devices" the first of which utilized white lights. Today, there are numerous light and sound devices available, some using red light emitting diodes (LEDs) in the eye sets rather than the original white lights. There has been much discussion lately about the use of either white lights or red LEDs in these light and sound devices.

In the design and manufacture of all these different makes and models of light and sound devices, why did some choose to use red LEDs instead of the "norm," white lights? Cost appears to be a deciding factor. The cost of a red LED is far less than that of a white light with a response time quick enough to satisfactorily stimulate the receptors of the eye. At Comptronic Devices, we have investigated several dozen bulbs and finally came across the one we are using in our Omni-screen goggles. It is a special "grain of wheat" bulb used primarily by the U.S. military with a response time that is 0.4 milliseconds, which is faster than receptors of the eye can respond. Because these bulbs last longer than ten thousand hours, they are expensive. These rapid, high quality bulbs are also quite different from the inexpensive, low quality incandescent bulbs with very slow rise times and short lifetimes used in other "white light" sound and light machines.

Research with chronic pain patients by the Workers Compensation Board in Edmonton,

Alberta has revealed that when either red overlays or red LEDs were used as the stimulating color, both the user's anxiety and pain increased. However white, green or blue colored visual stimulus produced beneficial results.¹

Anecdotal studies also report that when using red overlays or red LEDs users occasionally experienced anxiety and a sense of being "unsettled" during the hours following a session. In people who are photosensitive, red LEDs are more likely to aggravate the photoconvulsive response.²

Also, for most effective results in using lights to produce entrainment, full spectrum stimulation is required. The visual response of the human eye ranges from approximately 4000 to 7000 angstroms (400-700 nanometers) with a center point of about 550 nanometers (the color green). A red LED emits light only on the red end (6500 Angstroms) of the visible spectrum. A substantial intensity is required to cause complete stimulation of the red receptors. Although white light produced by incandescent bulbs is more intense on the red end of the spectrum this white light covers the entire visible spectrum.

It has been thought by some that the eyelid filters out some of the colors of white light. However, when white light is passed through the eyelids, a magenta/orange/yellow color is observed. This color is a composite of green and blue which is passed by the hemoglobin in the blood vessels and red light which is passed by other components of the blood and eyelid.³

In order to achieve maximal brain wave entrainment, the "ganzfeld" aspect of light and sound stimulation must be strictly preserved. That is, pulses of light or sound must appear identical with each other. This is why the dispersion angle of the light source is very important. White lights "throw" their light in almost every direction. Red LED light is much more focused (approximately 30 degrees), and

when placed $\frac{1}{4}$ inch from the eye, the red LED light does not have the distance needed to spread out. Because red LEDs stimulate only a portion of the total visual field and the eye is always moving, the "red spot" seen by the eye is always bouncing about within the visual field. The brain processes this as information and entrainment is temporarily lost.

According to the research available and extensive product development, white lights, although more expensive, will be much more effective in producing brain wave entrainment than the red LEDs.

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2. "Influence of Color on the Photoconvulsive Response," T. Takahashi, Y. Tsukahara, *Electroencephalography and Clinical Neurophysiology*, Aug 1976, 41 (2), 124-36. Using a visual stimulator, the effect of color on the photoconvulsive response (PCR) was studied in 14 photosensitive patients. When stimuli of 15 c/sec flickers of white, red, yellow, green and blue light of 20 cd/m² were given to the subjects, generalized PCRs were provoked only by the red-flicker. These PCRs were all inhibited by blue light of 1.9 cd/m² when given either after the appearance of the PCRs or simultaneously with the red-flicker from the start. When blue light was given after the appearance of the PCRs the latency of appearance of the PCRs in response to the red-flicker showed an inverse relation to the disappearance latency of the PCR in response to the blue light. With blue light of 1 cd/m², however, inhibition of the PCRs was seen in only 2 cases when it was given after the appearance of the PCR, and in only 1 case when the blue light was simultaneously given with the red-flicker from the start. These results clearly disclosed the following findings: (1) among various colored lights, an excitatory effect on generalized PCR was always seen only with red light at 15 c/sec and 20 cd/m²; (2) the PCRs provoked by the red-flicker were inhibited by blue light of 1.9 cd/m², but not by blue light of 1 cd/m².
3. "A Theoretical and Experimental Study of Light Absorption and Scattering by In Vivo Skin." J.B. Dawson, et. al., *Phys. Med. Biol.* 1980, Vol 25, No 4, 695-709



■ Why Use Red LEDs continued

Electroencephalography and Clinical Neurophysiology, 1973, 34: 97-99

Townsend points out that "... it is desirable to use LEDs as the light sources since they are small and will reproduce any wave form without distortion." (p 97) And, "... filament warm-up and cool-down lag [in incandescent bulbs] distort reproduction of the input signal."

This brief report is also of interest as the first published description I have found describing goggle mounted incandescent bulbs or LEDs for photic driving. A similar though more cumbersome device was described in the same journal

later in 1973 by a research group at UCSD School of Medicine. This study may predate the appearance of the "ISIS" of Jack Schwarz, apparently the first commercially available device with lights mounted in goggles.

5. The Treatment of Migraine with Variable Frequency Photo Stimulation. D. J. Anderson. *Headache*, March 1989, pp. 154-155

Stimulation alternated left/right. Seven patients were selected who were not photically sensitive or epileptic. No patient had achieved satisfactory control of symptoms with drug therapy. Of a total of 50 migraine headaches recorded, 49 were rated by the patient as being "helped" and 36 as being stopped by using the red LED goggles. Brighter light

was more effective, as were higher frequencies. Further studies are obviously called for.

6. (Title unavailable) Tiina Karu, *IEEE Journal of Quantum Electronics* 223:1703-1717. Reported in *Brain/Mind Bulletin*, May 1989

Red light appears to accelerate the healing of ulcers and wounds that do not respond to traditional drug therapy, though white light has no effect. Positive effects were also observed with blue light at low doses, negative effects with slight increases. "To get a negative effect with red light is much more difficult."

MEGABRAIN GUIDE TO LIGHT AND SOUND MACHINES

by Michael Hutchison
with contributions and research by George Gleason

Writing this guide is something like writing a review of a movie while watching the movie—new things keep happening all the time. Light and sound machines seem to be following the same pattern as PCs—constant innovation, leading to increased sophistication, greater power, and, potentially, greater complexity, all at less and less cost.

The changes are rapid and exciting. Variations on existing systems emerge constantly. For example, as this is written, I have learned that the long-popular MC² is being superceded by the more advanced, MC² Plus and IRIS (Information Relaxation Imagination System), that make use of such advances as voice-guided program selection.

In addition, sound and light machines are expanding their potentials in a number of new directions. Already, one device is available (the Dreamwave, reviewed below) that links EEG biofeedback with light and sound stimulation—it reads your dominant brainwave activity and feeds back an optimal frequency to entrain your brainwaves downward or upward. Already software and hardware systems exist that allow you to use the power of a PC AT or 386 system to design and store thousands of intricate programs using advanced sound synthesizing systems (the MindsEye Synergizer, reviewed below). As this is being written I have learned of another hardware-software system now being sold in Germany, the "Illuminator," that links light and sound stimulation technology to Atari ST and STE computers, permitting the creation of sophisticated sound and light programs in combination with the advanced sound system of the Atari (permitting the linking of numerous high fidelity music selections with specific programs or frequencies, and more—this system will be reviewed in a future issue of MEGABRAIN REPORT).

The obvious next link is combining the three elements of EEG biofeedback, light and sound brain stimulation, and the massive storage, analysis, computing and programming capacities of the PC. The makers of the MindsEye systems, among others, are now moving in this direction, constructing a complete "MindLab" consisting of a 4-channel EEG that converts an IBM-PC monitor into a Mind-Mirror style display of full spectrum brainwave activity in

both hemispheres, an advanced light and sound stimulation system and software linking them.

In the midst of this constant change, we have done our best to present readers interested in purchasing or using a light and sound device with the most up-to-date information on these machines possible. This list is not complete—new models emerge frequently, old ones disap-

The next link is combining EEG biofeedback, light and sound brain stimulation, and the massive capacities of the PC.

pear (thus, for example, we have not reviewed the D.A.V.I.D. Jr. PLUS, since it is no longer available and has been replaced by the superior David PARADISE). However, we have made an effort to examine and use every device we could obtain, ranging from devices we found advertised in magazines, to those sent to us for testing by manufacturers, to some which are just coming onto the market.

The devices reviewed below can be divided into four categories. One group comprises the low-cost models (generally costing under \$300) that offer a limited number of basic pre-programmed sessions, and permit the user limited control over sessions. In the mid-price range (about \$350 to \$600) are devices that are more flexible, offering a substantial number of preset sessions as well as permitting users to design and store in the machine's memory a variety of personalized sessions. These also provide a higher quality and greater variety of audio stimulation, and permit manual control of features such as audio tones, visual flash patterns and frequency rates. Higher priced

devices (ranging from about \$650 to \$900) offer even greater sophistication and flexibility, often including a wide variety of preset sessions, the capacity to design and store a large number of complex personalized sessions, a high degree of manual control over all stimulation modes, and other special features (such as the simultaneous light/sound and synchronous beat frequencies available on the Dreamwave). We have reviewed these devices, starting with the most advanced systems and moving through the mid-range units to the low-cost devices.

There is another class of devices, costing well over \$1,000 (and in some cases, like the Synchro Energizer 4A system, starting at \$9,000) that are designed for professional, clinical, or commercial use as multi-user systems. We have reviewed this group last.

There is one feature shared by all these devices, and therefore we have not mentioned it in the reviews: all of them have input jacks to permit input from an external audio system (CD, cassette player, phonograph), thus enabling users to combine the sound and light stimulation with appropriate music, or tapes using hypnotic induction, suggestions, guided imagery, meditations, or material to be learned.

Virtually all the devices provide standard 1/8" jack Walkman-like headphones (therefore only when superior headphones are provided will we mention headphones in the device reviews). Research indicates that subjects can reach and maintain deep relaxation or theta states more effectively when external noise distractions are eliminated. Therefore we recommend that users of these devices obtain high fidelity 1/4" plug stereo earphones of the kind that completely cover the ears, sealing out external noise. These can be fitted into the 1/8" jack with a simple and inexpensive adaptor available at places like Radio Shack.

A Call for Research and Contributions

MEGABRAIN REPORT intends to be a nexus of new information in the field of consciousness technology. We plan to publish papers, essays, summaries and other discussions of ongoing research and investigation by scientists, inventors, researchers and explorers. Please send queries or contributions to:

Megabrain Report
P.O. Box 2744
Sausalito, CA 94965



THE CONSUMERS GUIDE

\$650 to \$1,000

MindsEye Plus

SUGG. RETAIL: \$895 (\$995 with two headsets)

NO. OF USERS: 2

PRESETS: Sixteen preset programs, ranging from arousing beta sessions to deep theta meditation experiences to delta sleep inducing programs. Presets can be modified through programming changes, though not while a program is running.

USER-PROGRAMMABLE SESSIONS: Permits complete user programming, including selection of starting frequency, ramp time, target frequency, time at target frequency, pattern of light activation in goggles, type of audio, and end of session signal. The "EyeRemember" feature stores up to 16 different personal settings for future recall.

STIMULATION MODES: In addition to basic light-sound combinations (alternating light and sound L/R, alternating light-sound eyes/ears, lights and sounds simultaneously, and "criss-crossing" left eye/right ear with right eye/left ear), user can select a variety of lamp patterns, a broad palette of sounds, and a sound modulation feature for external stereo input.

MANUAL MODES/CONTROLS: Extremely flexible, with separate manual control (rotary knobs) for each user to independently control:

- sound volume
- light intensity
- light pulse width modulation (this knob permits the user to vary the amount of time the lights are on and off during each flash, ranging from extremely short flashes that produce sharp and crystalline visual imagery to longer, more "splashy" flashes).

Other manual controls:

- internal synthesiser volume
- external modulated input volume
- modulation depth
- Switchable light/sound sync control: "out," "both," "in"—the "both" setting provides simultaneous visual and auditory stimulation; "out" provides alternate stimulation, L/R, where light and sound are

present on opposite sides (left light, right sound, vice-versa); "in" provides alternate stimulation, L/R, with both audio and visual stimulation together, alternating L/R.

AUDIO: Contains two sophisticated sound synthesizers, with sixteen preset sounds, and the capacity for the user to create an infinite number of sounds and tonal colorations—including stereo sounds and chords as well as rain, wind and surf simulation—by varying pulse width, selecting low-pass, band-pass or high-pass filters, selecting wave form (e.g. sawtooth, white noise, triangle, pulse). The sound synthesizers also produce "HemiTone" binaural beat frequencies (such as used on the Hemi-Sync tapes).

LIGHTS: Four independent superbright red LEDs around each eye are completely software controllable and can be programmed to flash in 15 different light patterns, ranging from all on/ all off to a figure 8 pattern of individual lights sweeping around each eye.

GOGGLES: Excellent. Comfortable modified ski-goggles; high quality manufacturing, with a telephone-quality cord and connector. The goggles have a tinted transparent opening to allow user to see controls. Arguably the best goggles.

HEADPHONES: High quality stereo phones that entirely cover the ear.

CONTROL UNIT: About the size of a phone book (about 12" x 8" x 2" and weighing 3 lbs. 3 oz.) Solidly built, well laid-out, with explicit and clearly labelled controls, two-digit display for programming, and good quality tactile keyboard with permanent designation markings.

AUXILIARY INPUTS: In addition to stereo input, features a separate audio amplitude modulation input—the loudness of the sound varies at the pulse rate. This permits you to mix any stereo audio input with the synthesizer sounds or "pulse" it in sync with the lights, with the "depth" of modulation variable from none to very distinct.

BATTERY: No internal battery.

GENERAL NOTES: Incredible versatility and excellent quality of hardware and software. This is a superb machine for the researcher, clinician or explorer with a need for a versatile, extremely programmable audio-visual stimulation system. The pulse width modulation control is a valuable feature: it has a profound influence on the visual imagery, brainwave

entrainment, and the quality of the experience. The sound synthesizer system is unsurpassed. Its technical sophistication may seem threatening or too complex for technically naive users. While it's easy to use the presets, programming is a bit more complicated, and this may be a bit too much machine for those who seek simplicity and portability.

The Dreamwave

SUGG. RETAIL: \$695

NO. OF USERS: One (two, with Y-adaptors).

PRESETS: None; this is basically a manual system.

USER-PROGRAMMABLE SESSIONS: One programming option is provided. The user sets a beginning beat rate, and an ending rate, and then a countdown timer. The session consists of a gradual change from the start to the end rate, and the system remains at that rate. This is useful for people who want, for example, to enter a hypnagogic state and stay there.

STIMULATION MODES: Audio: This is first and thus far the only sound and light device that includes a binaural signal sound generator (that creates "beat frequencies," such as those used on Hemi-Sync tapes). As such, it offers a number of unique features:

- **Lights synchronized with binaural beats.** The simultaneous binaural beats and synchronized lights (red LEDs) show evidence of being an extraordinarily powerful synergistic combination.
- **Programmable beat frequency sequences.** You can program the beat frequency to sweep upward or downward automatically: you control the start and "target" frequencies as well as the speed, or you can operate it manually. This "hands-off" auto entrainment combining binaural beats and lights adds a new dimension to consciousness technology.
- **Lights—one button instantly switches the flashes to "double-time" or "half-time" frequency.** This permits users to combine alpha light with theta binaural beat, or beta beat with theta lights, etc., to produce highly specific brain states. Also, the double-time and half-time features are "rampable," permitting the user to sweep through frequencies while the lights and beat frequencies remain at *exact* multiples.

MEGABRAIN REPORT

■ MEGABRAIN GUIDE TO LIGHT AND SOUND MACHINES CONTINUED

- **Adjustable light waveforms.** Unique dual controls permit the user to set the “sharpness” of the flashes as well as the average brightness. The pulse widths can be controlled from narrow “crystalline” appearance up to wide “splashes” of light. At low beat frequencies, smooth waves are more soothing. This feature permits a wide range of visual imagery and effects.

MANUAL MODES/CONTROLS: Extremely flexible, with control over the following parameters:

- Beat frequency: binaural beats ranging from low delta through high beta. One ten-turn knob adjusts this parameter, and the actual beat frequency is displayed on a 3-digit readout (i.e. display resolution is 1/10 of a cycle per second).
- Pitch of binaural beat (“beat frequency”) base tone.
- Volume of binaural beat signal.
- Volume of synthesised ocean wave sound.
- Beat frequency modulation of ocean wave sound.
- Left/right balance in headphones (essential for use by individuals with differential hearing loss).
- Background brightness of light (red LEDs).
- Degree of modulation of LEDs.
- Light stimulation mode: combined or alternate left/right.
- Double-time or half-time light switch.
- Light waveform adjustment.

AUDIO: In addition to the very pleasant and “warm” variable pitch beat frequencies, the Dreamwave features a high quality, very realistic, almost “3-D” ocean sound. An endless internal generator produces the sound of waves, each of which comes from a random direction, builds up, crashes and recedes in that direction. Every wave is different in direction, duration and depth, producing an uncanny sense of “being there.” This compares favorably with other machines in which the “surf” is just pulsed or unpulsed noise.

The device also modulates any external stereo input by making it oscillate acoustically at the beat frequency—equivalent to rapidly wavering the sound balance. The oscillation slowly rotates in space to add depth and symmetry. The “depth” of the oscillation is adjustable.

LIGHTS: Four superbright red LEDs for each eye.

GOGGLES: Quality is good for a handmade product. They are made in the style of ski goggles, but are of much lighter materials, permitting them to conform more comfortably to your face (though they may be a bit fragile, particularly where the straps join the goggle frame). They provide a tinted opening to look through when adjusting the device, a feature absent in many other high quality devices.

HEADPHONES: Provides a real 1/4-inch headphone plug, allowing use of high-fidelity headphones for quality sound and acoustic isolation from background noise.

CONTROL UNIT: The black metal console—not sleek or stylish, but solid and serviceable—is about 9" x 7" x 2" (weight about 2 1/2 lbs.). The controls are intuitively easy to operate and unambiguous, and the knobs are ultra-precise: the ten-turn potentiometers—normally found only in highly expensive scientific equipment—let you set beat and pitch frequencies with extreme precision, so you can find personally effective resonances or “window frequencies.” Also, an accurate LED digital display shows the operating beat frequency accurate to 0.1 Hz (e.g. you can select a desired frequency such as 7.8 Hz). The sophistication and complexity of the design and the quality of components and craftsmanship is impressive. The electronics engineer who designed this unit, for example, has been able to successfully accomplish something that numerous other engineers and machine makers have been trying to do for several years, without great success—interlocking precise beat frequencies to light and sound stimulation.

ADDITIONAL FEATURES: *EEG biofeedback option.* This is the future in sound and light brainwave entrainment: At an additional cost (\$525), The Dreamwave can be equipped with an EEG system that monitors the user's dominant brainwave activity and responds to it by adjusting the Dreamwave's light and beat frequency to a rhythm slightly slower or faster, powerfully entraining your dominant brainwave frequency downward or upward at your own natural pace until it reaches your preselected target frequency.

Another option available at additional cost: Automatic fade out—dims both lights and sounds in a gentle fade lasting from 10 minutes to three hours.

BATTERY: No.

GENERAL NOTES: We like this device a lot. The sounds are comforting and conducive to deep relaxation. It's unique in combining synchronized beat frequencies with sound and light stimulation. Preliminary research using a 24 electrode EEG brainmapper suggests that the combination has a synergistic effect, making it an extremely powerful tool for brain-wave entrainment and consciousness alteration. The EEG biofeedback option is exciting, and points the way toward the future of truly personalized sound and light stimulation. Highly recommended for clinical use and for explorers who want to search out and investigate the effects of specific window frequencies.

The D.A.V.I.D. Paradise

SUGG. RETAIL: \$695

NO. OF USERS: One

PRESETS: 30 factory preset sessions lasting from 12 to 99 minutes include beta sessions for increased alertness, alpha relaxation sessions, several Schumann resonance sessions (7.83 Hz), deep alpha meditation and relaxation, theta and delta sessions for learning, meditation and sleep, “ganzfeld effect” sessions in which the Omniscreen goggles remain lit, creating an unvarying visual field to assist in producing the ganzfeld “blank out” effect, a series of “cognitive development” sessions mixing several frequencies, and several “fun” sessions producing roller coaster effects and more. Also available: a variety of “Special Application Sessions,” created by professional users of the Paradise for clinical, advanced or “special” applications (such as “Chakra Balancing”) and more. (to access these you require the security codes and users' guides supplied from the manufacturer at an additional cost).

USER-PROGRAMMABLE SESSIONS: Has an enormous user-programming capacity, permitting you to alter any of the 30 preset sessions, to create a spontaneous manually controlled session, or design and save in permanent memory up to nine personal programs (which also can be modified, abandoned or replaced at any time), with user selection of starting frequency, ramp time, target frequency, time at target frequency, pattern of light activation in goggles and type of audio.

STIMULATION MODES: Simultaneous and alternate left/right, which are referred to as “focus” and “expand” modes.



Also a *variable right-eye rate mode*—the user can cause the right eye light frequency to speed up or slow down, flashing faster or slower than left eye. This produces intermodulation effects with the left eye rate, and creates an extraordinary array of vivid psychedelic imagery. The user can combine (for example) a theta frequency in one eye with a beta frequency in the other, thus permitting a number of preprogrammed or manually-controlled sessions producing “mind-awake body-asleep” and other states. This also permits the user to generate a third frequency rate: the *beat frequency* produced by the two separate eye frequencies (e.g. 15 Hz in one eye combined with 10 Hz in the other eye sets up a third 5 Hz composite or beat frequency “seen” by the brain).

Another important feature is *pulse width modulation*: user can alter pulse width from 40% to 60%, producing dramatic shifts in visual imagery and “feel.”

All functions (such as sounds, lights, pitch, volume) are “rampable” (i.e. may increase or decrease gradually at a user-selected rate). What’s more, you may choose to “ramp” between the “focus” mode and the “expand” mode, so the change of modes seems to “smear” gently.

MANUAL MODES/CONTROLS: All control is done at the keyboard, and includes:

- Stimulation frequency
- Choice of two different tone qualities, and pink noise
- Tone pitch
- Volume
- Light intensity
- Light stimulation mode: simultaneous or left-right alternate
- Right-eye rate variation mode
- Pulse width modulation
- All functions “rampable”

AUDIO: The sound quality is excellent, including two separate tones (a pleasant “pure” sound consisting of a clean sine wave with no harmonics, and a harsher “synth” sound) and pink noise. The user can select any combination of one, two or all three sounds. Tone pitch can be altered to suit individual preferences. The sounds are “isochronic,” with a sharp and rapid change in amplitude from maximum to

shut-off, which may enhance brainwave entrainment.

GOGGLES/LIGHTS: Uses high-intensity white incandescent bulbs with extremely fast rise times, which are placed behind translucent lightly blue-tinted “Omniscreens.” The Omniscreens effectively diffuse the light, producing very uniform illumination, which is conducive to richly colorful imagery. The uniform light quality also permits use with the eyes open, with noticeably different visual effects. The blue tint seems to counteract the natural orange-red quality of incandescent light bulbs, producing a light that feels more like natural or “full spectrum” light. The “ganzfeld” function is a nice addition, and, while the visual field is not completely unvarying (there are gradations of light and shadow), the translucent diffuser screens make this by far the best ganzfeld option available on sound and light machines. The goggles are well-crafted, but are built like folding eyeglass frames, which makes them less comfortable than the ski-goggle style. Nonetheless, this is a superb visual stimulation system, far and away the best to use incandescent white lights.

CONTROL UNIT: Attractive, solidly built, and extremely compact—about the size of a paperback book (about 3" x 6" x 1"). Has digital readout for session parameters including stimulation frequency. One attractive feature: when a session is in progress, the digital readout automatically tells you how much time is remaining and how much time has elapsed. The telephone-pad type keyboard has a good feel—a vast improvement over the older DAVID Jr. PLUS—and the keys are clearly labelled, all of which makes the Paradise easy and pleasant to use.

ADDITIONAL FEATURES: All sessions end with “soft off.” This provides a gradual drop in the stimulation levels, to ease the user out of the session. Other units tested switch off rather abruptly, which can produce a startle reaction. The soft-off feature ensures that relaxation or other beneficial states carry over beyond the end of the session.

BATTERY: Can run off internal gel-cell batteries for portable use (operates four to six hours on a single charge).

GENERAL NOTES: Both the soft-off feature, and Omniscreen goggles are unique and valuable. The keyboard is excellent and permits simple operation including user-programming. The independent right eye rate, which is unique in a portable device, offers a wealth of

new visual and brainwave entrainment possibilities.

The large number of preset sessions can accommodate any taste. On the minus side, it doesn’t make explicit provisions to accommodate two users.

This is a state of the art machine, and combines the best features of the less costly small portable devices (the console, for example, is smaller than the IQ Jr.) with the sophisticated programming options of the most advanced and costly devices.

Innervision

SUGG. RETAIL: \$695 (extra goggles, \$65; extra headphones \$35)

NO. OF USERS: Two (one set of goggles and headphones included).

PRESETS: 20, including a variety of theta sessions, Schumann resonance frequency (7.83 Hz), “accelerated learning,” “memory/recall,” “sleep induction, and “high energy stimulation,” ranging from 15 minutes to one hour.

USER-PROGRAMMABLE SESSIONS: User may create up to 10 programs. Parameters subject to user control include: stimulation mode, pulse frequency, and time at any given setting, up to a total of 60 minutes for a session. Creating and storing programs is quite simple.

STIMULATION MODES: Simultaneous, alternate sides, alternate eyes/ears, and combined settings where one stimulus is applied simultaneously to left and right while the other alternates side to side.

MANUAL MODES/CONTROLS: Slide controls for time (used only in user-programming), sound volume, light intensity, sound pitch, pulse frequency. Another slider controls program select, with the number of the chosen program shown on a two-digit display.

Sound select switches provide a basic single tone, a chord which can be altered by using the pitch slider to suit the individual’s taste (or to explore the various effects of combinations of differing sound intervals), pulsed pink noise, a metronome-like clicking, various combinations of these, or a beat frequency (Hemi Sync) tone.

Mode switches select stimulation mode: simultaneous, alternate (sides), alternate (both eyes/both ears), and various combinations in which one stimulus is applied simultaneously while the other is applied alternately. These com-

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bined simultaneous/alternate modes are unique to this device, produce quite interesting effects, and may present interesting research and clinical possibilities.

The program start button also functions as a pause (Hold) button: press once to hold at a given point; press again to resume the program.

There are two separate numerical displays: one shows frequency of stimulation, accurate to 1/10 Hz. The other shows the number of the program which is selected. User can stay in manual mode, or enter the program shown by pressing the program start button.

AUDIO: The pink noise is pleasant, but at faster settings there is a tendency for a background knocking noise to become apparent. The tones include: single tone, chord, and beat frequency. User can control tone and chord qualities.

GOGGLES/LIGHTS: The lamps are mounted in black plastic frames of the folding sunglasses style, which we find less comfortable and malleable than the ski-goggle style. The lamps themselves are superbright white incandescent bulbs, two per eye, and can produce very bright effects. 1/8" 3-conductor plug. We're concerned that the bulbs are not protected in any kind of enclosure: a potentially serious problem as incandescent bulbs can heat up when turned up high, presenting a potential for injury. However, visuals are vivid, rich, and don't bunch up at the red end of the spectrum.

HEADPHONES: Good quality 1/8", ear-covering type.

CONTROL UNIT: The console is metal, solidly constructed, and "feels" good, with a unique design: the steeply sloped front gives the unit a triangular profile. The design is ergonomically useful, the layout provides ample room for everything, with sufficient space between controls to allow hands-on driving with eyes closed.

BATTERY: No.

GENERAL NOTES: Our initial response to this device, before trying it in detail, was, "Oh, another manual one . . . looks pretty simple." The simplicity is deceptive: inviting to someone who isn't a "programmer," but rapidly revealing a very versatile device with exciting possibilities.

In some preset sessions, the stimulation fre-

quency changes often, and quite rapidly. Some users may find this distracting, while others will enjoy the stimulation and unexpected effects. Several sessions offer a sort of rollercoaster effect, with repeated rapid up and down movements. This may be useful under the theoretical assumption behind the "refractionation" technique of trance induction: induce a mild alteration, then return to baseline, then induce a slightly deeper alteration, then return again, and then go for the final desired degree of depth for the main part of the session. This works nicely with verbal induction in clinical and experimental hypnosis; we suspect it might also work with audio and visual stimulation, and there is considerable ground for research in this area.

Overall pluses: very versatile and offers control over many parameters with a style of operation that some users will find more user-friendly than many products in this price range.

Overall minuses: The lack of protective covering over the lamps.

Synchro-Stim 2000.

SUGG. RETAIL: \$975

NO. OF USERS: Two users with red LED goggles; one user only with white light goggles.

PRESETS: Four. "Relax" uses primarily the crossover mode with a target of 5hz. "Learn" uses the front/back and simultaneous modes with a target of 5 hz. "Create" uses primarily the alternating sides mode with a target of 7.5hz. "Pep" uses all stimulation modes with a target of 10hz. Any program can be run for a selected time of 15 minutes through 60 minutes.

USER-PROGRAMMABLE SESSIONS: One program slot, with a start ramp, a target rate period, and an end ramp. User-selectable stimulation frequencies and modes, and duration of ramps and target period. Program is not retained in memory—must be written down and re-keyed each time it is wanted.

STIMULATION MODES: Simultaneous, alternate, and crossover (left eye, right ear, and vice-versa) stimulation with sound and light. In addition, features a Cranial Electro-stimulation (CES) mode and a pulsed "magnetic field." The CES mode uses padded earclip electrodes to stimulate the brain with a biphasic square wave with changing polarity pulsed at the

same frequency as sound and light stimulation. The specifications listing for the device rates the microampereage CES current as variable to .6 milliamps. The pulsed magnetic field, a coil consisting of a couple of turns of wire in the lamp circuit above each eye, generates a field of 20-50 milligauss.

MANUAL MODES/CONTROLS: Slide controls for tone pitch, tone volume, light intensity, and CES stimulus intensity. Keys to select programs and program parameters: Start frequency, start minutes, target frequency, target minutes, end frequency, end minutes, increase/decrease, CES select, noise/tone select, and start/pause.

The "Pause" mode stops all stimulation, then resumes where the program left off.

AUDIO: Both pink noise and a variable-pitch tone are available. The sound quality is not good, both tone and pink noise sound rather scratchy and rough, with noticeable background chirping and knocking and other impurities, particularly in the higher ranges.

LIGHTS: Two white incandescent light bulbs per eye, with no shield or other protection. The lights are moderately bright, but may not be bright enough for some users.

GOGGLES: The goggles are plastic, in the folding sunglass style. This style is by nature not adjustable to individual users' face and nose configurations, and is less comfortable than the ski-goggle type.

CONTROL UNIT: The metal case (about 6" x 8" x 2") is heavy and solid, and features good quality keys. There is a 3-digit display of frequency (which also displays ramp time and target time during user-programming). Since it provides CES, there is a safety feature in that one can't operate the unit when connected to the mains transformer; the transformer is only used for recharging.

BATTERY: Unit has self-contained rechargeable gel-cells with 12 hour operating capacity.

GENERAL NOTES: This device will be of interest to those wishing to explore the combined effects of sound, light, CES and magnetic stimulation. Anecdotal reports suggest there may be a synergistic effect making these four modes of stimulation "greater than the sum of the parts." The CES mode does produce a detectable sensation, and users have reported a subjective effect similar to the Alpha Stim CS. There is a growing body of evidence that CES, when used properly (i.e.



with the right waveform and amplitude), may provide a variety of benefits. However, prospective users should be aware that types of electromagnetic stimuli may have as-yet undiscovered biological effects (see the discussion the "Bioelectric Interviews" in Vol. 1, No. 1 of the MEGABRAIN REPORT). Caveat emptor.

A drawback: the unshielded lamps are a possible safety hazard. The lack of memory for user-defined program is inconvenient. The Synchro Stim 2000 is simply not as flexible as other units, a disappointment considering the price.

Relaxman

SUGG. RETAIL: \$650

NO. OF USERS: 1 (2 with Y adaptors—goggle brightness is reduced with 2 users)

PRESETS: 10, including sleep, relaxation, meditation, "fun meditation" and two "entertainment" programs.

USER-PROGRAMMABLE SESSIONS. None.

MANUAL MODES/CONTROLS: The telephone-dial pad keyboard provides control of light brightness, sound volume, sound pitch, choice of tones or white noise, and independent control of volume in each ear. A "pause"

key allows the user to put the preset session into a "hold" pattern, maintaining the frequency until the key is pressed again, after which the session continues to completion.

AUDIO: Selection between tones and white noise. The tone pitch seems to automatically vary slightly in a cyclical manner, which some users may find distracting, and may decrease entrainment and deep relaxation effects—some recent research suggests entrainment and theta state induction may be in part a product of habituation (i.e. a sort of ganzfeld effect), which requires consistency—to produce habituation the delivery of the stimuli must be constant and unvarying.

GOGGLES/LIGHTS: The goggles are well made, comfortable, and fit securely. The bulbs are incandescent lights, and thus produce noticeable heat at high intensity, however, heat is diffused by circular plastic rings that shield the bulbs (an important safety measure when using incandescent bulbs) and diffuse the light. The bulbs are set in a circle around the outside of the eye. The goggles can be used with eyes open in lower intensity settings, and the open area in the center of each eye-piece permits the user to adjust the controls or even read during sessions.

CONTROL UNIT: Good quality fit and finish, keyboard similar to 12-key telephone dial pad. Unfortunately the secondary functions of the

keys (brightness, volume, pitch, etc.) are not labelled, necessitating reference to an instruction card until the user gains familiarity with the unit.

AUXILIARY COMPONENTS: Carrying case for unit plus all components, designed with a window to allow the user to operate the unit without having to remove it from its case.

GENERAL NOTES: This is a "white" light machine, for those who prefer them to red LEDs. Like all incandescent bulbs, these tend toward orange-red, and closed eyelids serve as effective filters toward red; this point tends to favor the DAVID Paradise for those seeking white light stimulation, since the Paradise's translucent "Omni-Screen" permits use with eyes open (thus eliminating the red filtration of the closed eyelids), and since the Paradise features a blue-tinted diffuser screen, that shifts the light toward a spectral distribution curve that is more like natural or full-spectrum light. Also, users interested in exploring the effects of different frequencies and light-sound combinations will find the lack of user-programmable sessions a minus. The possibility of using only 10 preset sessions, several of which are "entertainment" sessions, means the serious user will quickly learn (or become "habituated" to or bored by) the available sessions. This device has real limitations when compared with others in the same price range.

\$350-\$650

InnerQuest II and InnerQuest III

SUGG. RETAIL: IQ II \$495, IQ III \$595

NOTE: The IQ II and the IQ III are identical, except that the IQ III contains a built-in stereo cassette deck.

NO. OF USERS: Two (each unit comes with one set of goggles and headphones; each addition set costs \$55)

PRESETS: 16 presets, including deep theta, "High Creativity," "Memory/Recall," "High Energy," "Ultra-Deep Relaxation," a Schumann resonance program, sleep induction and many more. The IQ programs are extremely "active," with shifts in modes, and some of them go up into the high beta range (about 30 Hz). Some users may find this distracting, but our own experience and our survey of users suggests that most people will find the IQ

programs exciting, stimulating, relaxing and effective.

USER-PROGRAMMABLE SESSIONS: One user-programmable slot, which is quite versatile, permitting users to select beginning noise or tone frequency and to change it six more times within the session; to select beginning light stimulation frequency and change it six more times within the session; to select the light stimulation mode (synch, L/R alternating, front/back, criss-cross) and change the light mode five more times within the session. This permits the building of quite complex programs. Instructions are clear, and a programming sheet is provided to make things easier. The user-made program can be edited at any time.

STIMULATION MODES: Four patterns are available. Synchronous, in which eyes and ears are stimulated simultaneously; left/right alternating, in which the eye and ear on each side are stimulated together, and the stimulation alternates from one side to the other; eye/ear,

in which stimulation alternates from both eyes to both ears; and criss-cross alternating mode where, first the left eye and right ear are stimulated, and next the right eye and left ear are stimulated.

MANUAL MODES/CONTROLS: Pause button holds a programmed setting; press once to pause and again to resume. Manually controllable sound and light frequencies are adjustable from 1.0 to 30 Hz in 0.1 Hz increments. Other buttons permit selection of variable pitch tone or white noise, and volume of tones. Light intensity is controlled by dials inside the goggles.

AUDIO: Good sound quality. The digital audio controller-produced pulsed pink sound has a nice tonal quality, and is restful, pleasant and "soft." The impulse quality is what gives the impression of softness: there are no clicks at the leading or trailing edge of the pulses.

The tone setting is also very pleasant and soft—the same positive comments apply to it as to the pink noise. The default pitch setting is

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like what a dial tone would be if it was "warm." The changes in frequency of impulses are seamlessly smooth.

LIGHTS: Specially manufactured red LEDs are blunted at the tips, to remove the point and give a greater "spread" to the light, making it diffuse rather than a focused spot. With eyes closed, the user sees a consistent and even illumination, unlike the points of light or dots produced by some of the other red LED devices. The two LEDs over eye are superbright, adjustable from 20 to 100%, and can provide high intensity light.

GOGGLES: These are plastic, folding sun-glasses frames, and therefore not as comfortable or as conformable to the face as the ski-goggle type headsets. We've found that for some of us, when the goggles are placed on the bridge of the nose the LEDs press right against the eyeballs, and when they're put on the tip of the nose the lights are below eye level. A recent welcome development—the light intensity control knob, once inconveniently located inside the goggles, is now on the outside rim of the goggles where it is easily adjustable even during use. The quality of the craftsmanship is excellent.

HEADPHONES: The units examined were shipped with Sony MDR-022 headsets, which are comfortable and superior in quality to the headsets provided by many devices.

CONTROL UNIT: Compact, portable (the IQ III is about 7" x 5 1/2" x 1 1/2"; the IQ II about 4" x 5 1/2" x 1 1/2"), and sturdily built of thick metal, with a "feel" of high quality and solidity, as in a Bell telephone. This rugged console definitely does not come from some home workshop—it has the factory fit and finish of good mass-market electronics components. The keys produce a tactile click when pressed. All keys and connectors are clearly labeled.

BATTERY: Rechargeable lead/acid battery good for over 10 hours of operation.

AUXILIARY COMPONENTS: In addition to the mini-stereo jack for external music (standard on all devices), the IQ IQ III provides a high-moderate quality cassette player built into the console. This seems to be a simple thing to have done, but our experience has been that it is extremely useful and valuable: of course anyone can hook up their own cassette player to any of the light and sound machines using the adapter cable (included with most devices), but we've found that people frequently don't like hassling with this relatively simple step.

Having the cassette player built in means two less things to worry about (external cassette player and adapter cable), eliminates wire tangles and problems with the cassette-player batteries going dead during a session, and makes it as easy to combine learning, music or suggestion tapes with the sound and light session as it is to simply turn on the machine.

GENERAL NOTES: All in all the IQ III provides an attractive combination of ingredients: pleasant sound, good (and bright) lights, a wide variety of preset programs, four stimulation modes (rather than the two offered by many devices), complete user-programmability, high-quality and high-durability console, and the built-in cassette player. That makes this device the most popular of the machines in this middle price range.

There are some minuses: We wish there were more than one user-programmable slot, the goggles cable could be beefier, and the lettering on the control keys is not double-shot moulded, and so may rub off under continued heavy use.

The Courier

SUGG. RETAIL: \$395

NO. OF USERS: One (Two-user kit, including second set of goggles, headphones and two "splitters" available for \$50)

PRESETS: 16, ranging from 15 minutes to an hour in length, and including two sessions each of "Relax," "Creativity," "Learning," "Energize" and "Hemitone," (which include binaural beat frequencies or "hemitones") plus others for "Jet Lag," "Meditation," "Imagery," "Sleep Aid," and more. The preset sessions are well-designed and effective, and the parameters of any of them may be modified and stored for future recall by the user with the "EyeRemember" feature. A real plus, and one that other manufacturers should emulate: the guidebook includes complete parameters of each preset session.

USER-PROGRAMMABLE SESSIONS: User can create and store up to 10 sessions (they're stored in the preset session "slots" numbered 1-10, replacing the factory presets of the same number until you decide to reload the factory preset, which can be done by pressing the "load" button). User can choose starting frequency, ramp time, target rate, target time, the sound pattern, sound pitch, and the lamp pattern.

STIMULATION MODES: 6 lamp patterns—"Audio-Strobe" (sound always on, lights on/off); "Ping-Pong" (light moves R/L, sound L/R); "Sweep" (light and sound move together L/R); "Strobe" (light and sound on/off together); "Sweep-Strobe" (sound moves L/R, light on/off) and "Fusion" (lights on/off, sound off/on). These can be combined with any of 8 sounds, ranging from a pure sine wave (pure tone), to two-note chords, to more complex wave patterns to binaural beats. Pitch of the tones can be raised or lowered.

MANUAL MODES/CONTROLS: Extremely flexible, with controls for lamp patterns, sound patterns, sound pitch. Frequencies range from 1.0 to 30 Hz. One attractive and convenient feature is that you can close the case during a session, and control the lamp brightness and the sound volume with two large knobs on either side of the case front—this can easily be done by feel alone, without having to look at the unit. Other keys inside the unit are clearly marked and logically laid out.

AUDIO: The variety and quality of the synthesized sounds is superb. The tones are "soft" and very relaxing. Can be adjusted over a wide range of complex and simple tones, and altered in pitch. Some settings provide a complex entrainment signal combining two frequencies at once. Sounds range from pure sine wave to two-note chords to binaural beat frequencies to shifting, hypnotic bubbling patterns.

LIGHTS: 2 superbright red LEDs (2000 milliwatt power) over each eye provide crisp and intense visual effects. Optional green LEDs are available.

GOGGLES: The LEDs are built into unique "Light-frames"—molded plastic glasses shaped like small sunglasses. The quality of the workmanship is very high, and the goggles are rugged and durable. One problem is that the earpieces are relatively short, and may not be long enough to fit fully over the user's ears, making it hard for some users to have a secure fit while sitting up straight.

HEADPHONES: Compact foldaway 1.8" set of average quality.

CONTROL UNIT: Completely self-contained: the tough plastic case, about the size of a small book (6 3/4" x 5 1/2" x 2 1/3"), opens up like a clamshell to reveal the keypad and a storage compartment for the specially molded goggles and headphones. A 3 digit LCD display shows session number, frequency, sound pattern, light pattern. Entire unit weighs about a pound.



Volume and brightness control knobs are on the outside of the case, making it easy to adjust the system even when it's in use, with the case closed. The keys have a good tactile response and the entire console has a splendid "feel."

BATTERY: Rechargeable NiCad (nickel-cadmium) battery powers the unit for over 10 hours before recharging.

GENERAL NOTES: This is a superb and stylish machine. The console "feels" as well as looks good, the quality of the electronic components and the workmanship is excellent, and the design is imaginative, convenient and efficient. The combination of beat frequencies with sound and light brainwave entrainment opens up a whole new range of experiences (though unlike the versatile Dreamwave [see above] the beat frequencies cannot be changed, and remain fixed at 5 Hz). It's delightfully simple to use—almost as simple as the Dreamer, but far more versatile and sophisticated. Considering the versatility, the unique features, the high quality of components (notably the sound synthesizer) this machine delivers a lot of bang for the buck: it's exceptionally low in price. In this price range (and even compared with many devices costing more) the Courier is the best thing yet.

MindsEye Synergizer

SUGG. RETAIL: \$395 (includes computer board and software, goggles; optional external control unit, with software-assignable controls \$95).

NO. OF USERS: 1 (expandable to a multiple-user system for clinical or commercial use).

PRESETS: None.

USER-PROGRAMMABLE SESSIONS: A virtually infinite number of sessions can be designed using color-screen graphics menu and saved to diskette or a client database.

STIMULATION MODES: In addition to all the modes available on the MindsEye Plus, each eye and ear may be programmed independently, including independent pulse-width modulation for each eye and ear. All stimulation modes are independently "rampable" for each eye and ear.

MANUAL MODES/CONTROLS: All stimulation is controlled by the PC keyboard or by the optional external control unit.

AUDIO: Two three-voiced sound synthesizers provide an extraordinary range of sound ef-

fects, all of which can be set or modified using different waveforms, filters, envelopes and other parameters. Tones may be set to a precise frequency numerically or by specifying musical notes.

LIGHTS: Four independent superbright red LEDs around each eye are completely software controllable and can be programmed to flash in many different light patterns.

GOGGLES: The same excellent goggles that are used with the MindsEye Plus. Comfortable modified ski-goggles; high quality manufacturing, with a telephone-quality cord and connector. The goggles have a tinted transparent opening to allow user to see controls. Arguably the best goggles.

HEADPHONES: None are supplied with the unit (since users will want to take advantage of the extraordinary richness and quality of the sound by using their best high-fidelity stereo headphones); optional Sony MDRP1 headphones are available for \$35.

CONTROL UNIT: Basically this is the MindsEye Plus—and much more—on a PC board. You simply install the board into one of your PC's expansion slots, install the software diskette, and it turns a PC into a research laboratory grade audio-visual synchronizer. This is a user-friendly menu-driven program: Light, sounds, frequencies and other parameters are controlled directly from the PC keyboard, or from an optional external control unit.

AUXILIARY COMPONENTS: Requires IBM PC XT/AT/386 or clone. Requires DOS 3.0 or above; 512K of RAM and a hard drive are recommended. Although it's useable with a monochrome monitor, color screen graphics will assist you through the setup of the two program input screens. Optional external control unit costs \$95.

GENERAL NOTES: Allows you to program hundreds of sessions of almost any length and complexity. Each eye and ear may be programmed independently (this permits extraordinary visual and consciousness-altering effects, such as combining simultaneous theta-beta frequencies for "mind awake-body asleep" effects, or combining four different frequencies for exploration of specific brain states, or setting up visual "beat frequencies"). More than 32,000 separate time ramps and sound-light levels may be included within a single programmed session. The stereo synthesizer provides a vast repertoire of sounds and

can almost be "played" like a musical instrument.

The Synergizer provides more programmable capabilities than any other device available, at a remarkably low price. It is the ultimate experimenter and researcher's machine. It can be expanded to a multiple-user system, which makes it attractive for clinical use or for operators of brain/mind gyms.

Alpha-Pacer II Plus

SUGG. RETAIL: \$485

NO. OF USERS: One

PRESETS: None—this is a manually operated system.

USER-PROGRAMMABLE SESSIONS: None.

STIMULATION MODES: Combines four different stimulation modes: light, sound, cranial electrostimulation (CES) and pulsed electromagnetic field. The lights flash either simultaneously ("mono") or alternating L/R ("stereo"). The electrical stimulation consists of a pulsed sine wave (unlike the modified square waves used in such CES devices as the Alpha Stim CS and the Brain Tuner BT-5), which the manufacturer claims "appears capable of producing entrainment at much lower current levels (10 microamps and less) than the other wave forms." The pulsed magnetic field is a bipolar spike wave, which the manufacturer claims radiates out about 6 feet.

MANUAL MODES/CONTROLS: User selects frequency (from 1 to 25 Hz), light mode (stereo or mono), audio amplitude, electromagnetic field (on or off), and CES intensity (from 0 to approximately 80 microamps). There is a timer knob to select length of session, and an external audio input mixer permitting the user to adjust the balance between external sounds and pulsed sounds.

AUDIO: Pink noise modulated by frequency controlled sine-wave—i.e. a biphasic pulsed pink noise. The quality is thick, something like the chugging of a steam engine. It effectively masks external noise.

LIGHTS: Four amber LEDs over each eye.

GOGGLES: Comfortable foam-padded ski-goggles, with the LEDs securely installed. Note that these goggles are of new design, and far superior to the old, hard plastic, red LED goggles that came with the Alpha Pacer II.

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CONTROL UNIT: The medium-sized console (about 5" x 7" x 3") is made of thick impact-resistant plastic, and its sloping face contains a frequency control dial (variable from 1.0 to 25 Hz—all outputs [lights, sound, magnetic pulses, CES] are synchronized to the same frequency by this knob), other control switches, and an amp meter for monitoring CES output, all clearly labeled. The batteries are inserted in the back of the unit in a slide-out tray—the fit is not perfect, and this tray seems susceptible to wobbling or coming loose.

BATTERY: Operates on battery power only: uses combination of replaceable or rechargeable AA (4 required) and and 9 volt (2 required) batteries.

AUXILIARY COMPONENTS: A set of earclip electrodes—identical to those distributed with the Alpha Stim CES devices.

GENERAL NOTES: A simple, easy to use device for those who want to experiment with combining CES and pulsed electromagnetic field stimulation with sound and light. The manufacturer claims that preliminary evidence

indicates that "the more sensory inputs into the central nervous system that are synchronized at the same frequency, the greater the entrainment produced." MEGABRAIN REPORT has received some anecdotal reports of the synergistic effect of sound, light, CES and magnetism, but we're not aware of any solid scientific evidence: clearly we need research in this area. Potential users should be aware of the lack of information about the long-term effects of electric and electromagnetic stimulation (as noted in our review above of the Synchro Stim 2000).

Under \$350

InnerQuest JR.

SUGG. RETAIL: \$299 (additional headphones and goggles, \$55)

NO. OF USERS: One (two with Y adaptor)

PRESETS: 14. Entire range of sessions, from 20 to 60 minutes, including relaxation, deep relaxation, Schumann resonance, creativity, memory and high energy beta programs. Like the other IQ models, these presets are "active," with shifts in modes.

USER-PROGRAMMABLE SESSIONS: None. User can extend any program for as long as desired with "pause" button—program will continue at the frequency and light pattern operating when the pause is activated.

STIMULATION MODES: Four patterns combining sound and light: alternating eyes/ears, alternating R/L, simultaneous, and criss-cross.

MANUAL MODES/CONTROLS: No manual modes per se. Control over visual brightness, sound volume, choice of tones or pink noise, and control of tone pitch, plus "pause" control.

AUDIO: Selection between pink noise (good quality, "soft," warm, as other IQ units) and tones (ditto).

LIGHTS: 2 superbright red LEDs per eye, each with blunted or flattened tips to increase "spread." The visual quality is very good. Flashes are soft and not at all harsh.

GOGGLES: Plastic, folding sunglasses frames, not as comfortable or as conformable to the face as the ski-goggle type headsets. Some find that when the goggles are on the bridge of the nose the LEDs press right against the eyeballs, and when they're put on the tip of the nose the lights are below eye level.

CONTROL UNIT: The quality is excellent. Looks and feels great—a flattened hunk of rugged metal about the size and thickness of a big Hershey bar (about 6" x 3 1/2" x 1/2" and weighing less than 15 oz.), solidly built, compact, clearly laid out, with cleverly designed LED program indicators that are simple but provide clearly understandable program and pattern selection. Only problem is that, like the other IQ units, the lettering on keys may rub off.

BATTERY: No. However, users can obtain an accessory battery holder that holds six "C" cells or six N/C rechargeable batteries that will operate the device for 12-15 hours (\$39.95).

GENERAL NOTES: The IQ-JR gives the same high quality of sound and light experience as the IQ-II and III. It is simple, inexpensive, and effective. Excellent ergonomics, excellent value. The major drawback for some users is that there are no user-controllable session parameters.

IM-1.

SUGG. RETAIL: \$299.00

NO. OF USERS: One (two with Y-adaptor).

PRESETS: 10, from 15 to 75 minutes, including programs for sleep, meditation, relaxation and centering, dream enhancement, regression and improved psychic ability, accelerated learning, mental imagery, high energy, and creativity. These sessions are well-designed and quite effective (though they end quite abruptly). The device can be switched to a ganzfeld function, which uses steady illumination (the manual recommends open eyes but closed eyes are also effective). Ten additional presets use binaural beats—no visual stimulation is provided in the binaural beat programs,

which last 30 minutes each and cover the standard range of program types.

USER-PROGRAMMABLE SESSIONS: None.

STIMULATION MODES: Simultaneous; alternate left/right; alternate front/back. These are not manually selected, but controlled by the preset programming.

MANUAL MODES/CONTROLS: Keyboard provides control of: volume up/down; tone pitch up/down; brightness up/down; color select (red or green LEDs—a feature unique to this device); sound select (dual tone, single tone, pink noise, or binaural beat); and program pause.

AUDIO: Select between pink noise, a single tone or a two tone chord, and beat frequencies. The tones have variable pitch. The chord consists of one unvarying tone and a second that raises or falls in semitones with each press of the button, producing thirds, fifths, thirteenth, etc. The pink noise and the tones are pleasant and warm, but have a bit of a mild click at leading edges of pulses. The beat frequency programs are without visual stimulation.

LIGHTS: One red LED and one green LED over each eye. User can select either red or green, not both. At maximum intensity the red LEDs are high-moderately bright. The green LEDs are not bright at all, though this may be a plus to users with sensitive eyes.

GOGGLES: Folding sunglass type goggles. They are unique among this type of goggle in having their brightness controlled by knobs that protrude from the front of the goggles and are very convenient to use. The workmanship is superior.

HEADPHONES: The unit we tested had high quality headphones with independent volume



controls for the left and right ear: a useful feature for people with different degrees of hearing on each side.

CONTROL UNIT: The compact console is about the size of a bar of soap (about 3 1/2" x 2" x 1 1/2"). The keyboard is superlative for devices of this size and price, and the keys give good auditory and tactile feedback. Control keys are clearly labelled, and the device is very user friendly.

AUXILIARY COMPONENTS: Users can obtain optional micro-speakers, so that the device can be used to generate binaural beat frequencies in the open air, for use as relaxing ambient sound in the office, at home, for sleeping, etc.

BATTERY: Can operate off of AC adaptor or single 9 volt battery.

GENERAL NOTES: Unique in combining such a variety of stimulation modes in a tiny package: red LEDs, green LEDs, ganzfeld function, binaural beat frequencies. Design, engineering, construction and preset session programming are of high quality, and show originality and imagination. For all the functions and circuitry jammed into it, the price is good. The device is extremely easy to use.

The green LEDs seem relaxing to our subjects who were extremely sensitive to light, but in light of recent evidence that brainwave entrainment is directly linked to light intensity, we wonder if the green LEDs are having any real entrainment effect. On the other hand, if people do find them relaxing, the question becomes moot. Users who like relatively bright lights will find the green LEDs ineffective.

We're not happy with the "ganzfeld" function. In it the LEDs simply stay lit continuously. If you stare into them with open eyes, you see bright dots of light. A true ganzfeld is a featureless, homogenous field—like a pure cloudless blue sky—that covers the entire field of vision. Such a field is not easy to create. The David Paradise comes closer, by using its translucent Omniscreen to diffuse the light. However, we've found that this ganzfeld can be effective provided you're already relaxed. If you're not relaxed, your eyeballs will tend to move, causing an effect of moving dots of light. If you are relaxed, your eyeballs will remain motionless, permitting the ganzfeld effect and the subsequent "blank out" experience. We suggest using one of the deep relaxation sound and light sessions first, then switching to the ganzfeld function.

The lack of user-programming is a real drawback, as is the lack of any way of telling what frequency is being produced. The makers have not included any frequencies above 14 Hz. This is a drawback in light of evidence that combinations of deep relaxation with high beta frequencies can have powerful effects.

MC²

SUGG. RETAIL: \$249

NO. OF USERS: One (or two with Y adaptor)

PRESETS: 10, covering concentration, relaxation, meditation, learning, visualization and more. All programs seem to have a theta target rate, with varying time in other frequencies (and all tend to end abruptly).

USER-PROGRAMMABLE SESSIONS: None

STIMULATION MODES: Simultaneous and alternate R/L.

MANUAL MODES/CONTROLS: Using the program select keys on telephone-pad type board, users can control audio volume, audio pitch, audio selection (tone or white noise), and oscillator or two-note chord adjustment (permits creation of two note chords of various intervals). Light brightness control is located inside goggles (inconvenient).

AUDIO: The white noise seems rather harsh and raspy (perhaps best used as background when external music sources are used). The tone quality is pleasant, and experimentation with varying the two-tone chord intervals can produce very nice sensations.

LIGHTS: Two red LEDs over each eye.

GOGGLES: Folding plastic sunglass type. Brightness control located inside goggles.

CONTROL UNIT: Compact (about the size of a bar of soap), light, seems quite durable. Quality typical of most handmade units—not slick, but quite serviceable.

BATTERY: Optional battery pack available.

GENERAL NOTES: This is the "granddaddy" of mini sound and light machines, having been in production since mid-1987, and is still one of the least expensive devices with advanced features. It can provide a satisfying variety of experiences. Many will find the lack of user-programming options, and even the lack of a "pause" function to extend the program at a given frequency, a limitation.

NEW DEVICES: However, the manufacturers are planning to bring to market two new, more advanced devices (we will review them in future issues of MEGABRAIN REPORT). The new machines are the MC² Plus, which will feature an internal battery, making it completely portable; unique *voice guided* program selection; an "extend" function to permit users to extend the length of the experience; and an external program pack interface, that allows for unlimited external programability.

The second new model will be called the IRIS (Information, Relaxation, Imagination System), and will fit all the features of the MC² Plus into a totally self-contained one piece wraparound eyepiece/control unit that you wear.

Synchro-MindExpander

SUGG. RETAIL: \$179.95 (extra goggles and headphones \$59.95)

NO. OF USERS: One (two with adaptor)

PRESETS: The stimulation frequencies and patterns are controlled by sounds on a stereo cassette tape (user must provide cassette player). Preset programs come on audio cassettes (each cassette costs an additional \$12.95). The tapes available include: Synchro-Meditation (four 22 minute meditation segments, each based on a different pitch "for tuning and energizing specific chakras"), Synchro-Hypnosis and Synchro-Learning (long periods of theta waves for use in conjunction with self-hypnosis and learning tapes or for long meditation periods), Synchro-Sleep (entire brainwave cycle of a normal sleep cycle, with extended delta periods along with beta, alpha and theta periods) and Synchro-Alpha (primarily alpha deep relaxation sessions, including long periods of the Schumann resonance frequency).

USER-PROGRAMMABLE SESSIONS: A user with a pulsed sound generator could conceivably create custom tapes, but otherwise you're limited to the available tape programs.

STIMULATION MODES: Simultaneous and alternate L/R, controlled by program on tape.

MANUAL MODES/CONTROLS: None.

AUDIO: Tone quality is fine, but not exciting.

LIGHTS: Four white incandescent bulbs surrounding each eye. The lights are not high intensity, so the visual quality is gentle.

MEGABRAIN REPORT

MEGABRAIN GUIDE TO LIGHT AND SOUND MACHINES CONTINUED

GOGGLES: Modified ski-goggles, comfortable, snug. The bulbs are clearly hand wired into the goggles, but, unlike several other units that use incandescent bulbs, care has been taken to provide a protective shield covering the bulbs, a welcome safety feature. The goggles unit seems sturdy, though the construction is a bit crude.

CONTROL UNIT: Very compact (3 5/8" x 2 5/8" x 1 1/2") and lightweight (8 oz.), and built in a sturdy case, with a single toggle switch for off/on. Otherwise, there are no labels for inputs or outputs, which can be confusing for beginning users.

BATTERY: 4 AA rechargeable, user-replaceable Ni-Cad batteries, powered by a 6V, 350 ma charger.

AUXILIARY COMPONENTS: User must provide cassette player (two, if additional music or other tapes are to be heard in conjunction with the sound and light stimulation).

GENERAL NOTES: Provides a relatively inexpensive way to experience sound and light stimulation. However, users have no control over session parameters. Also, the tapes can wear out (we advise users to immediately make dupes of the master tapes and then use the dupes while holding the original as a spare). Perhaps most importantly, the quality of this device depends directly on the quality of the cassette player you use. Inexpensive or even middle-range cassette players can have rather large variations in speed, producing unstable and imprecise frequencies. Such frequency variations may, some research suggests, hinder the entrainment effect, which requires that the delivery of the stimuli must be constant and unvarying.

The Dreamer

SUGG. RETAIL: \$250

NO. OF USERS: One

PRESETS: Six preprogrammed sessions: Sleep (ramps down to delta, 3 Hz), Concentration (takes you up to a stimulating 25 Hz), Meditation/Learning (theta), Anti-Stress (alpha), Relaxation (alpha), and Creativity (mixed alpha and beta). Generally they begin with a sweep that goes down to alpha, back up to beta, and then ramps down (or up) toward the target frequency.

USER-PROGRAMMABLE SESSIONS: None.

STIMULATION MODES: Simultaneous, alternate L/R, alternate eyes/ears, criss-cross, provided in the various programs.

MANUAL MODES/CONTROLS: Very limited: two settings each for light brightness and sound volume; and choice of pink noise or tone.

AUDIO: The pink noise is satisfactory, but may be too loud for some users, even in the soft setting. The tone has one pitch, which is a nice mid-range tone.

LIGHTS: High power. 4 superbright red LEDs over each eye produce extremely high intensity light. Too intense for some users, even at the low intensity setting.

GOGGLES: Folding sunglass frame style, but of extremely high quality manufacture.

CONTROL UNIT: This is the most compact control unit of any device tested. The tiny console (3 1/2" x 2" x 1") weighs only 2.8 oz. The membrane-covered key panel provides a good tactile click when keys are pressed. It's nicely shaped (narrow at the bottom, wider at the top) to fit into the palm of your hand; each preset program is activated by a separate, clearly labeled button, making eyes-closed operation simple. This is a mass-produced console, with very high quality fit and finish, extremely user-friendly.

BATTERY: No.

GENERAL NOTES: Total simplicity: a "no-brainer." Best for those who seek utter simplicity and don't mind sacrificing variety, flexibility and some quality (particularly of sound) to get it: kind of like a Big Mac for the brain.

You don't need a mainframe to play Nintendo games, but you can get tired pretty quick of playing the same games. Those who like new experiences may become bored with the six sessions and the absence of any way to alter existing sessions or create new ones.

Day-Dreamer.

SUGG. RETAIL: \$14.95

NO. OF USERS: One

PRESETS: None

USER-PROGRAMMABLE SESSIONS: Infinite, depending on lung capacity.

STIMULATION MODES: Variable frequency *full-spectrum* light.

MANUAL MODES/CONTROLS: Mouth tube permits breath control of frequency.

AUDIO: None (aside from potential ringing in the ears after prolonged hyperventilation).

LIGHTS: The sun (bringing to mind the dying words of the English painter Turner: "The sun, my dear, the sun is God!").

GOGGLES: Cylindrical purple goggles similar to underwater face mask.

CONTROL UNIT: Cardiopulmonary system.

GENERAL NOTES: Several devices (using white incandescent bulbs) claim "full spectrum lights," while in fact they deliver light that is predominantly in the orange-red and infrared ranges (full-spectrum light research pioneer John Ott tells us that there are no true full spectrum lights of the mini-incandescent type used in these machines). This inexpensive toy is the only device I'm aware of that actually uses true full-spectrum light: the light of the sun.

It consists of a round facemask with two eye-holes in the faceplate. Between the eye-holes and the user's eyes is a rotating blade. The user blows into a mouth tube at the bottom of the mask, the air pressure causes the blade to spin, and as the blade spins, it momentarily blocks the eye-holes, producing a "flicker effect." The user reclines or sits facing the sun with eyes closed (other bright light sources also work), and blows into the tube to get a flashing light effect similar to that produced by electronic sound and light devices.

It's advertised as a sort of psychedelic toy, and there's no doubt it's fun and produces a fascinating variety of visual effects. However, serious users may find that the device can be a potentially useful adjunct to meditation and exploration of brain states. Extended use requires controlled and deep breathing; since such rhythmical deep breathing can by itself produce heightened states of consciousness, the addition of the visual entrainment could make such breathing practices, such as yogic pranayama, even more powerful.

The Day-Dreamer is an admirable little toy for anyone who wants to explore visual entrainment and flicker effects without committing a few hundred dollars. Explorers might experiment in using this with audio entrainment or beat frequency tapes. A toy, yes, but it does produce wonderful visual effects, and that alone is more than worth the price.



Professional and Clinical Models

InnerQuest PRO-1

SUGG. RETAIL: \$5495 (each four person expansion package, including module, 20' cable, four goggles, four headphones, costs \$561.50)

NO. OF USERS: Four-user output jacks for headphones and goggles; integral amplifier and distribution system with outputs for 48 additional users.

PRESETS: Seven, ranging from 15 to 45 minutes, using patterns and progressions adapted from the portable IQ models.

USER-PROGRAMMABLE SESSIONS: A "menu" design form is provided for writing programs up to 100 minutes—the backlit alphanumeric LCD display on the console provides step-by-step on-screen prompts for programming. Programs can include all light and sound sources and modes, including auto control of the two built in tape decks (making possible patterns selecting single channels from either or both tape decks to use separate programs for each ear), and storing them in memory. Ten such programs can be stored at one time; new programs can be put into one of the memory slots and replace the previous program.

STIMULATION MODES: Alternating R/L/ alternating eyes/ears, simultaneous, criss-cross, plus several other modes, including something that seems to combine alternating, criss-cross and simultaneous, producing a unique effect.

MANUAL MODES/CONTROLS: Any or all of the sources and modes can be mixed and routed to the outputs. Frequency, pattern, and intensities of light and sound are controllable in steps of 0.1 Hz and 1% intensity. Single channels from either or both tape players can be selected (to use separate programs for each ear).

AUDIO: Pink noise, modulated variable pitch tone, and variable rate heart beat. The same "warm" and "soft" qualities produced by other IQ models. Operator or clinician can add spoken inductions, suggestions or other verbal material through a low-impedance microphone.

LIGHTS: Unlike the other IQ models, this unit uses 6 red LEDs in a circular array around each eye. The LEDs are specially molded to

have rounded ends, increasing the "spread" of the light, to enhance entrainment and visual imagery. Subjectively, the lights are superb, producing an extraordinary array of visual effects.

GOGGLES: Folding black plastic sunglass style. Well-made, but still not as comfortable or adjustable as the foam-padded ski-goggle type.

HEADPHONES: Good quality ear-covering 1/4" headphones for users. Also, a combined stereo headphone and low impedance microphone is provided for the operator or clinician.

CONTROL UNIT: Medium sized (about 16" x 12" x 6 1/2") and weighing about 26 lbs. The sloping control panel contains slots for two tapes to be inserted into the two separate auto-reverse stereo tape systems; a backlit alphanumeric graphic display that provides quite readouts of the status of the various sources operating as well as a "prompter" sequence for user created programs; a variety of high-quality keys for programming, setting levels, controlling sounds, pitches, balance, stimulation frequencies, etc.; and two lighted bar-type vue-meters—one monitoring the master audio level or a selected audio source, a second displaying light intensity amplitude. All are logically arranged, easy to use, and have a good feel.

AUXILIARY COMPONENTS: Optional cables terminated with four client output modules, which can be series connected to allow for up to 48 users, in cable lengths of 12', 20', 30', make this system very flexible and easy to set up. Phone modem, firmware and software for remote monitoring and down-loading of programs are available for networking of multiple units and locations.

GENERAL NOTES: The ability to create and store complex programs makes this the device of choice for operators of brain-mind spas—it eliminates the need for an operator to personally run each multi-user session. This device was designed by a skilled hypnotherapist with many years of experience in using audio-visual stimulation—and designing sound and light sessions—for therapeutic purposes, including hypnotic induction and ranging from helping clients lose weight to stopping smoking. He has created a device that is excellent for therapists and others who want a sound and light unit that can be used in workshop or seminar settings, serving up to 48 people at a time. In

our experience this system produces a very high level of user satisfaction.

S-100/1 Learning Enhancement System

SUGG. RETAIL: \$1595, two users; \$2195, four users; expansion modules for additional users, up to ten, cost approximately \$430 for each two user expansion module, i.e. about \$3480 for a ten-user system.

NO. OF USERS: 1 to 10 depending on number of modules.

PRESETS: None.

USER-PROGRAMMABLE SESSIONS: This is a full manual control device intended for professional and clinical applications. No programming options are included.

STIMULATION MODES: Simultaneous and L/R alternating lights and tones, can be combined with variable binaural beat frequencies; lights and tones are independently controlled, and can be used at different or interactive frequencies; a unique 'balance' mode used in conjunction with the light pulses allows the user to select up to three separate frequencies in operation simultaneously.

MANUAL MODES/CONTROLS: extremely flexible, includes control over:

- frequency and volume of binaural beat, ranging from 0-30 Hz.
- light stimulation mode
- frequency and volume of audio modes (includes four separate audio modes, two of which are continuous tone modes and two of which are beeping modes, which operate either in phase or out of phase with the light pulses)
- "balance" control that permits supplementation of basic beat frequency with an additional tone, modulated at the the visual stimulation rate, for 3 simultaneous stimulation frequencies
- light brightness
- light frequency, including a "lights fast" mode that doubles the flash rate and a "lights slow" mode that halves the flash rate

AUDIO: the binaural beat and other rhythm modes range from 0 to 30 Hz., and can be used

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TECHNOLOGICAL REVOLUTIONARIES: A MANUFACTURERS' ROUND

On April 30, 1990, Michael Hutchison and Terry Patten of Megabrain Report held a roundtable telephone discussion with the central figures in three of the most important manufacturers of Sound and Light devices: Robert Austin of Synetic Systems, makers of the MindsEye, Courier, and Synergizer devices; Rob Robinson of Psych-Research, Inc., makers of the InnerQuest and IQ I, II, III and IQ Jr. sound and light technologies, as well as the Headlights toy; and David Siever of Compronic Devices Ltd., makers of the DAVID devices, including the DAVID Jr., DAVID I, and DAVID Paradise. The conversation was tape recorded, transcribed and edited as follows:

MEGABRAIN REPORT: What new research is being done on applications of sound and light technology?

ROBINSON: We are currently involved with a project at North Colorado State University, researching the medical effects of light and sound technology. It will probably be the end of the year before we get reports back on that. At Arizona State University, a special learning lab in their Education Department has been operating since last August. They are looking at ways of helping students with learning difficulties. They've had six units in continuous operation with very positive results. Again, like most research facilities they are reluctant to turn any information loose until its been totally compiled and statistically analyzed. Their verbal reports have been very exciting; they've had some breakthroughs.

SIEVER: We've just completed a pilot study on dental applications. When patients have their jaws wide open, a lot of EMG tension is produced as a result of muscle-spindle stretch within the jaw-moving muscles. This causes neck pain, jaw stiffness and brings on TMJ problems in the dentiture itself. Our pilot study has shown that using our devices has reduced the EMG levels considerably when a patient has the jaw held wide open in the dental chair. They also experience distortions in their perception of time; they feel like time in the dentist's chair goes by quickly. Also, they don't have stiff necks and jaws. I tried the devices personally while getting some fillings. Even though I had them done without anaesthetic of any kind, my experience was virtually pain free.

In the last year we've also worked on back injury patients with the Canadian worker's compensation board and a psychology professor at the University of Alberta. Many of these people are suffering from chronic severe pain, taking up to 40 Tylenol a day for the pain. Their lives are a mess, they're suicidal, their family unit has broken down, their self-esteem is shot, and so on. They are getting good results by using our lights covered with blue and green overlays in combination with Hypno Peripheral Processing tapes.

AUSTIN: Dr. Michael Persinger of Laurentian University in Canada has been doing some work with one of our machines. He's looking at psychological profiling based on the relative effects of the machines on personality types. As we all know, these machines are more effective on some people than on others. Certain individuals simply can't deal with sound & light machines at all. That's what he is looking into.

There is another group in Salt Lake City, at The Ruth Jones Learning Center which has been using with our machines with people with learning disabilities. They have about 30 of the machines. She's not doing studies; she's doing clinical work with them. I'm encouraging her to set up double-blind studies, although that is a difficult procedure with flashing lights as you all know — how do you do a blind control with flashing lights? But, nevertheless, she's been achieving some very interesting results.

I'm also very interested in the application of flashing lights in the relief of migraine. About a year ago I uncovered an article in the journal *Headaches* which I showed to a neurologist friend of mine. He has decided to conduct a study using Couriers examining possible uses for flashing red LEDs to reduce migraine headache pain. Of course, he has to select migraine sufferers who are not photically-induced.

ROBINSON: But we don't know if they're photically-induced until they've been exposed.

AUSTIN: Well, in general that's true, but this neurologist does know who they are because he takes a whole year to screen them. The study that was published in *Headaches* was very interesting in another respect: of the seven individuals who reported pain reduction, none had responded to chemical treatment — not ergotamine or any of the other drugs.

ROBINSON: Doctor Leonard Rose of the Melbourne Pain Control Clinic in Australia has had some super results in using the light and sound devices specifically for pain control. They are working under contract for a large industrial corporation medical clinic. They are using the devices extensively in pain control training, both for management of chronic pain and also even in short term treatment of acute pain from industrial injuries.

AUSTIN: Are they using it in conjunction with biofeedback?

ROBINSON: I believe they are, yes.

AUSTIN: I am very much intrigued with the use of these machines to eliminate the use of drugs of one sort or another. There are several categories of interest in these devices. But I think we are all interested in having access to the medical market ultimately. If we can replace some of the rather stressful drugs like Ergotamine (going back to the migraine cases) with experiences on devices that are essentially non-invasive, then we will have a wonderful technology indeed. Ergotamine increases blood pressure and has all sorts of other chronic effects. Our machines are non-invasive devices and benign, and they seem to ameliorate the patients' problems. Another category of people that are using these machines, I think, are the people coming off of street drugs. I know one doctor-psychologist who purchased a MindsEye down in Los Angeles for his work with drug dependency. He is using the MindsEye essentially to ease teenagers off of drugs.

SIEVER: I can see some other roles of these devices as well, since they have a tendency to put people into a deep state of tropotrophic response ["Tropotrophic" response involves the activation of the non-dominant hemisphere, as contrasted with "ergotrophic" response, or the activation of the dominant hemisphere. It involves a relaxation rather than arousal response of the nervous system, in which the sympathetic nervous system becomes quiet and the parasympathetic nervous system becomes dominant.] It gets the immune system started up. We've had about a half a dozen David Jr. users tell us that they contributed quite extensively to going into a remission with cancer and so on, including recently David Guard of the Kingston Trio. We would just love to get a double blind study going in terms of cancer control, immune system rehabilitation and so

DTABLE



on. It's a difficult area to get into because the researchers are very stuck in their old dogma, or dogmatic conservative ways, so we are having a hard time getting interest at the cancer clinics here, but we are working on it.

ROBINSON: It'll take some real adventure—some M.D.s and researchers to risk... [general laughter]

SIEVER: Not only do they have to risk retaliation from their colleagues but they have to change their whole mind set — the beliefs and old dogma that they have been brought up and trained with. Many of them still believe that you have no control over your cancer from a personal point of view and that drugs or surgery or radiation are pretty much the only solution. It is hard to cut through that. It may be even harder in Canada because I think doctors are more conservative up here than in California for instance.

AUSTIN: I think another problem you are probably encountering is liability. Physicians are unlikely to take a chance with something that is not proven already in prescribing for the cancer patient when there are other...

SIEVER: That's true, they would rather risk the patient's life with something that has been proven as inferior, but at least its guaranteed as no legal risk.

AUSTIN: I know of one case where a MindsEye was actually prescribed and was reimbursed by medical insurance by the Alabama Psychiatric Clinic for a terminal cancer patient.

SIEVER: That's interesting. That's good to see. I think we have had three occasions now where doctors have prescribed David Jrs. for various things. Nothing serious usually. High blood pressure was one of them. Tension, I think, was the diagnosis in the other two cases.

ROBINSON: Yeah, perhaps this is a happy trend. We've had the same type of thing. We've had a half a dozen or so InnerQuests prescribed and paid for by insurance.

MBR: How do doctors prescribe them?

ROBINSON: They call them in some cases "biofeedback treatment" and in other places we've seen it described in technical terms that mean physical therapy unit.

AUSTIN: What about FDA regulations? This is one of the shibboleths that we all encounter

because we are on the borderline with medicine and we are all aware of the necessity of not making medical claims for something that does not have FDA approval. Have either of you gone through the FDA approval process for medical usages of your machines?

SIEVER: We have gone into the process, and we have gone into the process in Canada as well. We've gotten approval in Canada from the Health and Welfare as a non-medical device, but the FDA — we have applied with the FDA six times now, there is a 90 day waiting period or response time every time we apply, and they never do call until the 90th day. They have a different argument every time we've called. Once they said, yes, no problem; and once they said, no it should just be "medical non-prescription"; and then another time it was "research only"; and then we argued with them about that and then another time it was "medical prescription." And they forget the previous arguments! A couple of times they didn't like our labeling — they said we were making medical claims, so we sent them entirely new brochures, then they phoned us back three months later again, when their due date had arrived and said, "well, your claims are all medical." And we said, "well those are the old ones you're reading, where are the new ones?" They fumbled around through their files and said, "Oh, here they are. We missed them I guess. I'm sorry, you will have to reapply again and wait another three months." And, in the end, when they moved to their new location in Rockville, they just plain lost our file! We phoned them up and said, "We want to discuss this with you guys again. This is our seventh try now." And they said, "Electronic devices? What are they?" They couldn't find us anywhere!

AUSTIN: Finding the right person to talk to at the FDA is a real nightmare. The closest I've come to somebody who knew what category my device falls into was "lasers and other radiation devices". I really didn't want to be put in the category of a laser.

SIEVER: We were classified as an "evoked response device" but then they tossed it out of that area too, because an evoked response device, which really ours are in a sense, also has an output trigger on it to fire and an oscilloscope at the same time. It will flash, and fire an oscilloscope tied to an EEG to read your brain. So ours are a little different because we don't have the trigger output, so there we were

again sort of non-categorized and nobody knows what to do with them — "Who lost their file?"

ROBINSON: Somehow that all sounds so familiar. (Laughter from all) We made a 510K filing about eight months ago. [The FDA requires registration of any medical device — and anything that "affects the structure or function of the human body" is a medical device. The 510K is one category of such a filing.] We get the same thing — on the 90th day they call up and say, "Well you didn't answer this question specifically enough..." or whatever.

SIEVER: Yes, we had a problem under the 510K six times.

MBR: Do you think there is a deliberate effort to slow down the process?

ROBINSON: There is no existing category in which it fits and nobody there is willing to make a decision or create a new classification. I think this is strictly a typical bureaucratic delaying process — people avoid making a decision by asking more questions.

AUSTIN: I tend to agree.

SIEVER: Another problem has to do with the 510K process itself. I think it took us three applications to discover what the 510 process really was, and that's because the personnel at the FDA itself all seem to have a different opinion about it. Maybe with four attempts we discovered what the issue really was — we just could not send them substantial proof that a light and sound device was out and in use prior to the 1976 amendments. The closest we got was some quotes by Jack Schwartz on the I.S.I.S., which is a sound and light machine which was sold before 1976, but the Aletheia Foundation refused to release any records at all to us, so we could not submit that information to the FDA.

MBR: Are you familiar with the Seymour Charas patent of a sound and light machine dating from 1975?

SIEVER: A patent doesn't satisfy them. It has to actually be sold prior to that time. We have to find medical research where someone has written about it prior to '76 saying, "we've reviewed this company's products," or we have to have a receipt from someone who purchased a light and sound device prior to

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'76. And we have not yet found these from anyone. But the Aletheia Foundation refuses to release any records about the ISIS to anybody. And they are the only people I know of who were selling sound and light machines before '76.

MBR: Who is the Aletheia Foundation, and what is the ISIS machine?

ROBINSON: Jack Schwartz is a Dutch Naturopath and psychic who in addition to clairvoyance has extraordinary control of normally involuntary bodily processes like skin temperature, bleeding, etc. He has written various books, including *Voluntary Controls*, and *Human Energy Systems*. He also trains others and leads workshops through the Aletheia Foundation in Ashland, Oregon, which he heads up. He made and sold a simple sound-and-light device for training people to see auras, starting in 1972. Unfortunately, we have had the same experiences David described. We can't get anything out of Aletheia other than "good luck."

The ISIS device is still being manufactured. Orders must be placed for future delivery, so it seems to be sold in a pretty limited fashion. It has a pair of plastic welding goggle shields that hold a single incandescent bulb over each eye in what looks like an old eyewash cup. The controls, besides power on-off, include a beta, an alpha, a theta and a delta switch. You can switch to any one of those four pre-selected frequencies. They also can blink in a left-right pattern — and it produces a white noise that is pulsed in conjunction with the lights.

MBR: What is the indication that it was in use prior to 1976?

ROBINSON: We have a letter from Dr. Lee Pulos, in Vancouver, Canada, saying that he attended one of these seminars in Oregon in 1973 and that he witnessed and was exposed to the ISIS there and was told that they had been actually in sales and production since 1972. He wrote us that letter and we included that in the FDA filing but they said that it wasn't a notarized letter from the corporation itself, therefore it was only hearsay and they wouldn't accept that as evidence. [laughter]

MBR: What exactly are the implications, relative to the FDA, if this machine was actually sold and marketed that early?

ROBINSON: The implication to the FDA is that *anything made and marketed prior to the 1976 amendments to which we could claim a "substantial equivalence"* — that's their term — would make us exempt from pre-market registration. What they are saying is that we are really not supposed to be marketing these things until they have *approved* of it, unless it is equivalent to a device that was produced and sold prior to the passage of that law in '76.

AUSTIN: Does that imply that the other technology had to be registered with the FDA?

ROBINSON: No.

SIEVER: You still have to make the 510K registration. That's how we get off on the so-called "grandfather" clause.

ROBINSON: But you don't have to make any what they call "pre-market studies" and application. It exempts you from that.

SIEVER: Yes, we wouldn't have to go through the two years and to show them research and have public hearings and maybe two or three years down the road give us an okey-dokey. It would save us all that trouble. Fortunately right now the FDA is so poorly managed bureaucratically that it doesn't seem to matter, but it would be nice if things were on the up and up, which they are here in Canada. We applied with Health and Welfare and we got approval very quickly, very expediently, and got a good letter to back it and it was pleasing.

ROBINSON: At least they can respond to information. (General laughter) The FDA seems totally incapable of doing that.

SIEVER: They don't know their arguments in the first place. We've come up with that with them on the phone, they would phone us up just before setting up the letter rejecting us and we'd get arguing on the phone and they would just be totally lost. One argument was, they said that our device was to be used as a medical device *only* because it was being used for hypnotherapy and I said, well, just a minute...

ROBINSON: Hypnotherapy is not medical.

SIEVER: That's right. I told him "The American College of Hypnotist Examiners requires that you take about 200 hours of training and they don't require university degrees of any kind." I said "90% of all hypnotherapists don't have university degrees." And he said, "Oh, I

didn't know that. I'll have to get back to you then."

ROBINSON: That's the thing, they have no basis to scientifically judge the thing. We've been arguing back and forth via our attorney, with a guy who comes back with new technical terms according to which he wants us to describe the device, but he chooses terms that don't even *apply*. We've spent something like the last 90 days trying to convince him that you can't measure LED light output in terms of *jules*.

All: Great...great...(laughter).

SIEVER: Some of the things they ask for are ridiculous. We've had to try to evaluate how many minutes on a David I is equivalent to how many minutes of biofeedback. I mean the two just don't relate! (Laughter) Apples and oranges.

SIEVER: It could be a kind of a strange five years from now if we do find that we can use these machines to help eliminate cancer, cure AIDS and other diseases and also use them for general relaxation. They're both going to be medical and non-medical. It could really be a funny scenario. We might have to take a David Jr., which is going to be non-medical, and put a new panel on the top of it and call it the "Medi-lax" or something — and that will be the medical device which will be filed with the FDA.

ROBINSON: The FDA has an "over-the-counter," classification for medical devices such as thermometers, blood pressure cuffs, and so forth. These items are registered as medical devices but they are of a nature that the consumer can read the instructions and apply them without harming themselves. That's basically the area they seem to be favoring for light and sound devices.

It is interesting that we get all of these inquiries from the FDA with the 90 day interval and then new questions about the safety and/or effectiveness of LEDs while at the same time we are producing and importing from Taiwan our little "Headlights" device which the FDA looked over thoroughly, and said "Oh, this is just a toy, we're not interested in it." The toy uses exactly the same LEDs in a slightly different glasses frame; it's just not driven by software and is strictly for music enjoyment. So we can sell those anywhere to anybody through drug stores or Walmart and they don't



care! It's the exact same experience when you put it on and close your eyes as a therapeutic device but because it is a toy they don't care!

AUSTIN: It's labeling and the claims that are made — and what the FDA *perceives* it to be. I know it is going to be so funny. There may be a real split between toy light and sound devices and then there will be the ones that are medical-only, prescription-only. It could be split. Politics may play a part. They may decide that they are all toys, they may decide they're all medical or that there are some of each, depending on what we claim.

ROBINSON: Or they'll continue what they are doing and never decide!

SIEVER: It's funny. If it wasn't for the fact that the bicycle had been in use so long, the exercise bike itself may have had to go through FDA registration, since they claim that it helps your cardiovascular fitness, reduces heart attacks and so on.

MBR: A second question regarding the FDA: Peter Lindemann recently stopped making and selling a pulsed scalar field device he called the BioPacer and later the Centron [See a schematic for the Centron on Page 34] when the FDA indicated that his claims — such as accelerated learning, deep relaxation, and so on — were essentially medical claims. He's no longer selling them. Perhaps that does not bode well for other devices that also make relatively innocuous claims.

ROBINSON: Did they actually go in and physically close him down or confiscate equipment?

MBR: No, they did a field visit and followed it up with a letter notifying him that they'd found him in violation and what was he going to do about it. He ended up just writing back — "Okay, I'm shutting down."

ROBINSON: Well, I think that is exactly their policy — to intimidate. They will sometimes try to get you to get out of the field so they don't have to deal with you. If Lindemann's attorney had answered them with a hard line, hard-nosed approach, "You're crazy as hell, we believe in this and we are going to fight you," he'd still be selling his devices.

SIEVER: Yes, I agree with you, Rob. They try to intimidate people but they're easily intimidated in reverse as well.

ROBINSON: Some of them like to feel powerful. If by writing a letter they can intimidate and put somebody out of business, they really feel like they've done their work, but if they get challenged and they have to make decisions, or have to justify them, then they get lost, confused and they don't want to have to deal with it.

SIEVER: Their bureaucratic mess is such that Peter could just say to them "I'm shutting down" and keep doing the operation and never shut down, and they wouldn't know the difference or even care for a year or two anyway. Look at Synchro-Tech and Denis Gorges!

ROBINSON: Yes, they've been after him...

SIEVER: The files they've got on him! And he's still going on.

ROBINSON: Sure, they did a field visit on him back in '85. Just look at all the deficiencies and failures to do this and that, and yet he's still selling them.

AUSTIN: And he had some fairly *serious* allegations against him, such as calling himself a doctor, and they confronted him *directly* on that and told him to stop, and he is *still* calling himself a doctor. And people have even been filing with the FDA recently, asking them to tell him to stop it. And nothing is done about it.

ROBINSON: Yeah. It's frustrating.

AUSTIN: My latest encounter with the FDA relates to Denis Gorges, actually. I have been sent copies of some of the letters that Denis Gorges has been circulating on the negative effects of red light. Supposedly, an individual at the FDA by the name of Walter Schmidt had signed these letters. It took 12 phone calls to try and track this Walter Schmidt down.

ROBINSON: He doesn't exist.

AUSTIN: Well, apparently not, as I found out. The person who sent me these letters pointed out that each of the letters had what appeared to be a line across the top, just below the Rockville, MD. letterhead and that it looked suspiciously like a cut and paste. I am now pursuing trying to obtain copies of the letters and sending it to their legal department to have them take a look at them.

ROBINSON: We have already done that.

AUSTIN: Oh! Good for you...

ROBINSON: We have an attorney in L.A. and we have sent him copies of letters we have received from several different sources and he has forwarded all of these on to the general counsel for the FDA.

AUSTIN: I think forgery is a felony. Is it not?

ROBINSON: It damn sure is. Fraud, forgery, there are a lot of things involved and I think the FDA is going to be very interested in it.

AUSTIN: That would finally put Denis Gorges out of commission. He's definitely a very bad influence on the light and sound industry in its entirety. Recently, Denis has been plaguing competitors at shows on this issue of red LEDs.

ROBINSON: This Walter Schmidt letter has been publicly displayed to all the potential clients at several trade shows.

AUSTIN: Including a recent one in Ohio where he wrote against both Rob's devices and mine. I nearly came to *fisticuffs* with members of his crew who were claiming that they have "thousands of studies..." The titles of some of these studies were cited in one of these Walter Schmidt letters, and they have *nothing* to do with red light at all, they are totally random studies!

ROBINSON: I know! They have to do with radiation and noise and other types of things; and the heading of the letter says — here's all this information on red lights and LEDs particularly. And we couldn't find *one* of those studies that referred to an LED ever! I'd also like to point out that if there have been studies or red lights, basically it's from people whose *long term* environment is predominantly red. And all of these are, of course, things observed with the eyes open. [Editors' Note: MEGABRAIN REPORT has conducted an in-depth investigation of these "Walter Schmidt" letters as well as Denis Gorges, and made some startling discoveries; see our report, "A Long and Twisted Tale: Denis Gorges and the Synchro Energizer," on page 40 of this issue.]

AUSTIN: Well, I think we should be concerned with chronic exposure to red light, because people, we hope, will be using these things half an hour to an hour a day. It's not chronic but it is regular use. I've done a fair amount of research through the Indicus

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Medicus on color and photosensitive epilepsy and, as a matter of fact, there is an excellent textbook called *Photosensitivity and Epilepsy*, a review of 220 pages by Michael Neumark, and that was in 1979. It is just chock full of information on the subject.

SIEVER: I have personally developed concern myself about red lights. *[Editors' Note: The discussion that follows is expanded more fully by David Siever and Robert Austin in "Shedding Some Light on Photic Driving: Two Views of Red LEDs versus White Lights" on page 6 of this issue.]* For the longest time I thought that white lights were converted to red through the eyelids, and that's one reason we were going to go to red LEDs. We thought, why pay all the expense of white lights which are running about 20 to 40 times more expensive than red LEDs? And what we have actually found out here is that the eyelids passed the major component — if you take a white light and just shine it into your eye with your eye closed, you don't see red, you see kind of a pinky orangy yellow.

AUSTIN: That's right, you have a pass filter band, so that it has a wider band than the monochromatic light emitted by LEDs.

SIEVER: On the chromaticity diagram, it shows that actually the fundamental frequency of white light is cyan (a greenish dark blue). With red LEDs one of the problems is that the LED has a spectral peak at 650 nanometers, which is entirely away from the blue and the green and only stimulates the far red end of the red receptors.

From studies on the chromaticity of blood, I suspect the blue receptors are getting stimulation through the eyelids. For this reason, I hope everyone will get back into white lights. You produce a white light option for the MindsEye, don't you?

AUSTIN: Yes, that is something we are producing but not for the reason you suggested. We found that preference for the devices seems to be tied very strongly to the experience somebody originally had. If they'd tried a Synchro-Energizer originally, they want white light. But it's because of the patterns that they've seen, not the effects they've had. It's the entertainment aspect, and our desire is to make something available to please everyone.

I have different concerns about white light sources. The predominant sources for white

lights are strobe lights or incandescent bulbs. Strobe lights are a classical device used for generating cortical evoked responses. It works very well because it switches from off state to maximum brightness in a very short period of time and creates a cascade of nerve impulses simultaneously. With all the incandescent bulbs I've looked at, there is a latent period; it takes a certain period of time for the filament to warm up and glow. I've looked at dozens of bulbs, and they took anywhere from 30 to 300 milliseconds to proceed from minimum to maximum brightness.

SIEVER: True, most bulbs are a problem. We have investigated several dozen bulbs ourselves and finally came across the one we are using, which has a rise time of just a couple of milliseconds. But these bulbs are expensive. They're not like a five cent LED.

AUSTIN: Well, I wish these LEDs were five cents, but...

SIEVER: Well, if you're using high power ones it could be more. It depends on what technology you are using.

AUSTIN: They're more like 50 cents each — if you buy thousands of them.

SIEVER: You're using high-powered LEDs?

AUSTIN: Yes.

SIEVER: I know that some of the other devices are using regular LEDs which are a nickel apiece or...

AUSTIN: I don't think those are bright enough.

ROBINSON: They don't produce very much light. Now, the ones we use produce nominally about 450 millicandles each.

AUSTIN: In fact, brightness is a real concern. I encounter people at both ends of the spectrum, to misuse the metaphor; many people would like the light to turn down as low as possible and then you have the hard-core users who want always more brightness than you are capable of providing. By the way, I've found several papers that indicate that red light is more efficient at inducing electrical activity in the brain than other colors, primarily because you are stimulating only the red cone population. There is a *mutual inhibition* if all three cone colors are stimulated simultaneously — that is by white light. That the mutual inhibition is through the ganglia and the horizontal

cells and so on that interconnect the cones before they feed information back to the optical processing centers in the brain. What I am saying is that it requires a lower intensity red light to produce equivalent electrical activity in the brain than a white light.

SIEVER: I think there are methods that a person could use other than red which would be even more efficient and stimulate the green and blue color receptors as well.

AUSTIN: It's difficult to do that David because there's such an overlap. Green is the most difficult. You have to use a special trick to stimulate those at all.

ROBINSON: Yes.

SIEVER: Well green is actually a very broad receptor.

AUSTIN: If you stimulate with green, you stimulate the red and blue cones at the same time.

SIEVER: No, the blue would be missed. If you stimulated with green, let's say you base it at 540 nanometers, which is the spectral peak of green receptors, you could stimulate red and green at the same time with a green light, but blue itself is way off at 450. White light is the only way to get to the blue except an actual blue source. And if you had a blue source, being that it's so separate from green and red, then you wouldn't get the green and red stimulation.

AUSTIN: My neuroanatomy textbook showed the three groups overlapping. You can stimulate blue preferentially if you go up towards the violet, but according to my neuroanatomy guide, you really can't do it with blue alone unless you use...

SIEVER: You can stimulate blue, but as I said blue is really separated from green and red. Green and red overlap quite a bit. But blue is separated from green and red. You couldn't do blue alone. To get blue you have to go back to white light again, and then that's cyan passing through the eyelid. That's why I use white lights to get the broad spectrum stimulation.

AUSTIN: (Laughing) Well, there *is* an overlap, otherwise there would be a discontinuity in our vision. Just look at a good basic book on vision like, *Eye, Brain and Vision* by David Hubel, in the Scientific American series. You'll see that the response curves of the receptors all over-



lap, except the red and the blue. Besides, as I said before, there's no evidence that it is important to stimulate all three. As I just said, there is even evidence that visual signals are sometimes suppressed when all three are stimulated, which would reduce power of the photic driving.

But, I think ultimately that we are going to see white LEDs become available, because recently blue LEDs have become available, although low intensity and quite expensive, and if you mount the chips for the green, red and blue emitters all in a single substrate then it is possible to generate at least the illusion of a white light or very close to it.

SIEVER: Right. That might be a good approach. You'd have a faster response time, longer life and hopefully a lower cost.

MBR: How soon do you foresee white LEDs?

AUSTIN: I'd guess two years.

MBR: Would all of you be interested in white LEDs?

SIEVER: I would be interested provided we can cause enough spread from the LED to stimulate the visual field effectively. That's one area where I think there is a real problem with LEDs. I noticed, however, that Rob Robinson has done well by shaving the ends off of his LEDs. Your goggles have a pretty good spread now with the visual field.

ROBINSON: We actually have a manufacturer that made a mold just to do that. We were too busy polishing the ends off of the damn things and after while... we have a manufacturer now that just makes them that way. They mold them with that blunt, fused end.

SIEVER: I think entrainment is partially a ganzfeld effect. As you wrote in *Megabrain*, a ganzfeld can be produced by almost any unchanging visual stimulus, even with an image. You could literally take an image, put it on a contact lens, and stick it on the eye. If the subject had his eyes open, he would see a bus or a train or something. But if that image stays exactly in the same position on the visual field, so that no new receptors are ever stimulated as the eye darts around, the person will drift into a ganzfeld effect. One of the aspects that we're up against — and I don't mean to knock red LEDs — but many people have said that they don't seem to get good entrainment because they have this red dot darting around in their

visual field as their eyes flicker and refocus. It seems to break the entrainment process.

ROBINSON: We haven't found that at all. We've run a series of EEGs at Northwest Hospital with the red LEDs and we found that entrainment happens very rapidly.

SIEVER: We masked off a portion of each eye in our white light goggles so that there was only a white dot showing in the center like some of the LED systems that are out, and sure enough they did not seem to produce the same entrainment as if we had a broad visual stimulation, because the users said they would notice the white dot darting around in their visual field and it seemed to interfere. That is a subjective matter to some degree, but that is something we are up against if we go to an LED approach. I personally would probably have to have a cluster of LEDs to hit the broad visual field or try the same approach as Rob Robinson and shave the ends off so that the light is divided into a multitude of directions.

AUSTIN: The eyelid itself diffuses light. You can verify this for yourself by closing your eyes while looking towards a bright light. Since these machines are used with the eyes closed, the diffusion of the light is taken care of by the eyelid itself. Diffused or not, I don't think flashing lights will produce a ganzfeld. The ganzfeld effect is very different than the effect of flashing lights. In experiments such as putting the image of a bus on the contact lens, you are dealing with an unchanging stimulus. Unless new receptors get stimulation, you will "blank out" and lose the bus image very quickly, in a tenth of a second. A ganzfeld involves blanking out of the visual field by steady stimulation.

Rhythmic stimulation is a totally different thing. With rhythmic visual stimulation we see entrainment, and also to a degree, boredom, when the rhythm is unchanging for a long enough period of time. There are two effects, boring the brain and entrainment. Entrainment is most efficient in the alpha range, but it has been measured from theta to beta, between three and twenty cycles per second. Strict entrainment, in which the brain activity is in phase with the light flashes, seem to happen most in alpha. But brain activity is also measured in "epochs." You take a measurement over a few seconds, then another over another few seconds, and then they are averaged through auto-correlation. That averages out the

brain activity, and when it is measured and defined in this second way, entrainment is easier to accomplish in other ranges. And in addition to entrainment effects, the repetitious flashing may also "bore the brain" into theta states. But if lights are flashing on and off, that's not a ganzfeld.

MBR: Does anyone have anything to say about sound?

SIEVER: We've found that many people prefer a pure tone over a synthesized tone. And devices that can only produce square waves have a tendency to get on people's nerves more than devices that have a smooth pure tone.

AUSTIN: I think it varies a great deal with the individual. We've gone to great lengths to produce a sophisticated sound synthesizer, and the gamut is really huge. Especially sensitive individuals do prefer pure tone like a triangle or a sine wave, which is why we provide that, but most people tend to want a greater variety of sounds.

By the way, I've seen no evidence of sound itself providing any entrainment. We have run some preliminary EEGs, and — not talking about beat frequencies, but just pulsed sound — I haven't been able to see any results on pulsed sound alone, and we've tested the sound from all of our machines. I think the main function of the pulsed sound is to mask background noise.

SIEVER: That's true, but it actually does provide entrainment and I do have a study right here in front of me...

AUSTIN: With clicks?

SIEVER: Clicks are definitely the best.

AUSTIN: Of course, but that is an evoked-potential.

SIEVER: Yes, clicks are very effective in providing entrainment response. But there's also a research project and, here's one here for instance — the application of audio stimulation and electromyographic biofeedback with bruxism and the myofascial pain dysfunction syndrome, where they talk about the well-known process of using isochronic (symmetrical in time) tones. And we developed our tone production based on the isochronic concept because that seemed to be most prevalent in the literature, where we have about a 1,000 to 1 change in amplitude from maximum to shut-

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off when we pulse the tones out. I noticed also that the InnerQuest follows reasonably closely to that pattern as well.

AUSTIN: Well, there are different ways of pulsing the sound of course, but if you can gate it using a square wave. . . .

SIEVER: Yes we are gating ours. We've textured it actually. We don't pulse the tone in a square wave, per se, because it causes all sorts of harmonics.

In fact, we have had quite a technical headache trying to get a really pure tone. We have used synthesizing chips that were not pure. We tried to texture them and we've finally taken an analog approach to it. It is a very difficult to make an actual pure tone that is very, very clean. That has been the toughest technical hurdle for us to overcome.

MBR: Maybe, David, you could explain what you mean by a "pure" tone.

SIEVER: A pulsing sine wave with no harmonics involved. This is unlike the square wave which is often produced by a processor, or a triangle wave which has a lot of harmonic components.

AUSTIN: Triangle waves do have a lot of harmonic components but you can low-pass filter them. That's the approach we've taken in the MindsEye. If you look at the output on an oscilloscope, with a low-pass filter on triangle waves you have something that looks just like a sine wave.

SIEVER: True, but one of the problems we are up against is providing a pure tone drift or change from over 50 cycles to 4000 cycles. We cannot possibly put a filter on that broad a range. We even had a sine wave generator, but we found that they even have noises in them. Of course, this is a preference thing depending on your clientele. We have had patients who despite our best efforts to make a pure tone, still thought there was noise in our tones. It's very hard from a technical point of view to rectify that.

AUSTIN: We've overcome it with our new device, the Courier, by using a cable hook-up method where you actually store a copy of the sound waves in ROM and do direct digital-to-analog conversions.

MBR: Robert, you said that pulsed-sound may not produce entrainment. Could you elaborate on that?

AUSTIN: Yes, we looked at pulsing sound on and off by itself — without the pulsing light in an EEG setting — and we were not able to generate alpha or other peak or entrained alpha waves. In fact, we checked many of the machines on the market. Just the sound-pulse done *by itself* does not generate entrainment in either the pulse or the smooth pulse approach that we were taking. It adds to entrainment when combined with photic driving, but it's much less powerful. We're smoothing the impulses on our output so you don't have an immediate on and off, which is what David was talking about, primarily because people found that more pleasing, but we looked at both approaches with an EEG.

MBR: So, you did not look at clicks?

AUSTIN: We didn't look at clicks because we know that those can produce the evoked potential. In our earliest machines we couldn't get

away from clicks. There were current-like generated clicks. I should have realized those were a feature and not a problem. (Laughter from all.)

SIEVER: Yes, we've had that problem.

ROBINSON: The problem is nobody wanted to hear the clicks.

AUSTIN: Yes, exactly.

SIEVER: Well, clicks and isochronic tones do provide entrainment. Clicks are the most effective.

There are four rules in entrainment. First, there's the power, you must have the right amount of power to cause it. Second, you must do this in the proper frequency zone to cause entrainment. Third, when you take someone to a specific brainwave state, you must have a positive and unvarying driver source — like if you were taking someone to eight hertz you can't be drifting between 7 and 9 all the time due to software problems, you've got to be really very true to 8 hertz.

Update on Cognition-Enhancing Substances

We have received an extraordinary level of response to the article in MEGABRAIN REPORT Vol 1, No. 1, *Cognition-Enhancement Drugs and Peak Performance Pills*. One stream of practical questions concerned sources for these substances. We printed the address for Interlab Ltd. in England. Are there other sources? Better or cheaper sources? We have been notified about two other companies who sell these same substances through the mail legally, Inhome Health Services in Switzerland, and Pharmaceuticals International of Mexico, which lists a US address and an 800 number. Readers have reported good experiences with Inhome Health Services. We attempted to contact Pharmaceuticals International to evaluate their services, but without success. **Therefore: We do not know if they are a legitimate source of quality product** As a service to our readers, the addresses for both companies are reprinted below:

Inhome Health Services
P.O.Box 3112
CH2800 Delemont
Switzerland

Pharmaceuticals International
539 Telegraph Canyon Road, Suite 227
Chula Vista, CA 92010

BUT PLEASE NOTE: MEGABRAIN REPORT is not recommending that anyone use any of the substances described, but is presenting and seeking information. We emphasize that adequate studies of both long and short term effects of some of these substances have not been performed, that some of them can have adverse side effects, and that all humans have different biochemical natures and sensitivities, so that safe dosages of some of these substances may vary enormously from individual to individual. Also, some of these substances may be dangerous for individuals not in sound mental and physical health. As a result, we strongly recommend that anyone interested in experimenting with these substances do so with caution and under the supervision of a medical professional. We strongly recommend that children or lactating women should not experiment with these substances under any circumstances.



AUSTIN: I think that most people wouldn't have software problems with that though, the crystals are so good.

SIEVER: Yes, I know that none of your devices have that problem. We've done a lot of technical analysis of all the devices. I believe your devices are all really true but there are some which, because of software errors, are bouncing all over the place. It crosses between 7 and 9 and then keeps changing every two or three seconds. They are somehow getting their interrupts tied up off their timers on the processors and they're missing interrupts or something.

The fourth principle of entrainment is the *subjective* dimension. People have to like it. And that's the problem with clicks. The device has to be very congruent with the user. Everything must fit — the tone, the lights and so on. I think that's where clicks miss the mark. Clicks are a very powerful entrainer, especially in the auditory cortex. But they may not spill off into the higher centers of the brain simply because they may drive the user up the wall. (Laughter) We have found that with our David 1, which produced clicks — they had clicks, white noise, pure tone and synth — and only about one out of ten users liked the clicks. If they liked clicks, they loved them and they didn't like anything else. But nine out of ten just do not like them.

AUSTIN: Maybe we can digitize a cricket or something natural that people are used to...

MBR: That's an interesting concept: integrating natural tones with the entrainment process. I think I heard somewhere that the body does become entrained to cricket frequencies, you know the ambient "creak, creak" that keeps going on summer nights.

AUSTIN: Very relaxing, aren't they?

ROBINSON: Yes, that and tree frogs.

SIEVER: That could be subjective in nature, I think, just because we may have that ingrained in our cortex from a million years of evolution while listening to crickets. *Fire* actually has the same wave, and if you do high speed photography on fire, and then you analyze the flicker of the flame itself you will find that it is actually in the alpha band. Which is one reason why fire is so captivating, and why it puts people to sleep very easily.

AUSTIN: Somebody called me up once and told me I'd misnamed my device, that I should call it "Cosmic Campfire" and that he would accept one free machine for using his brilliant name. (Laughter)

SIEVER: I have noticed that there are problems in making more sophisticated systems because the public doesn't necessarily want them.

AUSTIN: That was my whole approach with the MindsEye, to make a really sophisticated device. But unless people are really hackers of some sort they don't want to "program" things.

SIEVER: I think you're right. I think that, since we come from a technical background, that we want to make everything sophisticated but a lot of users don't understand it. We've had all sorts of people say, "No, I can't program this, I can't program that." Sometimes programmability isn't something you should offer, just maybe something that's not worthwhile, except for, as you say, the hackers.

MBR: Different programs produce different effects and different benefits. How do you recommend programming optimal programs for various particular results?

SIEVER: Well, overall, I think that programs are somewhat general. It is very difficult to say that a particular frequency has certain benefits, and if you change the frequency half a hertz you have a totally new set of benefits. I think these things are reasonably general overall, and *application* is really the short area. Basically you can put *anyone* into an altered state, but what do we do with them once they are there? I think that's the more important issue than whether you entrain them at 8, or 7.8 or 7.4 or 7.

AUSTIN: I agree, one of the problems I had with the machines that were available when I developed the MindsEye was that either they were completely manually controlled or else they had just simple stored programs. And I think those stored programs are useful in getting somebody to a state, in a relatively crude sense, but they didn't give you any options based on what your personal life experience might be. We find that some people have a great difficulty getting into the alpha state no matter *what* is going on. It takes a longer time to ramp them down there.

SIEVER: That's right.

AUSTIN: Other individuals can get there very rapidly indeed.

SIEVER: Yes, that is definitely true. And some people's minds are so racy and they're so uptight they really need to try progressive relaxation and hypnosis induction tapes at the same time as they're on these devices. The only other approach is to give them the choice — one who falls into an alpha state quickly, you could give them a 15 minute alpha choice, and those who take a long time, give them an hour or something.

AUSTIN: That's what we've done with the MindsEye and some of our other products.

SIEVER: But we have had some people who're so uptight — including myself on some days — I'm just too uptight to go into alpha. One thing we have observed and we hold to quite closely, is that below eight cycles the brain doesn't entrain too well. In fact, it looks like the natural resonance of the primary visual cortex is 100 milliseconds, 10 hertz. If you try to push them into theta, their entrainment process breaks free, sort of like a horizontal knob on a T.V., and then they're hearing all the sounds in the room and you've lost them. Have you found the same thing?

AUSTIN: Yes, sounds in the room are a real distraction for people. That's why we feel it is necessary to completely cover up the ears. But you're right: alpha driving is easiest to achieve. Beta is next. And I see no strong evidence of delta driving. I know that there have been a few reports published that indicate some delta driving, but it drifts off into noise.

SIEVER: Yes, delta driving seems to be after a person has achieved some experience for a couple of months and then they're just laid back and in bed nice and quiet in the evening or something, and with a few months experience and they are relaxed and they can go down there.

AUSTIN: Another factor is that every individual has his or her own signature brain wave frequencies. That's why we have this variation of alpha, beta and delta, why it's not a precise frequency at all. And, up to the present those of us who have devices with adjustable rates are asking individuals to experiment to find the frequency that works best for them. But the next logical step, and a step that we are taking

■ TECHNOLOGICAL REVOLUTIONARIES: A MANUFACTURERS' ROUNDTABLE CONTINUED

up here is to combine biofeedback with the device to help find that frequency.

SIEVER: Actually, we have done that. We have done some studies with EMG biofeedback, where we play a tone in the ears via the tape input and it's sort of feeding in among the pulsed-tones and there's the biofeedback tones overriding in there. I can't say that so far that it looks that positive. I think sometimes people find the humming biofeedback tones a bit of an irritating interference with the pulsing lights and tones they are already receiving.

MBR: Another potential application is EEG biofeedback. It could somehow be linked or locked into the sound and light stimulation so that people receive their own brainwave feedback in the appropriate frequencies. Then the lights and sounds could be set at a slightly lower frequency than their dominant brain wave activity — say 90 percent of their dominant frequency — and that way draw them down toward the target frequency. Are any of you people involved in work in this area?

ROBINSON: We did a whole series of things just *exactly* along that line. My background is in the clinical application of these devices. Back in '84 we developed a clinical system that tied in brain wave biofeedback and did not feed it to the subject but fed it into the computer. The computer would lock on to the dominant brain wave activity and pulse, and then modify the light and sound to pulse right at that frequency so we got in step. Then we had several different modes of operation. It would display on a screen a graph, and we developed a whole new brain wave biofeedback system, actually, so we would show amounts of energy in each 1 hertz segment, 25 Hz down to 1, and you could actually watch as the machine was put into what we call the "lead down" mode where it would lower the stimulating frequency by just half a hertz every time it got to where the brain was responding in sync. We found that almost without fail over a period of 8-10 minutes almost everyone you put on there when this thing is leading and waiting for the brain to respond, could actually be driven down to about the 8 hertz level. Beyond that there was some of this "breaking loose" and a lot of other things depending on individual abilities but the....

SIEVER: You're saying you've done that?

ROBINSON: Oh, yes.

SIEVER: We were going to build our own version of the Mind Mirror which would actually do that, which would plug in to the rear of our Junior Plus and always cause it to track about a half a hertz behind the brain or half a hertz more than the brain.

AUSTIN: We're working on that too!

MBR: What are the possibilities of this being available in a consumer device?

ROBINSON: Well, there are several difficulties. The signals from the brain are so tiny that a lot of other conditions affect them. The placement of the electrodes, the conductivity of the skin, ambient noise — it's almost impossible if you've got a diathermy machine within a mile, if you have a ballast on a fluorescent light that is acting up, and so on. Your system can't really differentiate between all this information, so from a practical standpoint there is almost no way for the consumer to just hook himself on to this thing and have it lock on to brain activity. From a research standpoint it was very exciting, but from a marketing standpoint, we couldn't figure out any way of interpreting this into a simple consumer product. It just wouldn't work. So anyway, we've put it on the shelf and it's still there and one of these days we may bring it back out as a sophisticated research and clinical device.

SIEVER: If we can work on that ourselves, or jointly, using fast Fourier analysis...

ROBINSON: Yes, well that's what we did. We had a Fourier transform based analysis and we sampled brain activity so many times a second, accumulated it over the first two minutes and then started feeding this in to the machine so we could lock on to dominant activity and track it and so on — it was really exciting!

SIEVER: There was also the problem that it's hard to market because it's large and expensive?

ROBINSON: Oh, yes. It was necessarily an expensive piece of gear. We've got it down now where we could probably sell it all inclusive for not much more than we're selling our current clinical model, but the application is still a real difficulty. It would have to have a really well-trained technician to hook people up to it to see that you got repeatable responses as far as placement of electrodes and assuring of conductivity and a lot of people, as users, don't want their hair and head messed up with

a lot of conducting cream (laughter) and so on. It's intimidating for people to come in for a therapeutic purpose — like hypnotherapy — and have you start attaching stuff to them.

MBR: The fact of you and Robert and David duplicating in some ways each others' work brings up a question that's often arisen in my mind: it seems as if you guys have all created very nice devices that are effective and powerful and yet, in some ways we seem to be in a situation analogous to the early days of the personal computer, when people were coming up with totally different and incompatible operating systems. Do you envision any possibility of us establishing some sort of industry standard like the IBM PC type of idea with all of you people making compatible devices that would have interchangeable programs, interchangeable goggles, light configurations. . . ?

ROBINSON: I could see that happening, sure, you know the stereo industry and the TV industry all had to do these things in order to make products compatible for the consumer. Yes, I think it's natural, considering where our industry is going, for us to have some standards, and a certain amount of interchangeability.

AUSTIN: I certainly think in the cases of Rob's devices and mine that that would be easy to do since we are both using the same lamp sources. It would really be a matter of making sure the connector was appropriate.

ROBINSON: Right.

SIEVER: Actually it could be the same for us all. We're using a different concept, I guess, we're using a 6 voltage regulator on ours, so whether you're in the "focus" or "expanded" mode the light intensity is always the same. But what we would have to do if everybody had constant voltage outputs, we could put some resistors in the plugs or in the goggle frames themselves and they could then run white lights or LEDs and it wouldn't matter.

AUSTIN: It depends on the current level required by the lights. We've found that incandescent bulbs require much more current typically than LEDs.

SIEVER: Not ours. Ours probably draw less than your LEDs do. Our voltage is around 20 milliamps.

AUSTIN: That's right down in the same range.



SIEVER: Ours are very efficient bulbs used by the U.S. military and they have a very high-speed filament but they are very expensive. That's the only real drawback we have with them.

MBR: Where is this industry going? What will the future hold?

ROBINSON: Every time I get interviewed I tell people this is going to be the VCR of the '90s; I predict publicly that these will become a household item. People, for entertainment and for competitive reasons, will want to keep up with what's going on and to have technology that is equal to their neighbors or competitors and so on. As word gets around that you think better, relax better, live a lot better lifestyle as a result of the conditioning you get from these devices, it is going to become an absolute necessity for people have one. We are approaching it on that basis. I think within maybe ten years every household will probably have a device of some kind having to do with mental fitness. And so far the leaders in the field seem to be light and sound devices.

AUSTIN: Alpha wave entrainment is the easiest thing to achieve with these machines

I think within ten years every household will have a device of some kind having to do with mental fitness. And so far the leaders in the field seem to be light and sound devices.

and therefore you can say that the devices are useful for relaxation, and also entertainment, because you have this nice light show. I'd like to see more advanced applications, but I think this is really what is happening for most people right now.

SIEVER: I am pleased to see that everyone is conducting research, because without research these could become a fad. They'd have their five year cycle and be gone and buried by 1995. Strobe lights have been used since the '50s, but their popularity has always been as a fad. They became popular in the '60s again with the hippies. But because there was no research to back it up they always died in a few years' time. But, I think that as some manufac-

turers, including our three companies here, are quite dedicated to the cause of research with light and sound, that this technology will flourish.

MBR: What about theta entrainment and the deeper, at least reportedly more profound, states associated with it?

AUSTIN: I'm intrigued with the idea of theta entrainment. We find it more difficult to produce it. I think Rob has an interesting concept with the cassette recorder [i.e. the IQ III includes a built-in cassette recorder], the idea of us having the enhanced learning take place in the ideal learning state. Of course Tom Budzynski has also done that with his Twilight Learning Device, although it is a bit unwieldy and hard to find right now. But Budzynski took the approach of measuring the EEG and then switching a cassette recorder on or off depending on whether or not somebody was in the theta state. My concern with any of our devices is that we really don't know that somebody is in that theta state unless you have the EEG as part of the loop.

ROBINSON: I think a lot is hinged on the expectations of the client. The belief system. This has always been our long suit. It is why we have incorporated the tape player. With it we can offer belief system modification along with the device. If a person believes that they are going to experience theta, then very often the results associated with theta entrainment are there. Whether it is verifiable from a clinical or testable standpoint or not seems to be totally irrelevant.

AUSTIN: It's the placebo effect.

ROBINSON: Yes, and the placebo effect is more powerful than most people give it credit for being. It's *major*. As long as the presentation to the user is such that his expectations are high, if he has a high degree of confidence in what he's about to experience and his expectations are positive then his experience almost always is. We have found that the way you approach your user, and the way he views the experience, has a great deal to do with the outcome as far as entrainment levels and results.

AUSTIN: I agree, and I think it is a very interesting point, because half of what is going on here is entrainment and the other half is expectations.

ROBINSON: Yes, the psychological value of expectations and the belief system, we think, are probably as important as the entrainment system itself. I agree.

SIEVER: I agree with both in regards to belief systems. Another important technical or medical consideration has to do with the tropotropic response. I think these devices bring it out very fully. That's where the sympathetic nervous system, which is associated with the flight-or-fight, is shut down, and the parasympathetic is turned on. And typically during this tropotropic response the body goes into a state of repair. This effect has been tied to the function of the immune system and resistance to disease. I hope to see research in this area get underway in the future.

Also, in our new Paradise model, users can do a "split frequency" where you can run the right eye at a different speed than the left. This is an attempt to duplicate the brain wave state of the various Zen meditators, the 5th, 6th, and 7th states of consciousness and so on. This allows us to do frequency mixes, where there is an alpha/beta mix or a theta/beta mix, something like the Hemi-Sync tapes have now, to put people in a deep altered state yet give them a little bit of conscious control such as in lucid dreaming or high creativity states.

AUSTIN: We are currently prototyping a device that follows along the lines that David is talking about. We have an awful lot of LEDs in a small panel, that is switched in a variety of circuits. We want to see how many different frequencies we can entrain simultaneously. Most of us are entraining at one frequency and what David is suggesting (and what we are also looking at) is the possibility of entraining each hemisphere to a separate frequency. But can we entrain both hemispheres to more than one frequency simultaneously? Can we attempt to reproduce some of the states that have been measured by Maxwell Cade [inventor of the Mind Mirror] and others?



PRODUCT REVIEW: THE POWER TO CHANGE

THE SOFTWARE LEGACY OF MILTON H. ERICKSON

Audio Tapes:

HYPNO-PERIPHERAL PROCESSING Hypnotic Cassettes with "360° Sound"

by Lloyd Glauberman PhD, some with Philip Halboth, PhD

CHANGeworks Multi Evocation™ Hypnotic Cassettes with "3-D Sound"

by Thomas Condon, M.A. and Carol Erickson, LCSW

PARALIMINAL TAPES from Learning Strategies Corp. with "3-D Sound"

by Paul Scheele, M.A.

Reviewed by Terry Patten

A revolution has transformed Western hypnosis over the past 50 years. Earlier in the century, hypnosis had been pushed to the fringe of mainstream medical and psychological circles, and was in danger of being relegated to the status of a vaudeville act and psychological curiosity. Today, hypnotherapy is widely accepted, and ranks as one of the most dynamic fields in psychotherapy. Contemporary hypnotherapists proudly claim that they possess profoundly powerful "technologies for personal change."

In this time hypnotherapy has been transformed by a number of important innovators, but no single individual is more responsible for this transformation than Dr. Milton H. Erickson, the pioneering intuitive genius of modern hypnotherapy. However, "Ericksonian" Hypnosis is taught only to therapists. Neuro-Linguistic Programming (NLP) developed by Bandler and Grinder via Erickson's inspiration, is a complex system of specific subconscious communication techniques which takes years to master. Thus, until recently, an individual wanting to make use of Erickson's insights into personal transformation had to choose between an expensive course of therapy and a much more expensive, time-consuming course of professional training.

The audiocassette tapes reviewed here attempt to put Erickson's magic within the reach of any curious consumer. They are produced by practicing professional hypnotherapists and educators who claim that using these tapes can catalyze **major lasting positive changes** in people's lives by using Ericksonian and NLP techniques for engineering subconscious changes.

Lloyd Glauberman's *Hypno-Peripheral Processing* tapes all possess a common format: Over playfully mysterious musical sounds, Glauberman tells a fairy-tale like story. The story, parallel to the hero's myth, describes someone who leaves the stream of ordinary life for a fantastic adventure, and returns a *changed person*.

Except you probably won't remember the fantastic adventure. The story is so fantastic, so entertaining, so full of surprises that Glauberman tells it *twice*, once in each ear, simultaneously, and totally differently. I've tried hard to mentally follow both stories, but never have I lasted more than about five minutes. The conscious mind is forced to give up, dropping you into a trance state during most of your listening experience.

Most of Tom Condon and Carol Erickson's *Changeworks* tapes begin with a single comprehensible voice inviting you to take a break and get into a comfortable position. But soon you hear Condon talking in one ear and Carol Erickson in the other, each pretty much talking about the same subject, trees for instance, or a big nice house. You hear two animated, poetic monologues, spoken in a relaxing and intimate fashion. As though you are overhearing two people talking to a close friend about something they really enjoy considering. And they keep expanding on that conversation in amusing new ways all through the program. Except you dropped deep into trance soon after they began and the next thing you knew the tape was over, but you're feeling relaxed and confident, creative, intuitive, or maybe humorous.

In most of Paul Scheele's *Paraliminal Tapes*, he begins by offering a hypnotic induction to both ears. Soon, however, music begins, and via a series of gentle, barely perceptible transitions, you find yourself listening to two voices. The right ear (neurologically cross-laterally linked to the brain's left hemisphere) hears step-by-step NLP reframing or other hypnotic instruction while the left ear (linked to the right hemisphere) hears a metaphorical story. Both voices are Scheele's. The two tracks convey

congruent influences in different fashions, but they periodically converge, the left voice, for example, finishing a sentence or idea begun by the right, or vice-versa. Music is an integral part of these intelligent, technically-excellent tapes, sometimes "anchoring" the voices' messages. But you haven't been thinking

Professionals claim that using these tapes can catalyze major lasting positive changes in people's lives by using Ericksonian and NLP techniques

through all this complicated technique while enjoying the tape. You've just been riding the refreshing process of listening to it, and you emerge invigorated, clear and bright.

The specific intention of these "dual induction" tapes is to use Erickson's "confusion" technique to induce trance and bypass conscious resistance to transformative suggestions. Erickson himself didn't use dual inductions, which are only possible via tapes (or using two hypnotherapists!) but it has arisen among "Ericksonian" and NLP practitioners (who trace their roots to Erickson) and it certainly fits his definition of his own technique:

"The presentation to the subjects of a series of seemingly but only loosely related ideas actually based upon a significant thread of continuity not readily recognized, leading to an increasing divergence of associations... all of which preclude subjects from developing any one train of association, yet stirs them increasingly to need to do something until they are ready to accept the first clear-cut definitive suggestion offered."

On the other hand, there are a couple of (perhaps apocryphal) creation-myths about the original inspiration for dual-induction hypnotherapy. One story credits it to Don Juan and Don Genaro, who changed the consciousness of Carlos Castaneda by squatting on either side of him and talking in both of his ears simultaneously. The other story credits an "inspired accident" which took place in a workshop led by NLP founders Grinder and Bandler: When it came time for a hypnotic induction, they both started speaking. Something about it felt right, and they kept going. The results were so



powerful, they instituted it into a new formal NLP technique.

Whatever the original inspiration, each of these families of dual-induction tapes thwart the mind's attempt to follow the "sense" of what's spoken, working their magic upon the subconscious mind by *bypassing* consciousness. To some extent they share a common language and represent a new area of brain technology. But each series is a unique creative attempt, expressing different areas of emphasis and excellence, a distinct personality and artistic style. All three of these series embody a great deal of technical accomplishment. Each is interesting. None is shoddy or inferior.

Erickson himself presumably would not have approved of audio tapes - in principle. He taught that hypnotherapy should be highly individualized, directed very specifically to each client's idiosyncracies and constantly responsive to the client's changing states, receptivity and responses. On the other hand, as Tom Condon says "He never heard tapes like these."

At the end of his life, Erickson spent most of his time training therapists in his back yard. He did this by telling stories, by working on his students as they, ostensibly, were studying his technique. And, working intuitively, he found ways to offer effective therapy to the whole group. Condon, working with Erickson's daughter, Carol, locates his work in the Ericksonian tradition, despite Erickson's theoretical objections to tapes. "[Erickson] told the same stories again and again. He used metaphors in a broad way so that they offered a lot of positive choices, allowing a range of different people to respond according to their individuality. After sessions in his back yard, people who were there would sometimes disagree about exactly which of them Erickson had been working with. The reason was, he was offering something universal, and it felt to more than one person as if it had been personalized for them. As we've worked on tapes, we've drawn on that example."

The authors of these tapes are all accomplished and well-trained professionals. Dr. Lloyd Glauberman is a licensed clinical psychologist, with extensive hypnotherapy training and experience, in private practice in New York City. Thomas Condon has extensive Ericksonian and NLP training and he's been a practicing psychotherapist in California for many years. Carol Erickson is a MFCC and hypnotherapy professional and directs the Erickson Institute. Condon and Erickson are also faculty members at The University of

California, Berkeley. In recent years they have shifted their focus from private practice to tapes and workshops. Paul R. Scheele holds an M.A. in Adult Learning and Human Development. He was a member of the first group of NLP Master Practitioners and Modellers trained by Bandler and Grinder, and he also benefited from trainings by noted Ericksonian trainers Gilligan and Carter. Through Learning Strategies Corporation he teaches "Photo Reading" a way to "mentally photograph" the printed page at extremely high speeds.

I interviewed Glauberman, Condon and Scheele, and I listened to the tapes themselves in several ways. In addition to using them as they were intended — and usually going into trance under the influence of the dual-induction technique — I have also listened to one

Scientists measured significant induced levels of Theta brainwave activity with HPP.

track at a time, fully awake. But I have been unable to consciously evaluate or analyze one important dimension of these tapes: how the two tracks *converge*. Either I listened to both, at least partially in trance, or I listened to the tracks independently. Either way, I was largely oblivious to the technique, style, and individual quality of these moments of convergence. On a few occasions, I was able to notice some obvious suggestions but as Lloyd Glauberman has said, the important ones are the ones so subtle that I missed them. So, in this one regard, I have simply assumed that each of these tapes are actually accomplishing what their creators say they are doing.

Hypno-Peripheral Processing

A series of 5 two-cassette programs. Titles include Changing Emotions, Procrastination, Feeling Better— Mind/Body Connections, Quest for Excellence, and Personal Ecology. \$40.00 per set.

Also, 7 single audiocassettes by Glauberman with Philip Halboth PhD. Titles include Relationships & Stress Management, Stress Management & Healing, Self-Esteem & Assertiveness, Time Management & Creativity, Stress & Pain Management, Weight Management & Substance Abuse, and Sexuality. \$20.00 per tape.

I have been listening to Dr. Lloyd Glauberman's Hypno-Peripheral Processing audiotapes for almost two years, with great enjoyment and success. I was led to them by Michael Hutchison, who has used them personally and in Megabrain workshops for almost five years. Why did Hutchison use them? (They're not exactly "technology" in the same way as the machines.) For one thing, Dr. Glauberman originally created them to be used in conjunction with floatation tanks. For another, they have a powerful synergistic effect when used with the machines. Hutchison continued to use them because the empirical results were so consistently impressive: lots of enthusiastic feedback and numerous stories about sudden, hitherto unthinkable shifts in attitudes and behavior.

Subjectively, they usually seem to drop people into a deep trance, and the tapes themselves have been used experimentally by Dr. Julian Isaacs who measured *significant* induced levels of Theta brainwave activity. The HPP tapes were also used in conjunction with Hemi-Sync tapes, counselling, and a series of exercises with HIV-positive patients in a pilot study conducted by Dr. Michael Dullnig of Sacramento. All patients in this study noted substantial improvement in psychological target symptoms and some showed significant increases in T4 cell counts. The study did not isolate the effects of the HPP tapes, but Dullnig reports that his patients' response to the HPP tapes has been "overwhelmingly positive" and that they preferred them over the other tapes used in the study. Overall, patients may have liked them *too* well; due to repeated

I find myself preparing to surrender to the hypnotic quality of Glauberman's storytelling just as I got ready to be comforted and entertained by my father's bedtime stories when I was a little boy.

thefts of HPP tapes, Dr. Dullnig was forced to discontinue using them in hospital settings.

But when you listen to them yourself, you find yourself forgetting about all that "evidence" and curling up just like you did as a kid when you were read a bedtime story. There's mysterious "storytime" music and a "once upon a time" storytelling manner in Glauberman's

MEGABRAIN REPORT

THE MEGABRAIN REPORT PRODUCT REVIEW CONTINUED

youthful-sounding voice. You feel as though this is definitely about being entertained and amused. So you have fun... and the work goes on, according to Glauberman, unnoticed.

But have been prepared for this kind of suggestion and provided a context for it. At the beginning and end of each side of each tape (and once or twice during the middle on the seven single tapes done with Philip Halboth) a single "center" voice tells the beginning and end of the context story (about the person who leaves the stream of ordinary life for a fantastic adventure and returns transformed). This part of the tape you can hear, comprehend, and process consciously.

Glauberman works hard to precisely coordinate the scripts spoken into the left and right ears so that they frequently *converge*, producing implicit (or "peripherally" perceived) suggestions which the subconscious mind willingly accepts. This is a painstaking process, requiring Glauberman to elaborately coordinate the effects of his two voices throughout the process of writing and recording them. But it is worth it, says Glauberman, when a single tape can deliver about fifty unnoticed subconscious cues to the whole brain. He says this is key to the HPP tapes' effectiveness. In doing this, he employs Erickson's "interspersal" technique, in which suggestions are interspersed with the telling of an apparently unrelated story or discussion.

He sees the artistry of his work in terms of making his suggestions subtle. "You haven't consciously noticed most of the suggestions you've received subconsciously," says Glauberman, "and that's where the action is." Occasionally I have noticed obvious suggestions, such as hearing on the right channel, "and this effortlessly boosted" and then through the left, "your immune system." Glauberman views this as an unsuccessful suggestion, because my conscious mind is likely to block suggestions it sees directly. He strives to make them imperceptible.

Glauberman speaks in a halting, eccentric way, specifically punctuating his speech in such a way that phrases are set apart from other parts of the sentence. This auditory "underlining" is a basic Ericksonian (and NLP) technique which he seems to exaggerate much more than Condon or Scheele, so that it almost takes on the status of a personal stylistic trademark.

Taken together with the otherworldly musical counterpoint, the eccentric speaking style became for me, after several listenings, a signal that I was about to enter into an enter-

taining fantasy. Now, when I hear it, I find myself preparing to surrender to the hypnotic quality of the storytelling just as I got ready to be comforted and entertained by my father's bedtime stories when I was a little boy. Perhaps there is a relationship between this subjective observation and the strong evidence in EEG research for HPP's rapid, reliable, significant success in drawing users into a deep Theta state.

In any case, they serve as delightful evidence that balloon rides and fairy tales can be powerful tools for subconscious change.

The HPP tapes are more simply packaged than the others reviewed here, but you get two hypnotic programs per tape, so they're only \$10 per hypnotic experience, the lowest price of all. They have excellent technical sound quality (I've certainly never noticed anything to complain about) but to my ear, not quite as high as the superb production values on the Paraliminal tapes. Something I appreciate: Dr. Glauberman gets right down to business with short inductions. They work, and they suit my busy life.

It is difficult to compare and contrast individual titles among the HPP tapes, because when I listen to them I so consistently go into trance. Glauberman himself is particularly proud of two 2-cassette albums, *Personal Ecology* and *The Quest for Excellence*, both of which I like very much. There is something unique and enjoyable about the single-cassettes, which feature Halboth in one ear and Glauberman in the other. Michael Hutchison has observed wonderful results over time using Time Management and Creativity and Self-Esteem and Assertiveness repeatedly.

The Changeworks

A series of 15 single audiocassettes. Titles include Self Hypnosis, Easy Enhanced Learning, Rapid Pain Control, Deep Sleep & Sweet Dreams, Natural Self Confidence, Getting Past Smoking, Quick Stress Busters, Humor Power!, Opening Up to Intuition, Creative Inspiration, Creative Problem Solving, The Ultimate Library, Your Intuitive Guide, and a two tape program: Sensible Weight Loss I & II. \$12.95 per tape.

Also, 2 six-cassette albums, "The Intuition Series," and "The Creativity Series." \$59.95 each.

Tom Condon's *Changeworks* tapes are packaged beautifully and priced substantially lower than either of the other tape series reviewed here, at \$12.95/tape. Also, I was delighted and

impressed when I began listening seriously to them. I enjoyed listening to a man's voice (Condon's) through one ear, and a woman's voice (Carol Erickson's, daughter of the great hypno-progenitor) through the other. I also loved the way they *talked*. They had such soothing, really intelligent and soft conversations; listening to them felt so good! And I felt good after listening to them.

Condon builds rich metaphorical environments which operate on as many levels as possible.

The experience was clearly different from what I had been enjoying from Glauberman's HPP tapes, but not "better" or "worse." I feel soothed and comforted by Glauberman's storytelling almost as though I become a child again. With the Changeworks tapes, I feel soothed and comforted also, but without any perceptible shift to a childlike status. I feel like my adult self, listening to someone chat in a soothing and sympathetic manner about some ordinary aspect of my world. And I find it very comforting to listening to this small talk, until it begins coming to me through both ears, which feels kind of fun, and gradually I get pleasurably lost in a whole environment of conversation about the ocean, or trains, or trees.

The first side of most Changeworks tapes is an introduction or discussion about hypnosis and how to make use of Side B, which is generally reserved for the actual hypnotic experience. These programs are well done and enjoyable, and they script a successful experience with Side B. But you don't want to listen to them repetitively over time in the way that you will want to do with Side B. Unfortunately, however, when you get into repeated listening they make it necessary to rewind the tape between uses, which you may find inconvenient (I do).

A few of the tapes in the Creativity and Intuition Series are single voice tapes which do not require introductory scripts on the reverse sides, but all but two of the tapes which are sold individually use the dual induction technique.

Condon says he is not trying to tell stories but instead is working with "embedded metaphor." The result is complex and interesting. He says he attempts to "build metaphorical environments which operate on as many levels as



possible." Thus, after listening to Condon and Erickson talking about trees, in which you have richly *enjoyed* considering trees, feeling how strong and tall and rooted they are, how they give shade, how they draw from both earth and sky, water and sun, you notice that you feel very... well, good — or "naturally self-confident."

Condon says his "metaphorical environments" consist of an ostensible topic with several subtexts. "The reason we don't use stories is that they're limited. You can't listen to them as often. We want to build as many levels into our tapes as possible. I'm interested in richness, in people still finding new levels of meaning after years of use. We've been interested in the environment being the metaphor. These are tools for *repeated* use, so they have

"I see the tapes as a literary form that facilitates otherwise impossible changes. You offer new choices in a way that appreciates the complex variety of people who may eventually listen to them." —Thomas Condon

to address various changing needs. I want people to be able to continue to use them while they are growing and still find them keying new areas for change."

All of the creators of the tapes reviewed here talk about offering as many choices as possible to their listeners. Condon is particularly eloquent about how he approaches this in his tapes, "I see the tapes as a literary form, and presupposing the willingness of the client, a literary form that facilitates otherwise impossible changes. But you don't do that by taking control away from the client. You offer them new options, new choices, and you have to do that in a way that appreciates the complex variety of people who may eventually listen to the tape."

I asked him about the commonly used metaphor "reprogramming the subconscious" and he elaborated, "It's a naive, simplistic metaphor that doesn't adequately address the complexity of human beings. Reprogramming requires permission on a variety of levels. It's not even therapeutically advisable to cancel programs and replace them with new ones on an audio tape. You don't know what place the program has in the ground of the person's life and experience.... On a tape you need to offer

enough levels of meaning, enough choices to allow for almost any contingency. You need to allow many optional ways to respond to the metaphors offered. The mind is not a computer. That's really just a marketing metaphor. In Ericksonian circles the multidimensional nature of people is acknowledged, and this reprogramming talk is not taken seriously."

Condon and Erickson are masterful practitioners of Ericksonian technique, and highly creative as well. Paul Scheele, the creator of Paraliminals offered a tribute to Condon in my interview for this review: "The Changeworks tapes were an inspiration to me to make my own tapes, but not just consciously. I loved some of Tom Condon's phrases so much, they wrapped around my brain. After I finished my first few tapes, I found that I had borrowed a number of phrases from him without realizing it. Tom called me up and pointed out what I had done. When I took a specific look, I agreed with him: I had borrowed too much! I actually went back and re-recorded my own tapes!"

Condon speaks clearly about his philosophy of how tapes can help people change: "Metaphorical environments allow pacing a current state of limitation and leading beyond it to new possibilities. This lends itself to a graceful style of changing. It's totally different from confrontational Gestalt groups of fifteen or twenty years ago, in which clients would be told that they're lying. There may be some so-called internal dishonesty in an individual, but that's just an incongruity. The metaphorical world can allow and respect both sides of an incongruity, which provides a much more graceful platform for change."

The Changeworks tapes have soft, melodic music, usually created on synthesizer or piano. The voices frequently develop a soft, relaxing rhythm, with short pauses after each phrase, creating a sensation not unlike the lapping of water at a lakeshore. Listening to them, I find myself drawn into a dreamy reverie where I feel comforted, safe, amused, and entertained. The whole series deserves to be explored, but I can particularly recommend *Natural Self-Confidence* (it's a beautiful, multidimensional literary achievement!), *Deep Self-Appreciation*, and *The Intuition Series*.

Paraliminal Tapes

A series of 14 single audio tapes. Titles include: New Behavior Generator, New History Generator, Sales Leap, Prosperity, Ideal Weight, Smoke-Free, Get Around To It, Self-Esteem Supercharger, 10-Minute

Supercharger, Memory Supercharger, Deep Relaxation, Holiday Cheer, Anxiety-Free, and Instantaneous Personal Magnetism. \$14.95, \$24.95, and \$34.95 per tape, depending on title.

Paul Scheele's *Paraliminal Tapes*™ clearly put forward the most "corporate" image of those reviewed here. They are professionally produced, packaged and sold, with the clear intention of maintaining a dignified professional image for Learning Strategies Corporation. Nowhere on the package or brochure do you see any new-age sounding references, not even a mention of the word "hypnosis"; they talk about "stereophonic dual voices and whole brain linguistics" and promise positive changes. But the tapes are meticulously produced on top digital equipment, enjoyable, musically alive, and, unlike most slick corporate offerings, they have *heart*.

The feeling is unique; compared to the other tapes reviewed here, they're direct and to the point. The HPP tapes engender a journey that feels farther and more fantastic, and the Changeworks tape experiences feel more intense and multilayered. The Paraliminal tapes, on the other hand, don't fool around; it feels to me like they make a relaxed,

Scheele is a master at gently befriending the childlike, metaphorically-oriented right hemisphere as well as the more linear and logical left-hemisphere.

uncomplicated beeline towards their stated purpose. I don't get involved in a whole metaphorical or imaginative world; I just go directly into a process of freeing up a particular family of subconscious resources. But the feeling is not mental or sterile; on the contrary, Scheele is a master at gently befriending the childlike, metaphorically-oriented right hemisphere as well as the more linear and logical left-hemisphere. He warmly offers me enough choices (and enough playfulness!) so that I never feel even slightly put off or turned off. They offer a different kind of entertainment to my purposeful left hemisphere.

The Paraliminal Tapes differ from the others reviewed here in three other obvious ways: (1) Most of them (all the \$14.95 tapes and some of

continued on page 56

ROLL YOUR OWN: SCHEMATIC FOR PETER LINDEMANN'S CENTR

In MEGABRAIN REPORT Vol. 1 Number 1, the article *High Voltage: The Bioelectricity Interviews*, contained a discussion of the mysterious phenomenon of "scalar" fields. Part Two of *The Bioelectricity Interviews*, scheduled for publication in issue #3, will contain a discussion of various devices which generate scalars, including the Centron, designed by Peter Lindemann. We excerpt Lindemann's description of the Centron from that upcoming article:

LINDEMANN: First, the Centron is no longer available for sale due to a visit I recently received from the FDA. However, I'll be happy to describe it. It's an electromagnetic pulse generator with a backound pancake coil self-cancelling magnetic antenna. It has a fairly simple driving circuit and 12 different pulse rates, ranging from 1 to 18 pulses per second,

which you can select very easily on a single dial. My research in design of antennas was leading me to believe that the effects were much less related to magnetic field shape and characteristics and more related to specific movements in the light force field itself.

When I redesigned the antenna mechanism for the Centron I modified the spiral into one which propagates according to the mathematics of the golden mean, or the phi-ratio. The phi ratio was used a lot in architecture and drawings by Leonardo and is found in the great pyramids. The phi ratio is generated by 1 plus the square root of 5 divided by 2. So, if you take 1 and you add to that the square root of 5, and then you divide the combination by 2, you get a number which begins 1.618... and it goes on and on and on, never repeating, being what they call an irrational number in standard

mathematics. That ratio, 1 to 1.618..., seems to be exhibited by many living forms. When you propagate the spiral out so that each leg of the spiral is related to the last by that ratio, you get a spiral which is very tight in the center and then starts getting bigger and bigger as it winds outward. When you drop a direct current pulse across it, the body responds in a very, very different way than ordinary wire-type pancake coils. My earlier Bio-Pacer series had a flat spiral, and you could feel the pulses which seemed to come from the box toward you. A typical description by people who hold the Centron or are near one is that they can feel the pulses inside their body instead of outside the body. I don't claim to understand exactly why this happens. I developed these antennas by asking "how does the body want to be stimulated by a device like this?" I think the Centron answers that question pretty well.

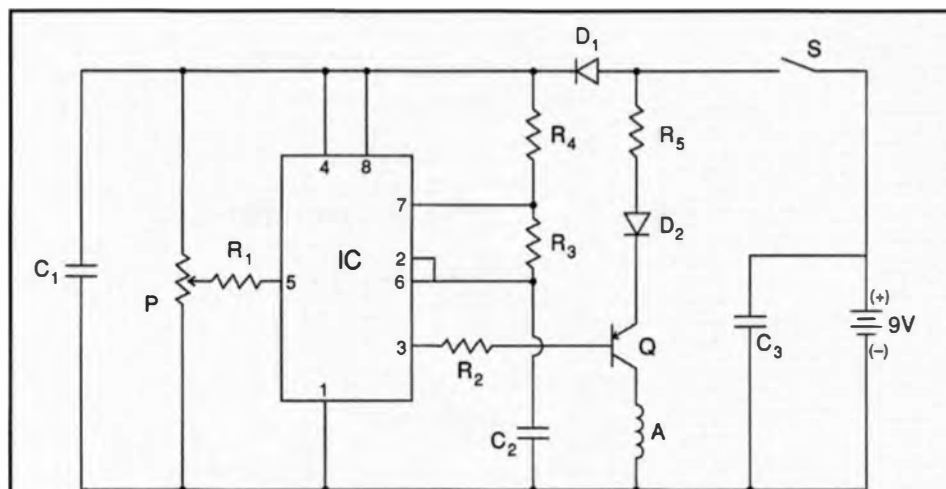
The Centron also has a variable intensity knob. Different situations may require more or less stimulation. For instance, when I'm in a situation where I'm relaxing, I may want just a very small amount of intensity because I don't want this thing to overpower me. But, if I'm at a trade show and there are 75 people talking loudly nearby, as well as 35 televisions, and fluorescent lights overhead, and I'm standing on my feet and talking for 3 hours straight, sometimes I feel like I need a little bit more stimulation. With an intensity dial you can dial up as much power as you feel you need. Also, some people seem to feel that the signal is not strong enough at levels other people find irritating. And this varies pretty widely in some individuals. So there's a 30 to 1 power difference between high and low on the intensity dial on the Centron, measuring power dissipation from the battery through the antenna.

MBR: Can you measure it in gauss?

LINDEMANN: Not really. It's so small as to be nearly immeasurable. The antenna itself only has 2 1/2 turns and only a few milliamps of current are going through it. Field strength can be measured either in gauss or ampere turns. So, 2 1/2 times a few milliamps gives you the idea of how strong the magnetic field is.

MBR: Other than the Earth's natural frequency, the Schumann resonance of 7.83 to 8 cycles per second, why are different frequencies useful?

LINDEMANN: First I'd like to differentiate between pulse rate and frequency. Frequency has a very specific definition, usually related to sine wave proration, like the 60 cycle power



Parts List

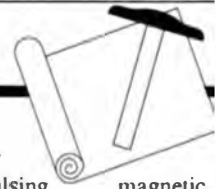
S	on-off switch
C ₁	100 μf cap
C ₂	1.0 μf cap 2% (timing cap)
C ₃	330 μf cap
P	1 meg potentiometer
R ₁	472 K 1%
R ₂	224 K
R ₃	32.4 K 1%
R ₄	118 K 1% (pulse rate)*
R ₅	10 K (pulse strength)**
IC	CMOS 555
D ₁	1N4148
D ₂	LED
Q	2N4403
A	antenna

* Pulse rate may be set up as selectable by replacing R₄ with a multi-switch and several resistors as follows:

1 Hz	15.0 K	1%
2.2 Hz	38.3 K	1%
3.5 Hz	56.2 K	1%
4.9 Hz	73.2 K	1%
6.3 Hz	93.1 K	1%
7.8 Hz	118 K	1%
8.0 Hz	121 K	1%
9.2 Hz	169 K	1%
10.5 Hz	232 K	1%
12.0 Hz	348 K	1%
14.0 Hz	590 K	1%
18.0 Hz	1.4 M	1%

** R₅ can be replaced by a 10 K pot and a 330 ohm resistor for variable strength.

PULSED SCALAR FIELD GENERATOR



oming out of your wall sockets. Most of these devices run on batteries and have square wave pulses. Square waves, by definition, have a infinite number of odd harmonics, which would also have a definition in frequency. So the correct terminology here is pulse rate, or pulse repetition rate: how many pulses there are per second, because these are square waves, not sine waves.

Most of these devices are putting out pulses in the normal brain wave range. There seems to be a mood modulating response to the different pulse rates coming out of the box. For instance, the Centron has a number of very slow frequencies, like 1, 2.2, 3.5, 4.9, down in the delta-theta range. Although the device itself doesn't cause brain wave entrainment, the same way you can get with sound and light machines, it does seem to create a following effect, so if you set the pulse rate on one of these very low pulse repetition rates, you get a subjective sensation that you can relax or let go of tension more easily. Likewise, above 8.0 you start feeling more energized. In general, when I drive long distances on the freeway, I'll set the device at 14 pulses per second, which is a low beta rate. It helps me stay alert. In the Centron I selected pulse rates which are benign and which are noted in the published literature.

Lindemann's Notes on This Schematic

This circuit is a stabilized 555 system. For those who know circuit design, careful consideration will show that this is the minimum components needed for this system.

In any ELF pacer, the antenna design is the backbone of effectiveness. While the home builder may want to experiment with alterna-



Lindemann's phi-ratio antenna

signers agree at this point (July 1990) that some form of complex winding with turns of wire that cross or come back on themselves is required for a system that is highly effective, gentle in quality and low in power consumption. Usually these devices are called electromagnetic pulse generators and that implies an

assumption that the body responds somehow to pulsing magnetic fields. I have felt for some time that this is not correct. My research strongly suggests that the body responds to pulsing life fields and that complex or cancelled magnetic fields at low power trigger this effect better than strong magnetic fields by themselves. The artwork presented here represents 2 turns of wire propagating along the golden mean or phi ratio spiral. Its effects are extraordinary. In order to duplicate this system, this artwork must be transferred to a copper circuit board exactly as is. Approximations will not work.

Editor's Note: This schematic is offered into the public domain in the spirit of "shareware," software which is freely offered to anyone who chooses to use it, without any demand for payment. In the shareware system, people who benefit from such free software customarily respond by offering a gift to the originator of the software they have used. Anyone who appreciates this schematic is encouraged to send their reciprocal acknowledgment (\$30 is suggested) to Peter Lindemann c/o Lindemann Laboratories, 3463 State Street, Suite 264, Santa Barbara, CA 93105.



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BOOK REVIEW: UNPREDICTABLE, DANGEROUS INFORMATION

THE ANATOMY OF SEX AND POWER: AN INVESTIGATION OF MIND-BODY POLITICS

by Michael Hutchison

William Morrow & Co., 372pp. hardbound \$21.95

Reviewed by Terry Patten

Beyond *Megabrain*, what? Well, Michael Hutchison continued to follow, study, and consider the ramifications of revolutionary neuroscience. He continued to read *The New York Times*. He fell in love, got married, and started a family. And he contemplated the interconnections, the underlying holism, and the political implications of everything altogether.

Struck particularly by news describing the intolerant and unlikely alliance of anti-pornography feminists and fundamentalist Christians, disturbed by bombings and burnings of abortion clinics and adult bookstores, sobered by legislative, judicial and populist attacks on art or speech with sexual content, Hutchison looked back at the scientific basis for sexual expression and repression, for the hard-wired large-scale urge to suppress the sexuality of others, and he saw something... something rather large.

The Anatomy of Sex and Power is an epic meditation on the subtexts of contemporary politics, particularly sexual politics. In the process it reviews the scientific data, the political history and the interconnections between them. The result is a lucid discussion of tremendous scope, especially considering the book is only 350 pages. It considers evidence that shows that, contrary to popular dogma, many aspects of human behavior are not environmentally conditioned, but genetically hard-wired into our brain structure and biochemistry. From there it moves quickly through topics such as: the differences of brain structure and brain chemistry between men and women; how these differences tend to express themselves in our attitudes, aptitudes, feelings and behaviors; the biological similarities of the urges for and pleasures of sex and power; how these urges express themselves on the level of political and religious groups, whole societies, and nations; how humans are biologically predisposed to absorb and spread ideas ("memes"), how belief systems that are intolerant of other ideas are particularly effective competitors for people's passions; how contemporary politics expresses a struggle be-

tween biologically-rooted urges towards sexuality, dominance, sexual suppression and control, all of which is mediated and played out through groups which operate internally, and in relation to each other, according to the same biologically-rooted patterns. In the midst of it, something exciting emerges: new options for free, cooperative behavior and politics — options in which people can be aware of human hard-wiring, but not limited to fulfilling its sometimes obsolete evolutionary purposes.

A radically new vision of human political history and domestic life. . . The veneer of dignity is stripped from the totems of political life and we catch a naked glimpse of the primitive dance.

What also emerges is a radically new vision of human political history and domestic life. In this book, Hutchison clearly identifies the scientifically-established links between our evolutionary agenda (reproduction) and our genetic and biological hard-wiring, and then between human hardwiring and the political and sexual behavior of individuals and groups. The veneer of dignity is stripped from the totems of political life and we catch a naked glimpse of the primitive dance of hormonally-reinforced urges for dominance, stimulation, sex, and suppression of others — the dancers dressed in business suits, mouthing rational-sounding rhetoric.

Perhaps this is why *The Anatomy of Sex and Power* feels so naughty, forbidden, and even scandalous. It is written in Hutchison's characteristically imaginative, high-energy prose, replete with section headings like "How Flat Feet Led To Big Brains"; "Pelvic Matters: The Obstetrical Dilemma"; "Investment Strategies: The Law of Supply and Demand In the Egg and Sperm Market"; "Why Can't Your Hypothalamus Be More Like Mine?"; and "The Genetics of Thrills". And it builds momentum

quickly, becoming that rarest of delights: the non-fiction "page-turner".

Megabrain's exciting discussion of neuroscientific discoveries has a vibrant counterpart (and extension) in *The Anatomy of Sex and Power*. Did you know that there's a strong statistical link between left-handedness, allergies, mathematical, musical, and artistic gifts, dyslexia, autism, and maleness? Or that women have, on average, larger *corpus calloso*, and that their speech centers are more widely distributed through the entire brain, which may explain their greater verbal facility and their greater facility in verbally expressing emotions? Or that men are demonstrably, biologically, more disposed than women towards lateralization of brain function (dividing verbal and spatial functions between the brain's two hemispheres)? Or that homosexual men have strikingly different chemical responses from those of heterosexual men to certain hormonal stimuli?

How solid is the science? *The Anatomy of Sex and Power* synthesizes the implications of various scientific studies and proposes a shift in our vision of things. Thus, it's venturing beyond science, into what that science means about our lives now. It seizes upon correlations between scientifically-proven facts and scientifically-originated theories; it spins new theoretical speculations on their basis. It suggests in very particular ways how this scientific thinking applies to the world of our daily news. So it is bound to find its detractors; it has already begun to stir controversy. After all, this book which begins with a discussion of bookburning is itself a very "dangerous" book.

But the science is solid. *The Anatomy of Sex and Power* is rigorously researched and features a 400+ entry bibliography. In fact, the book was edited down from an original manuscript almost twice its final length. The bulk of what got cut: scores of additional studies to bolster the scientific evidence upon which the book's argument is constructed. For the scientist, the references can be found in the bibliography. For the reader, the logic is tight, the references are comprehensible, and we get to enjoy watching a fast-paced argument, careen-



ing through diverse territories on its way to a startling synthesis.

Those who enjoyed reading about revolutionary neuroscience in *Megabrain* will be fascinated to watch Hutchison synthesize the observations of evolutionary biology with those of information theory, then move from psychobiology to Prigoginean chaos theory, and on to Reichian psychosexual energetics, dancing freely between neuroscience and new age gnosticism towards his profoundly optimistic thesis: that we are evolving, culturally, into a new sort of human being, able to accept and thrive on unpredictability.

Sex-differentiation and contemporary politics is the stickiest of thickets through which to lead an intellectual expedition. This is the stuff of passionate irrational belief and angry denunciation. Some feminists fear that discussing biological differences between the sexes will justify institutionalizing a submissive and inferior role for women. Almost any reader will experience some discomfort in contemplating our evolutionary forefathers (and foremothers) ruthlessly competing for reproductive success (using such tactics as deceit, manipulation, aggression, and trading sex for

Synthesizes evolutionary biology with information theory, then moves from psychobiology to Prigoginean chaos theory to Reichian psychosexual energetics towards his profoundly optimistic thesis.

security), as though this were the ultimate purpose, even the *only* purpose of human existence. Even though he describes this battle for reproductive success occurring at the level of human *genes*, not at the level of conscious intention, the argument will press many readers past their comfort zone. Hutchison dares to examine and criticize attitudes people think they *need* to hold, as fundamental to their sociopsychological worldview. The examination potentially threatens everyone: man and woman, liberal and conservative, promiscuous and repressed, dominant and submissive.... In short, it threatens you and me.

But Hutchison attempts to travel diplomatically through this disputatious territory. Aside

from fans of his few well-identified targets (extremist censors of "pornography," politically shrill fundamentalist Christians, sex-haters, book-burners, and Ronald Reagan) most readers of *The Anatomy of Sex and Power* will find themselves drawn step-by-step through a very well-reasoned, enormously entertaining, and somewhat elaborate argument. And he attempts to help us disarm our reactions:

"I cannot emphasize too strongly that in discussing sex differences and differential reproductive strategies I am not discussing what is right or wrong, what should be or should not be... nor am I in any way favoring determinism over free will... I am most definitely not implying that the purpose of life is to reproduce one's genes.... The only hope for humankind is through learning, education, increased wisdom, and heightened awareness of what we are up against. Part of this essential wisdom must be a clear awareness of our own natures, our own sexual drives — however outmoded they might be — clinging to us from the days we were chasing the woolly mammoth across the savanna."

So the intrepid explorer pushes ahead past taboo after taboo, into an exhilarating consideration — exhilarating for those who are willing to reexamine their assumptions about evolution, competition, sexuality, power and politics, and who also enjoy seeing other people's taboos violated.

Among those "other people," the religious right comes to mind immediately (of course, this group has more taboos to violate than do most). Not only do we come to see the evolutionary function, and animal "naturalness" of forbidden human sexuality; not only do we come to see a *biological* basis for fundamentalists' passionate opposition to other peoples' unauthorized sexuality, but we come to see their very *ideas*, or "memes" as vicious competitors in a public marketplace, vying for dominance over people's minds.

There is a chemical payoff from sex, even from power, but did you realize that we also receive such a payoff from grasping a new idea? You've felt it — that "aha!" the satisfaction of "getting it," the eye-opening transformative new understanding of having "found" the truth. *The Anatomy of Sex and Power* identifies these pleasures to be as biological as sexual pleasure, hardwired into our

anatomy. (You'll feel a wonderful surge of satisfaction the moment this concept "hits home".)

Just as males and females compete for partners, ideas, or "memes" compete for willing hosts, hosts who are also biologically predisposed to enjoy passing them along to others. From this, the "germ theory of ideas" emerges, and we see how ideas gain competitive advantage when they render their hosts intolerant of all other "competing" ideas. This consideration, at first amusing, began to sober me as it developed. I came away from it humbled and grateful that human beings have the capacity for rational investigation and discourse.

You may be delighted to notice the hypocrisy of the religious right. But be warned: the taboo that's violated may be your own. You may be carrying intolerant memes where you least suspected! In the introduction, Hutchison describes a family gathering at which a discussion arose over a study showing differences in mathematical ability between men and women. Hutchison describes an exchange in which one of his relatives, a respected scientist and educator, attacked the study as bad science, even though it had been overwhelmingly selected by an international panel of scientists as the year's best scientific study in the field.

"Hold on," I said. "I thought the program of science was to find out what's true, and then communicate the truth."

"There is no truth!" the scientist yelled at me. "Statistics can be twisted to say anything you want! And anyway, no one should be studying differences between the sexes — they should be studying similarities!"

"Wait," I said, "this is like the Catholic Church telling Galileo he shouldn't be studying astronomy. Science is supposed to be able to study anything with dispassion and objectivity."

"Such studies can only lead to harm" yelled the scientist. "Such studies should not be done!"

"Even if what they find is the truth?" I wondered.

"Even if what they find is the truth," my sister cried, "it should be ignored." The scientist agreed. I was stunned.

"But that's censorship."

"It's not censorship," said my sister, "it's fighting against evil."

MEGABRAIN REPORT

■ BOOK REVIEW BY TERRY PATTEN CONTINUED



I was almost in tears, bewildered. Here we were, scientists, intellectuals to some degree, lifelong readers and book lovers — around the table were half a dozen graduate degrees, several college professors, a Protestant minister, a former college president, people with expertise in areas including anthropology, theology, archaeology, art, child development, educational statistics, philosophy, psychology,

In “the germ theory of ideas” we see how ideas gain competitive advantage when they render their hosts intolerant of “competing” ideas.

neuroscience and ethics. It was a family that had taken some pride in being open-minded, fair, and honest, at times under difficult circumstances. And now, they, or at least some of them, were saying some truths should be covered up, some truths were too dangerous, freedom of speech did not include some speech.

This disturbing incident helped provoke the process of internal questioning that eventually led Hutchison to write *The Anatomy of Sex and Power*. But I suggest you also take it as a warning: there is something disquieting, upsetting, and potentially threatening about the ideas in this book — even to “enlightened” open-minded intelligent people — maybe even to you.

But, as a reader of *MEGABRAIN REPORT*, you are probably already interested in new information, unpredictable information, information that doesn't fit the predetermined patterns to which you have already grown accustomed (see Chapter 16, “Mind Wars: The Germ Theory of Ideas”). You may not be a classic “Big T” personality type (in Chapter 13, “Land of the Free and Home of the Thrill Seekers,” you'll learn about how people can be divided into a spectrum, from Big T's to Little t's, the T standing for thrill-seeking and testosterone) but you're probably not a classic “Little t” either (see Chapter 21, “Renegotiating the Sex Contract”), and you evidently enjoy the stimulation, challenge, and risk presented new memes (see Chapter 19, “The Big Payoff”). You probably enjoy destabilizing

the Prigoginean dissipative structure of your own mind, intuitively sensitive to the potential for chaos to precipitate an escape to a higher order (of insight). So, despite its dizzy tapdance upon the toes of your (and just about

anybody's) entrenched thinking, you probably will immensely enjoy reading *The Anatomy of Sex and Power*. I did.



COMING IN MEGABRAIN REPORT:

Part Two: The Bioelectricity Interviews:

- ◇ Part Two of the excerpts from interviews with leading researchers in bioelectromagnetism and new bioelectromagnetic technology (see Part One in MBR Vol 1, No 1)
- ◇ Part Two includes new information on scalar technology, including scalar-field generators currently available to consumers, new revelations about Russian Mind Control technologies, secret US military research on Bioelectromagnetic Weaponry, and answers to the question: “What do you feel are the most exciting and promising technologies on the horizon now?”

Colored Lights and the Brain:

- ◇ **THE LUMATRON** is a patented device designed to enhance the functioning of the brain with rhythmic photic stimulation by what its inventor, Dr. John Downing, calls “bioresonant light waves” focused on the retina. *Megabrain Report* will investigate initial scientific studies, tell of personal experiments with this device and interview other users.

Theta: The Magic Frequency:

- ◇ Leading memory researcher Dr. Gary Lynch has called Theta rhythms “the magic frequency”. Not easily entrained, Theta seems to be the rhythm in which doorways open to subliminal learning and many peak experiences. *Megabrain Report* plans to help you explore this powerful resonant frequency — in depth.

Virtual Reality:

- ◇ **MEGABRAIN REPORT** takes a look: Are technologically-created, infinitely-flexible “alternate realities” in your immediate future? What can they do for (or to) the brain, the mind and consciousness? How might they interact with sound and light, electrical stimulation, or other machines? We will report firsthand on several virtual reality systems now on the market.

Cognition-Enhancing Drugs, Part Two:

- ◇ In which Oz Garcia, nutritional educator, describes his clinical experience with many cognition-enhancing substances, including substances not described in Part One. Also, colorful reports about mind-machine nootropic drug interactions contributed by *Megabrain Report* readers.

Sound Therapy:

- ◇ A look at a revolutionary technique using specially-processed sound frequencies over 10,000Hz to stimulate the cortex, producing whole-body effects including improved hearing, relief of anxiety, insomnia and stress disorders, plus enhanced memory, concentration and learning.



■ MEGABRAIN GUIDE TO LIGHT AND SOUND MACHINES CONTINUED FROM P. 19

in conjunction with an audio recorder to permit users to play binaural beats as background "boost" to off-the-shelf music, learning, suggestion or behavior modification tapes, or to dub many layers of binaural waves at any selected frequency onto cassettes for custom tapes or to create series of tapes for various purposes. The tone is a good quality "pure" tone. Unfortunately, the actual pitch (or carrier frequencies) of the tone cannot be changed, a drawback, since we've found that different pitches have quite distinct effects, and that different individuals prefer different pitches. The S-100/1 has three separate audio input jacks (1/8"), permitting use of CD, cassette deck(s) and microphone in various combinations—a real plus. Unfortunately, there are no controls on the console for sound levels of external audio sources.

GOGGLES/LIGHTS: 2 superbright red LEDs per eye. The goggles are modified ski goggles, very comfortable and secure, with openings in the lens that permit the user to see through when adjusting the device.

HEADPHONES: High quality stereo phones that entirely cover the ear.

CONTROL UNIT: The console is about the size of a small computer printer, with a black-finished steel chassis and oak ends; the dials are of high quality, and clearly labelled. At definite minus: there are no digital frequency counters on this unit. The dials are calibrated, but it would be impossible to tell exact frequencies.

GENERAL NOTES: This is an excellent clinical model, and quite simple to use. The lack of accurate frequency counters is a real drawback, and limits its usefulness for rigorous research. Its unique combination of beat frequencies and independently variable sound and light has a powerful synergistic effect, and permits simultaneous stimulation at three different frequencies offering many possibilities for exploring distinct states of consciousness (e.g. the "Awakened Mind" state of combined beta, alpha and theta investigated by C. Maxwell Cade and others). We also like the ability to switch instantly to double-time, which produces extraordinary visual effects.

Synchro-Energizer Model 4-A

SUGG. RETAIL: \$9,000

NO. OF USERS: Up to four without the need for dual adaptors.

PRESETS: Available only with computer interface.

USER-PROGRAMMABLE SESSIONS: A timer control is included, which can be used to set session parameters.

STIMULATION MODES: Simultaneous, alternate L/R, alternate eyes/ears, criss-cross.

MANUAL MODES/CONTROLS: Controls for light intensity, volume of microphone input, volume of synthesized heartbeat sound, master volume including external music input, tone pitch, synthesized heartbeat rate, and audio/visual stimulation frequency, and switches to select among the four basic stimulation modes.

AUDIO: As with Relaxman, the tone pitch seems to automatically vary slightly in a cyclical manner—this may prove irritating to some, and may decrease entrainment and deep relaxation effects (recent research suggests entrainment and theta state induction may be in part a product of habituation, which requires consistency—to produce habituation the delivery of the stimuli must be constant and unchanging). Tones may be augmented by synthesized heartbeat.

LIGHTS: White incandescent bulbs encircling each eye.

GOGGLES: Not as compact as those on the home Relaxman (made by the same company), but of good quality, and providing the same quality of incandescent light (nine bulbs total) distributed through protective plastic diffuser rings.

CONTROL UNIT: Serviceable, and of acceptable quality. Includes input jack and volume control for microphone. Face contains control knobs as well as 3-digit frequency counter. It comes mounted in a larger case with room for other components and an external power supply. Includes computer interface jack for use in conjunction with a proprietary computer circuit card.

GENERAL NOTES: Primarily a manual control unit unless the additional computer interface is purchased. Lacks the sophisticated PC-based programming capabilities of the expandable MindsEye Synchronizer or the

flexible programming of the Innerquest Pro-1; as a manual unit, lacks the variety of stimulation modes provided by the S-100/S. The audio capabilities are far inferior to these other devices. The need for additional components (computer interface) to run preset programs is a real drawback, as is the extraordinarily high cost. At the price, this device is no bargain.

Relaxman 4-X

SUGG. RETAIL: \$2,500

In terms of lights, sounds, goggles, stimulation modes, etc., this device is similar to the home use Relaxman (reviewed above), designed for heavier use, as in a professional context. It's built in a black case similar to many kinds of electronic measuring instruments. The front panel includes a keyboard like that on the home Relaxman. There are also manual controls for light brightness, internal sound volume, external input sound volume, and volume of a synthesized heartbeat sound.

The device also has a computer interface—pass-through 8-pin modular jacks. This allows any number of units to be daisy-chained together and connected to a computer control board, which would permit various options beyond those featured with the basic unit. Each unit has a selectable assignment code, allowing the computer controller to differentiate between units and control them more or less independently.

GENERAL NOTES: Though the goggles are well made, the unit as a whole is relatively inflexible. Considering the features offered, the price is exceedingly high.

Note: For clinical or commercial use see also the MindsEye Synergizer, reviewed above, which can be expanded into a full-service multi-user system.



A LONG AND TWISTED TALE: DENIS GORGES AND THE SYNCHRO-

In which we expose faked letters from the FDA, discover the truth about the “Waxman Commission,” stumble upon purloined letterheads, ponder the secret meaning of misspelled signatures and forgery, investigate secret military mind machines for the Saudi Arabians, consider 10,000 brain centers on the moon, encounter the mysterious “deep brain,” and finally see the light—full spectrum

by Michael Hutchison

While conducting research for the book that was to become MEGABRAIN, I tried out a sound and light machine called the Synchro-Energizer (SE) and spoke with the man who claimed to have invented it, Denis Gorges. He told me he was an M.D., Ph.D., and psychiatrist (and presented me with written materials, including his business card, that described him as “Denis E. Gorges M.D. Ph.D.”), and described a variety of university research projects that were underway into the effects of the Synchro-Energizer. He told me his device was “FDA approved” as a “learning and relaxation” device. I accepted these assertions at face value and subsequently wrote an article about the device in Esquire magazine and devoted a chapter of MEGABRAIN to the SE and Denis Gorges in which I repeated Gorges’ claims about himself and his machine. As a result of these writings, Gorges once told me, he had sold “thousands” of his devices (which then cost around \$5,000 and soon shot up to over \$8,000), and there’s no doubt the book brought him an extraordinary amount of credibility and attention by the media and potential buyers all over the world.

Since the writing of MEGABRAIN I have learned that my reporting about Gorges and the SE in that book was not based entirely on facts. Over the years I have learned many facts about Gorges and the SE that are quite troublesome to me. Some of what I have learned leads me to believe it’s urgent that readers of MEGABRAIN REPORT and potential users of mind machines be alerted to the facts. Since I played a part in bringing Gorges to public attention, I feel not only dismay, but also a strong sense of responsibility to correct the false impressions and false information given by my book. What follows is some of the information I have learned about Denis Gorges.

Fake “FDA Files” Exposed

Beginning in the spring of 1990, Gorges and representatives of his company Synchro Tech began circulating a series of letters on FDA letterhead purportedly written by a “Walter Schmidt” of the FDA. These letters apparently advise Gorges of the dangerous and deleterious effects of red LEDs (as used in many sound and light machines), compared to the purported “preponderance of positive effects” of “full spectrum” lights, like those Gorges

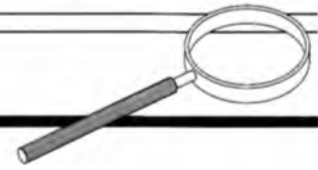
claims to use in the machines he produces (though as we shall see, these claims are highly questionable).

From the beginning, it was clear to many that there was something fishy about the letters (a photo of one of them is printed below), which are filled with grammatical errors and represent extremely uncharacteristic behavior by the FDA. One oddity was that Mr. Schmidt signed his letters over several titles: “Chief Executive Officer,” “Chief Information Officer,” and “Chief Information Office.”

The first letter, dated January 26, 1990, and addressed to D.E. Gorges of Synchro Tech Research foundation, claimed that “A search was conducted on the subject of negative effects of red light (red-LEDs etc.) on health behavior and general well-being.” The letter went on to list the titles (and *only* the titles, filled with misspellings, but with no other information about authors, journals and dates of publication) of 58 supposedly scientific studies. Oddly, these “studies,” though many of the titles seemed to have at least some relationship with vision and/or color, seemed to have nothing to do with negative effects of red lights or red LEDs. A sampling of titles included: “Dermooptical perception a clinical case,” and “A method for study the early states of the development of the process of abstraction” [sic].

Another Walter Schmidt letter, again on FDA letterhead and again addressed to D.E. Gorges, was dated February 5, 1990, and included 16 “abstracts,” “relevant to your request for information on the subject of health hazards/effects of red light, electro-magnetic/magnetic fields, etc. We will secure full copies A.S.A.P.” The 16 abstracts were a hodge-podge, many of them dealing with the health effects of electromagnetic and magnetic fields, and only a few even peripherally related to red lights or red LEDs.

Another letter, however, again addressed to D.E. Gorges, and dated February 27, 1990, seemed to be marked by a dramatic change in tone and content. Suddenly, after extensive searches that had apparently come up with nothing about any dangers of red LEDs, Walter Schmidt wrote Gorges, “We have reviewed 38 new files on the subject of adverse effects of red light or LEDs. It’s interesting to note that the majority of the work done on the subject shows very significant indication of the negative effects of red light. . . .” The letter, however, cited only a single study which “shows a corrolation [sic] between occupational disease



ERGIZER

due to long term exposure to red light." That is, it dealt not with flickering red LEDs but with *long term*, chronic occupational exposure to red light. Since we have reproduced this letter here, the reader will have an opportunity to examine the strange syntax.

Curiously, there were several differences between this letter and the earlier and later Walter Schmidt letters—it was single spaced (all other Walter Schmidt material was double spaced), printed in a completely different typeface (the other letters all bore the same typeface), and in this letter, Mr. Schmidt identifies himself as the "Chief Information Office." Most importantly, Walter Schmidt's signature seemed different from the other Walter Schmidt signatures.

Another Walter Schmidt letter was addressed to Gorges on March 20, 1990, and described attempts to inquire with the FDA under the Freedom of Information Act about devices such as the Innerquest and MC², the manufacturers of these devices, and "any complaints made to the FDA on such products." This letter was, like the others, on FDA letterhead. This seemed even more curious: why would Walter Schmidt, who signed himself Chief

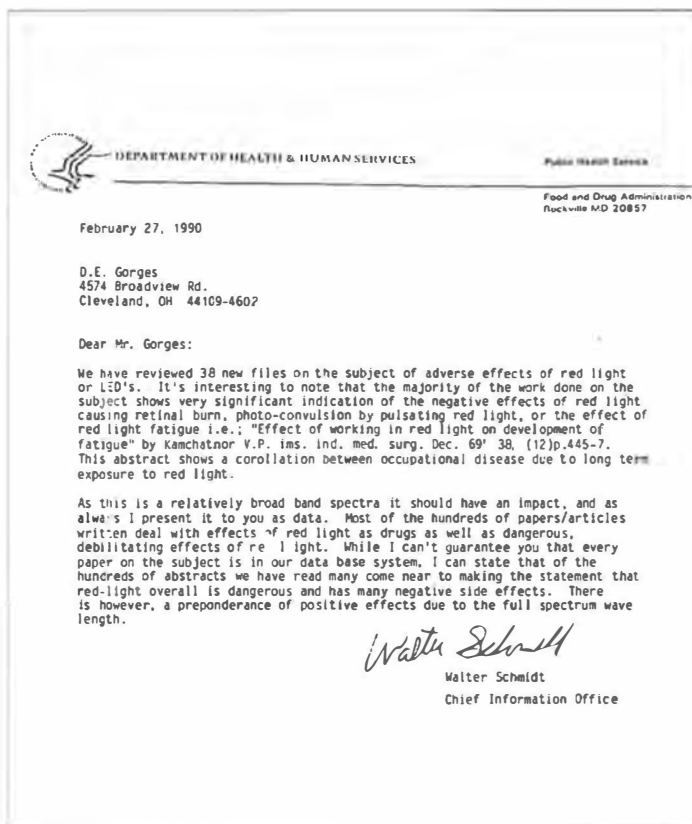
Information Officer of the Food and Drug Administration, be requesting information from his own agency under the Freedom of Information Act?

These letters were distributed and/or displayed to potential buyers of sound and light machines at trade fairs by representatives of Gorges' company Synchro Tech, in an apparent attempt to scare buyers away from competing devices. According to reliable sources, including two former business associates of Gorges, Synchro Tech representatives flashed these letters to prospective customers and warned them away from competing devices by talking about "thousands of studies from FDA files" suggesting "the dangers of red LEDs." According to several manufacturers and distributors of other devices, the scare tactics worked. One former Synchro Tech distributor who has since begun selling other sound and light machines, and who did not wish to be identified for fear of reprisals, told MEGABRAIN REPORT, "Every fair we go to, if people go to Gorges' booth first, we're in trouble," since they are immediately warned of the "FDA files" on the dangers of red LEDs. Said our source, "He's done *serious damage* to our business."

In addition, the "FDA files on red light" were also sent to at least one individual who operated a "brain fitness center" that featured competing devices, accompanied by letters from Gorges' company Synchro Tech, threatening ferocious, time-consuming and expensive litigation. We reproduce one example here, written to Maryellen Krygowski-Visconti, operator of the Visconti 2000 Mind/Brain Fitness Center in Cambridge, Massachusetts. The letter stated, among other things, that *all* other sound and light machines "have no safety or university testing." (An untrue statement, as evidenced by university studies described in the accompanying article, "The History of Sound and Light Machines").

The letter continued that *all* other machines "claim FDA approval, which is illegal, as the FDA does not endorse any product. . . ." Again, this is not only false, but exceedingly strange, since, as I mentioned above, one of the first things Gorges had told me about his device, and told me repeatedly, and had stated in numerous articles since, was that his device had "FDA approval" as a relaxation and learning device (though, as we shall see below, this is not quite the case).

The letter then threatened Ms. Krygowski-Visconti by warning her that she could be liable for injuries, as the other sound and light machines she used "are known to be unsafe as per FDA sources," warned her to "pull these products from your place of operation," and claimed there was "substantial research" indicating that red light "can and is [sic] a detriment to health," though as we have seen, there was no actual evidence that there is *any* research, let alone "substantial research," to this effect. The letter claimed red lights could, among other things, stimulate chronic



Is this a forgery?

MEGABRAIN REPORT

■ A LONG AND TWISTED TALE: DENIS GORGES AND THE SYNCHRO-ENERGIZER CONTINUED

fatigue syndrome, lower T cell counts, enhance sensitivity to epileptic type seizures, increase aggression and hostile behavior, produce lethargy, decrease sex drive and cause "Cellular level breakdown" [sic], basing these claims on "FDA reports enclosed." The "FDA reports," of course, were the letters from Walter Schmidt.

The letter then threatened legal action if Ms. Krygowski-Visconti did not cease and desist in the use of other sound and light machines. It was signed by Caroline Walter, whose title on this occasion was "Public Relations and Media Director for Synchro Tech International." The letter included the above mentioned packet of "FDA files on red light" from the mysterious Walter Schmidt.

Even more ominously, a similar letter, containing much virtually identical language about "FDA reports," "substantial research" about "detriment to health" and so on, except directed specifically at one sound and light machine, the InnerQuest, was sent from Synchro Tech's Caroline Walter to Bob Guccione, publisher of OMNI magazine, which had published several advertisements for the InnerQuest. The letter warned Guccione that the InnerQuest was making "spurious and unsubstantiated claims as to its effectiveness and safety," made several other false or questionable statements about the InnerQuest, warned him that he, Guccione, could be liable "If an injury were caused by this product," said the device was "known to be unsafe as per FDA sources," and said "we suggest you pull this advertisement from your magazine." For this letter, Caroline Walter carried the title of "South Coast Representative for Synchro-Tech International Research Foundation." Accompanying the letter were the "FDA files on red light," i.e. the Walter Schmidt letters.

As anger, fear, confusion, consternation and curiosity about these letters mounted, MEGABRAIN REPORT undertook an investigation of the letters and their origin (several of the manufacturers of sound and light machines were also investigating the letters). We made several inquiries with the FDA, including the Personnel Department, and quickly found that no Walter Schmidt was listed in the FDA "Active," "Inactive" "or" "Commission Corps" files. This, and similar inquiries by several manufacturers of sound and light machines, convinced us that there was no Walter Schmidt working for the FDA.

The Mysterious Staples in the Eagle's Wing

But if Walter Schmidt did not work for the FDA, then who had written these letters on FDA letterhead? We had noted that each of the Walter Schmidt letters bore a clearly visible staple mark in the top left corner. Curi-

Synchro Tech said to Bob Guccione, publisher of OMNI, "we suggest you pull this advertisement from your magazine."

ously, in *every one* of the Walter Schmidt letters, the staple mark seemed to be identical in shape, with the exact same upward twist on the right side, and was in *exactly the same place*, stretching across the three bars on the stylized wing of the eagle on the FDA letterhead! Several different people interested in tracing the origin of the letters remarked to us that they believed the letters to be a "cut and paste job," with the typed body of the Walter Schmidt letters superimposed on a single FDA letterhead—the same FDA letterhead each time, one which happened to have a staple in it.

There were also obvious inconsistencies and incongruities within the letters themselves. One sound and light machine manufacturer, Rob Robinson of Psych Research, maker of the InnerQuest devices, hired attorney Jay Geller, who had over 20 years of experience in dealing with the FDA, to pursue the matter with the FDA. "The manner in which the letters are written," Geller wrote to the Office of the General Counsel of the FDA, "leads to questions as to the authenticity of Mr. Schmidt. For example . . . Mr. Schmidt states

'We have also requested from the FDA what the current rulings are for marketing such devices as well as any complaints made to the FDA on such products.'

"It is obvious to me," wrote Geller, "as I am certain it is to you, that someone working for the FDA would not be making an FOI request to the FDA. . . .

"I have received, over the years, hundreds of letters and other correspondence from the FDA. I have never come across a letter such as this, both by the syntax used, and the tone, written by an FDA employee. . . . The references to 'papers in our database system', and 'reading hundreds of abstracts' simply do not make sense. I am unaware of any FDA employee who would, at the request of someone in the industry, read 'hundreds of abstracts' on a subject and then report on them to that individual.

"Finally, there are two incomplete letters . . . which reference numerous articles and abstracts. I am unaware of any FDA employee ever providing a summary of study extracts to anyone submitting a request for information. I cannot imagine that any FDA employee would have the time (or inclination) to undertake such a massive project."

In response, the FDA replied to Geller that they had referred the matter to the Director of the FDA Program Integrity Branch. Geller followed up this letter. "I talked with a Robert Taylor in the FDA Program Integrity Branch," Geller told me, and Taylor "said they were probably going to be turning it over to the HHS [U.S. Department of Health and Human Services, of which the FDA is a part] Inspector General's Office or the Department of Justice."

As the investigation of the Walter Schmidt letters progressed, it began to appear that serious criminal offenses were perhaps involved, offenses that might include impersonating a federal official or employee, misuse of government property, forgery, mail fraud and more.

All of the "Walter Schmidt" letters were addressed to Denis Gorges. It was apparent that Gorges' company Synchro Tech distributed these letters to people like Guccione and Krygowsky-Visconti as "FDA files." The purported evidence of the "dangers" of red LEDs they contained was nothing of the sort. And yet they had been presented to many potential purchasers and users of sound and light devices as "evidence" of the dangers of other sound and light devices and as evidence that people should purchase Denis Gorges's devices. Gorges himself in a promotional "interview" circulated during that time by Synchro Tech along with an advertisement for the "Relaxman," confidently cited "extensive research over decades" showing that red light

SYNCHRO TECH
Research Foundation
Bio Medical Equipment

4574 Broadview Road
Old Brooklyn, Ohio 44109-4602
(216) 749-1133

April 13, 1990

Maryellen Krygowski-Visconti
c/o Visconti 2000 Mind/Brain
Fitness Center
1815 Massachusetts Ave.
Cambridge, Mass. 02140

Dear Maryellen,

Please note: I am sending you important information about the light and sound devices you currently use and distribute through your place of business, Visconti 2000 Mind/Brain Fitness Center.

The Synchro-Energizer is the only worldwide patented light and sound relaxation, learning device (see enclosed copy of patent). All other machines are in violation of the patent for it is illegal to steal intellectual property.

Please note the following about all other machines:

These products

- A) have no safety or university testing.
- B) make spurious and unsubstantiated claims as to its effectiveness and safety, as there is no validating research or approvals.
- C) some claim FDA approval, which is illegal, as the FDA does not endorse any product or allow it to appear so.
- D) shows no FDA or safety applications for approval as of April 1, 1990.
- E) would only be available by prescription if it had FDA approval as a medical device.

If an injury were caused by these products you could be liable, therefore we suggest you pull these products from your place of operation, furthermore, these devices are known to be unsafe as per FDA sources. There is substantial research now on file to lead us to believe that red light can and is a detriment to health, for the following reasons:

- 1) stimulating of Chronic Fatigue Syndrome
- 2) lowering of T cell counts
- 3) enhancing sensitivity to photo convulsive response i.e. epileptic type seizures and photo phobia

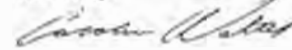
Dr. John Ott's work as well as a number of worldwide studies in prominent journals cites the dangerous effects of red light and red light environments including increased aggression and hostile behavior in rats, monkeys, and children. Cellular level breakdown and long term exposure leading to lethargy and lack of sexual interest in breeding rats. See reference on light by John Nash Ott D.S.C. 1976 and FDA reports enclosed.

We hereby demand that you immediately cease and desist the selling and/or unauthorized use of the Mc2, the DAVID and any other light and sound infringing products. If necessary, a U.S. District Court order will be issued against you, and legal action and/or other appropriate steps will be taken to enforce our legal rights. Litigation will be very costly and very time-consuming. To continue selling, and/or unauthorized using of our patented products is illegal. We might grant a non-exclusive user license under appropriate terms and conditions only.

Guide your future actions accordingly or suffer the consequences. The following agencies have been notified of your activities. F.B.I., F.D.A., Postal Inspector General, U.S. Attorney General, Mass. Attorney General, U.S. Customs. All catalogs have been notified also about carrying any of these illegal machines.

Please contact our headquarters at (216) 749-7707, as soon as possible. Failure to do so in a timely manner will lead to serious consequences. Hope to resolve our differences shortly.

Yours Truly,



Caroline Walter

Public Relations and Media Director
Synchro-Tech International

enc.: Patent, FDA files on red light, studies on red light

mg/CW

Important: This does not include the Luminom.

Walter Schmidt
Chief Executive Officer

Synchro-Tech #3
4574 Broadview Road #03
Cleveland, Ohio 44109

In response to your request, copy enclosed, for record(s) from the Food and Drug

Rockville, MD 20850

In reply refer to:

F90-10116

JOHN NASH OTT
5115 SANDERLING ROAD
SARASOTA, FLORIDA 34242-3743

May 3, 1990

Mr. Carl Asch
914 Alto Street
Santa Fe, NM 87501

Dear Mr. Asch:

Thank you very much for your letter of April 10, 1990, with reference to Dr. Denis Gorges and his Synchro-Energizer device and, accordingly, I am pleased to furnish you with the following information.

Dr. Gorges did call me on the phone shortly prior to my letter dated November 10, 1989, and advised that his company owned and operated a large number of medical clinics here in the United States and also in many foreign countries. He said he was very interested in our new radiation shielded full spectrum lighting and was anxious to test some of them for general use in his clinics. He mentioned nothing about his Synchro-Energizer device, and I have heard nothing further from him.

He did ask me to send him information about our lights, which I did, as mentioned in my letter of November 10, 1989.

I have never seen Dr. Gorges' Synchro-Energizer device but from the limited information given in your letter, I am inclined to agree fully with Dr. Liberman's opinion that the little white lights used in it could not be "full spectrum" as defined in the various patents I have obtained for our radiation shielded full spectrum lighting fixtures and tubes.

From the information you have sent me, I strongly feel that Dr. Gorges has gone way beyond any reasonable or ethical use of my research results in selling his product and claiming or implying in any way that I have tested it and recommend or approve of its use for any therapeutic purpose.

Information Act

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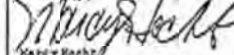
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Sincerely,



John Ott
Freedom of Information
Technician
Office of Compliance and
Surveillance
Center for Devices and
Radiological Health

Mr. Carl Asch
May 3, 1990
Page Two

I am sending Mr. Gorges a copy of this letter and requesting him to immediately cease using my name or the results of any of my research in any way with reference to advertising or selling this product. I am also sending a copy of this letter to my attorney in case legal action may be necessary to insure compliance with my request as outlined above.

For your information, I am sending you the enclosed copies of Parts 1-5 of my article entitled "Color and Light: Their Effects on Plants, Animals and People," as published in five separate Special Subject Issues of the International Journal of Biosocial Research, together with videotapes of the lecture I gave at Lawrence Institute of Technology.

Thank you again for your assistance in this matter.

Very sincerely,

John Ott
John Ott, Sc.D. (Hon.)

JO:px

Enclosures

A few of the letters which turned up in our research, including a threatening letter sent by Synchro Tech (which was accompanied by the "Walter Schmidt" letter on page 41), a letter from the FDA to Walter Schmidt, with his return address obscured by a Synchro Tech stamp, and a letter from John Ott, dissociating himself from Gorges' claims.

MEGABRAIN REPORT

■ A LONG AND TWISTED TALE: DENIS GORGES AND THE SYNCHRO-ENERGIZER CONTINUED

has a "much greater tendency than other light to set off seizures (see FDA report January 1990)." The "FDA report" he cited, apparently, was the Walter Schmidt material.

With this information in hand, MEGABRAIN REPORT interviewed Denis Gorges on July 25, 1990, and told him we had found no Walter Schmidt working at the FDA. Responded Gorges: "Walter Schmidt is an information officer, a search officer for a search firm. If you want to talk to somebody at the FDA about red lights, you'd have to talk with Marcy Hecht, a Freedom of Information officer in the Office of Compliance and Surveillance, Center for Devices and Radiological Health. She could help you find information on red lights."

Gorges' response blithely evaded the important question: if, as Gorges was apparently admitting, Walter Schmidt did not work for the FDA, but rather for a search firm, then *how did his letters get printed on FDA letterhead?* Was Gorges suggesting that Walter Schmidt, a "search officer for a search firm" actually committed the various crimes involved in putting his letters on FDA letterhead and calling himself "Chief Information Officer" and "Chief Executive Officer" of the FDA?

With our questions still unanswered, we followed Gorges' suggestion that we talk to Marcy Hecht at the FDA about red lights, and called her on July 31, 1990. She was, it turned out, the FOI (Freedom of Information) officer in the FDA Center for Devices. "No," she told MEGABRAIN REPORT, "I am not aware of any investigations of red LEDs or red light devices. I am not aware of any health dangers associated with red light." She also added "I have never heard of any Denis Gorges."

Meanwhile, MEGABRAIN REPORT hired Alexa Morrill, a court-approved handwriting analyst with over ten years experience in verifying documents for legal and corporate clients, to look at the signatures on the Walter Schmidt letters. She quickly concluded, "one of the Walter Schmidt signatures wasn't executed by the same person who did the others. Even the typewriter is different on the February 27th letter than on the other documents." We have reproduced the February 27th letter here—the only letter to actually claim that there was evidence that red LEDs could have "negative effects." She told us, "this leads me to believe that the other signatures may be legitimate and this one may be a forgery."

Who's Walter Schmidt? The Appearance of "Deep Brain"

At this point, MEGABRAIN REPORT was approached by an individual who had been an associate of Denis Gorges for several years and one of the leading distributors for Synchro Tech products, had since stopped working with Gorges, but was still intimately involved in the business and was deeply concerned about the future of consciousness technology. This source asked that we not use his/her name (for convenience's sake we will hereafter refer to this source as a "he," rather than "he or she"), and was quickly dubbed "Deep Brain." He provided us with useful information and asked, in return, for information about the Walter Schmidt letters. We told him about Gorges' suggestion we call Marcy Hecht at FDA, and described Hecht's statements. He asked if he could call Marcy Hecht himself, and we provided him with the information to do so.

The next day, Deep Brain reported that Marcy Hecht had told him just what she had told us. Stymied, we discussed the problem, and concluded that there was another close Gorges associate who might be able to provide information. When approached, this Gorges associate was hesitant to cooperate, but the next morning we had a copy of a letter that appeared to be from Marcy Hecht to Synchro Tech [*this letter is reproduced on page 43*]. The person it was addressed to at the Synchro Tech address in Cleveland, Ohio, was Walter Schmidt, Chief Executive Officer. In addition, while the typeface for Schmidt's name and the body of the letter was uniform, the name "Synchro Tech" and its address were in much larger and quite different type. It appeared to be a return address label pasted into place over the actual address of Walter Schmidt. Very strange.

Asked about her letter to Synchro Tech, Hecht claimed she had not sent any letter to Synchro Tech. She had sent it to Walter Schmidt at a data search firm known as Stacks, Inc., in Auburn, California. Bingo!

When notified that his name was on a series of letters written on FDA letterhead, Schmidt was shocked, and immediately consulted his attorney. He then called MEGABRAIN REPORT back. "I just got off the phone with my attorney, who advises me to make one very simple statement," he told us. "That is, of the letters

that were sent out, I've *never* put out *any* letters on FDA letterhead; I've *never* been associated with the FDA in any way; and *essentially* what I do is to develop research and technical topics as far as bibliographies go for data packages—that's it!

"So I'm sending copies of these to my attorney today to look over, along with the originals, because they *ain't the same!* I'm very irritated with the entire situation. Because we're a very simple outfit here . . . nothing more than a clearance library. . . . What I have in front of me is copies of letters with FDA letterhead, and I don't put out letters on FDA letterhead. I *did* put out letters on Stacks, Inc. letterhead back in those days, and that was it."

According to a handwriting analyst: "one of the Walter Schmidt signatures wasn't executed by the same person who did the others. Even the typewriter is different..."

Schmidt agreed that he had indeed been hired by Denis Gorges and Synchro Tech to do a database search and make inquiries with the FDA. We remarked that an odd thing about the letters had been that while the Synchro Tech people had presented them as evidence of the "dangers of red LEDs," none of the studies mentioned in them seemed to deal with red LEDs. "That was the *point*," said Schmidt. "To be precise . . . there have not been any *complaints* on the subject of such devices involved with brainwave alteration. Period."

In all of his massive search of databases and inquiries with the FDA he did not find anything at all about the dangers of red LEDs? we asked. "Nothing," Schmidt told us. "Absolutely nothing."

The only thing he could come up with, he told us, was some research having to do not with flashing red LEDs, but with long-term exposure to red lights. "With chronic exposure," he said, "very long term, very consistent exposure, day in day out, you'll have some problems. But it's like water. How dangerous is water? Well if you're under ten feet of it you're going to *drown*. But there's *nothing* on



the short term effects, or directly connected with these type of devices. That you can quote me on: I couldn't find anything."

When we told him of the conclusion of our handwriting analyst, that one of the letters was a forgery, the letter of Feb. 27—the only letter to actually claim there was evidence that red LEDs could have negative effects—Schmidt said he would follow his attorney's advice and not make comments on such matters. However, he emphasized to us, "One of these letters I believe not to be mine. . . I *always* double-space my letters. The February 27 letter is single-spaced."

Several hours after this conversation, Walter Schmidt called MEGABRAIN REPORT again and reported: "We've sent out a letter to Mr. Denis Gorges by certified mail telling him to cease and desist using my name on the bottom of FDA letterhead. I have found, by the way, most of the originals of these letters—and they do *not* have FDA letterhead—and turned them over to my attorney."

Schmidt expressed increasing anger at the situation. "At least if you're going to *do* it, do a good *job* of it! It's a *horrible* job in most cases," he said. "I mean Jesus Christ, unbelievable, but he did a terrible job of everything." MEGABRAIN REPORT asked if he could explain. Said Schmidt, "Let's put it this way, if you're going to make stationery, do a good job of it, don't make a mess of it with staples and all that crap. It's dumb!"

The Waxman Cometh?

Along with the barrage of questionable "evidence" about red LEDs, Gorges and his representatives have apparently been threatening distributors of competing devices with the specter of "The Waxman Committee." In one of her threatening letters to Maryellen Krygowski-Visconti, for example, Caroline Walters, "South Coast Representative for Synchro-Tech International," warns her against using such devices as the "InnerQuest, MC² and the David" because, since they don't have "FDA approval" (as she claims the Synchro Tech Relaxman *does*) they "threaten the future of brain/mind products and risk greater regulations being placed upon legitimate devices. . . ." Ominously, she warns that "The Senate Select Committee on Health Care Fraud (chaired by Senator Waxman) is investigating. . . ."

This statement is peculiar, since Henry Waxman is not a Senator at all but a Representative (D-CA), and he is not chairman of the Committee on Health Care Fraud, but instead chairs the House Subcommittee on Health and the Environment.

The reference to the "Waxman Committee" piqued my interest, since Gorges had referred to this committee before. An article about Gorges published in the Summer 1988 edition of *Reality Hackers* magazine had stated that "Gorges is known to have blown the whistle on many competitors and supports the Waxman Bill." This bill, according to the magazine, "will outlaw all machines that purport to change behavior or have therapeutic applications unless they conform to regulatory guidelines and remain subject to review."

One of the machine's disgruntled purchasers reported that Gorges himself had admitted that fully one third of the users of the device had negative reactions.

Then, just as this article was being prepared, MEGABRAIN REPORT heard from a prominent scientist—one of the leading researchers in the field of brain/mind technology—that Gorges had told him the Waxman Committee was investigating sound and light devices.

At about the same time, in an interview with MEGABRAIN REPORT, Gorges seemed to imply that the Waxman Committee was even investigating *me*. "The Waxman Committee and the Senate Subcommittee on Health Care Fraud know about his [i.e. Michael Hutchison's] activities," said Gorges. "He should be more careful."

As a result, I called the Washington D.C. offices of Congressman Waxman, where I spoke with Molly Edwards, who is Representative Waxman's staff assistant on the Subcommittee on Health and the Environment and works with the Health and Medical Devices section. When I asked her if she was aware of any "investigation of sound and light machines," or the dangers of red lights, she answered, "No. . . . I haven't even *heard* of it, and that particular issue has *never* been discussed at one of our hearings." Was it possible

that some such investigation was going on without her knowledge? No, said Edwards, "I *would* have some knowledge of it if we were doing *anything* like that."

Also, Edwards pointed out, the only devices the Waxman Subcommittee investigates are "medical devices," which by definition have to have been approved by the FDA. "All the devices that we are investigating," she told us, "are FDA approved." As examples of medical devices they are concerned with she mentioned an apnea monitor, faulty artificial heart valves, and surgical implants. Thus, she said, non-medical devices such as the sound and light devices would not be something the Waxman Subcommittee would even investigate.

Getting to Know You: The Chronological Approach to Mr. Gorges

Threats of law suits, questionable documents and questionable claims seem to have surrounded Denis Gorges for many years. Who is Denis Gorges and what does he want? I can only offer a partial answer to this question, and it is, as the title of this article says, a long and twisted tale. It is a tale in which I, personally, have become involved. So it seems to me the best way I can tell it is to return to the place where I personally became involved, and move on from there in a roughly chronological fashion.

After the publication of MEGABRAIN, I used the Synchro-Energizer in some of my Megabrain Workshops. I found the device unsatisfactory in a number of ways. I also began to hear from other operators and users of the device of experiences in which users had found the device very irritating, fainted or suffered headaches, and that at least one user had suffered seizures and had to be hospitalized (I was later to discover that one of the machine's disgruntled purchasers reported that Gorges *himself* had admitted to him that fully one third of the users of the device had negative reactions). As a result, I began using other sound and light machines in my workshops. I was immediately besieged with angry calls from Mr. Gorges threatening to sue me.

Then, at the request of MAGICAL BLEND magazine, I wrote an article on "Megabrain devices," which included descriptions of several sound and light devices I had become

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aware of since the writing of *Megabrain*. Again, I found myself receiving threatening calls from Gorges, saying he was going to sue me simply for writing about these other machines, because they infringed on his "patent" (about which more later). I pointed out to Gorges that it didn't make much sense to sue me—a journalist who was simply writing about machines that were widely available on the market—and that if he had claims for patent infringements, he should direct them at the manufacturers and distributors. This didn't dissuade Gorges, and he continued to threaten me.

As a result, I called the manufacturers of some of the other light and sound devices, and found that Gorges had directed similar threats at them and their customers in the form of menacing letters clearly designed to intimidate them. The letters frequently bore the headline: "LAST NOTICE BEFORE LEGAL ACTION," and stated that expensive legal suits were in the offing, but that the various manufacturers could avoid the disastrous problems by selling his device. In several cases in 1988, manufacturers and distributors received threatening letters bearing Gorges' signature, written on the letterhead of a Cleveland, Ohio law firm, Tarolli, Sundheim & Covell. In an absurd and faintly comical touch—perhaps in an attempt to make the letter look even more "official"—someone had stamped at least one of these letters with an official looking circular seal. The seal stated "LIBRARY OF D. E. GORGES MD PhD."

Upon investigation, these letters seem to be earlier variations of the motif that was to emerge more boldly with the Walter Schmidt letters: the unauthorized use of an impressive letterhead to give more force to Synchro Tech's threats against its competitors. When MEGABRAIN REPORT recently called the law firm of Tarolli, Sundheim & Covell, attorney Paul Szabo, a spokesman for that firm, stated that Denis Gorges "is not a member or an attorney associated with the firm. As such, he is not authorized to use our stationery. Those letters were sent out without our permission." When he was questioned about this letter by Timothy Maier of the *Baltimore Business Journal*, Gorges told him "that his staff wrote it. But," Maier points out, "it bears Gorges' signature."

Here Comes The FDA

Since one of Gorges's recurrent threats was that because his device had "FDA approval" he was going to bring down the wrath of the FDA on his competitors, in early 1989 I wrote to the FDA and asked for their files on Gorges and his company, invoking the privileges of the Freedom of Information (FOI) Act (all such

The first time the FDA had attempted to conduct an inspection, Gorges had apparently refused to acknowledge that he was Denis Gorges and had denied any knowledge of his own company

information gathered by the government for which there is no compelling reason for secrecy is, in fact, "public information," and the FOI procedure is one means for the public to gain access to the information that has been gathered in its name). I received a thick packet of documents indicating several shocking facts. Among them: even though Gorges claimed to be an M.D., Ph.D. and psychiatrist, he had admitted to an FDA inspector in October, 1985 (even as I was completing the manuscript of

Megabrain and he was continuing to make such claims to me, to the press and in his own promotional literature) that he had *no advanced degrees*. The FDA document submitted by the field investigator states:

"When questioned concerning his educational background, Mr. Gorges stated that he had no formal training or degrees. When it was noted that some of the promotional literature and copies of news articles in our files refer to him variously as an M.D., psychiatrist, and Ph.D., Mr. Gorges alluded to misinterpretations, at one point indicating the mistakes were made by his employees. He made no comment when it was noted that he is the person in charge and therefore responsible for correcting mistakes."

"It should be noted," the FDA officer continued, "that Mr. Gorges is the person who denied any knowledge of the firm or himself when visited 8-14-85." In other words, the first time the FDA had attempted to conduct an inspection at his place of business, Gorges had apparently refused to acknowledge that he was Denis Gorges and had denied any knowledge of his own company.

Also, as to the claims Gorges made to me in the mid-1980s that his device was "FDA approved," the FDA documents state in the "SUMMARY OF FINDINGS," that "Deviations from regulatory requirements noted

MEGABRAIN REPORT Idea Breeds New Startup

In the *Research Update* in MEGABRAIN REPORT #1, Michael Hutchison wrote about a study by Eugene Peniston and Roger Kulkosky on chronic alcoholics. The study measured apparently permanent improvements in depression indices and positive personality changes associated with brainwave biofeedback training in production of theta brainwave states. He suggested employing brain machine technology to produce theta states in connection with drug and alcohol treatment programs. "With the billions of dollars now being spent for drug treatments... it's clear that a treatment that produced long-lasting recovery and beneficial personality transformations would have a tremendous impact, making its developers a lot of money." We have received a request to publish the following notice:

"The description (*Megabrain Report*, Issue 1, Volume 1) of a new method of curing drug abuse and alcoholism through a combination of imagery and brainwave biofeedback has stimulated the formation of a new company, 'Habit Breakers.' This company will be adapting the method pioneered by Drs. Peniston and Kulkosky, and using it in combination with advanced brain technology to accelerate access to the desired brainwave states; and will franchise its use in drug abuse and alcoholism treatment centers. This start-up company is seeking both clinical placement opportunities and investors."

If you are interested, please contact the MEGABRAIN REPORT office, and we will refer you to Habit Breakers, to whom we extend our hearty encouragement.



during this inspection included failure to register, failure to submit device listing information, lack of product labeling providing indications and directions for use, failure to obtain pre-marketing approval, lack of an investigational device exemption, lack of prescription labeling and failure to limit distribution to licensed practitioners. Distribution of promotional materials recommending use of the device for conditions for which it is not generally recognized as safe and effect was also noted. Management refused to provide distribution information claiming that it was unavailable at that location."

Under the section titled "OBJECTIONABLE PRACTICES" the FDA field report enumerated a long list of claims made about the "medical" uses of the product, yet pointed out it was not registered with the FDA as a medical product. It states, "During the inspection, Mr. Gorges emphasized on several occasions that the units are not sold to those people that acquire them, and can be taken back if the customer violates the terms of the agreement and descriptions of proposed use signed by them. . . . However, several pieces of the literature referred to sales of the product, and in fact the introductory cover letter for the literature (Exhibit A) refers to sales to individuals."

Under the section titled "COMPLAINTS" the FDA report states: "Mr. Gorges initially stated that he has never received any complaints of injuries or illnesses. He subsequently retracted the statement, stating that a woman using the product at a health show in Detroit several years ago had fainted. . . ."

The FDA report went on to say that "At various times during the inspection observations concerning the firm's objectionable practices were discussed with Mr. Gorges. Pointed out were the requirements for registration and device listing, the requirement to obtain pre-marketing approval or an investigational device exemption, and the necessity for adequate labeling to include indications for use and directions for use. . . . Mr. Gorges also stated that he had made no attempt to comply with FDA requirements as he considered the Synchro-Energizer a learning and relaxation device, not a medical device, subject to FDA jurisdiction. Following discussion of the definition of a medical device and the claims made in promotional literature, Mr. Gorges discontinued his contention that the product was not a medical device."

All this, of course, was during the period Gorges was claiming to me and to many others that his device had "FDA approval." It is a claim that representatives of Gorges continue to make. In a follow-up letter on May 14, 1990 to Maryellen Krygowski-Visconti, Caroline Walter flatly claims that the Synchro-Energizer Relaxman is "FDA approved," and states that "The Synchro-Energizer has been reviewed by the FDA since December 1975. The FDA has on record 14 university based institutional review board reports which have agreed on the safety and effectiveness of research on Synchro-Energizer technology. . . ."

However, Walter Schmidt, who was apparently hired by Gorges to search out information about the safety and effectiveness of such devices, flatly and emphatically contradicts this. As he told me, "There are no FDA files, that's the point! I even had a letter that went out to that effect, that essentially there were no files on the subject. . . . There is absolutely nothing that says any device on the market is dangerous or is not dangerous. Essentially, there is no information!"

"Although the [Synchro Energizer] is said to improve memory," wrote the New York Times, "Mr. Gorges could not recall the location of the New Jersey institution he said awarded him a Ph.D...."

Where's the Doctor?

A sidelight here. Despite his admission to the FDA field inspector that he had no advanced degrees, Gorges continues to describe himself as an M.D., Ph.D. and neuroscientist (in an article in the August, 1990 issue of *Longevity*, for example, he is "biomedical researcher Denis Gorges, M.D."). In a front page article about brain fitness centers for the *New York Times*, reporter Katherine Bishop raised some questions about Gorges' claims of advanced degrees. "Although the device [the Synchro-Energizer] is said to improve memory," she wrote, "Mr. Gorges could not recall the location of the New Jersey institution he said awarded him a Ph.D. after he completed a course in psychology through the mail."

"While he also says he is a medical doctor," Bishop's article continues, "Canadian Government agencies and professional organizations could find no record of the private medical school he said he attended outside Toronto. He is not licensed to practice either in Canada or his native state of Ohio, according to official records."

Apparently Gorges' memory had improved somewhat by the time he was interviewed by Timothy W. Maier of the *Baltimore Business Journal*, who investigated the questions about Gorges' professional degrees in an article published in the April 2-8, 1990 edition. Gorges claimed to Maier, "In 1969 I got a Ph.D. from Thomas Edison College in New Jersey and I have an M.D. from United American Medical College in Canada."

"Impressive credentials?" writes Maier. "Take another look. Thomas Edison wasn't established until 1972 and the United American Medical College doesn't exist." Maier reports that Gorges tried to explain this by claiming that the United American College was closed in 1982, while he received his M.D. in 1975. "Most people thought it was a diploma mill," Gorges said, "because that's what it is now. But it wasn't then."

But how did Gorges get a Ph.D. in 1969 from a college that wasn't established until 1972?

"Then it must have been from what the college was before," Gorges told Maier. Maier investigated and found that "That would have been Trenton College, a similar community college that shared one distinct characteristic with Thomas Edison, both never offered a doctorate or any post graduate studies."

"When informed of these facts through a telephone conversation," writes Maier, "Gorges responded, 'Gotta go. Look, I'll send you credentials. Gotta go. Germany is on the line.'" The credentials that arrived claim that Gorges is a member of the Southern Medical Association, according to Maier, "and several obscure associations, none of which thoroughly screen members. SMA said it plans to investigate Gorges."

Who Signed the Receipt? Could This Be a U.P.S. Scam?

The file I obtained from the FDA under the Freedom of Information Act also contains an interesting letter dated April 10, 1986, written

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to the Consumer Complaints division of the Securities Exchange Commission in Chicago by a man who said he had met Denis Gorges, and that Gorges had claimed "he was a doctor of medicine and a doctor of philosophy in psychology. . . . He said that the machine was classified by the Federal Drug Administration as a 'relaxation and learning device.'"

The letter describes how Gorges convinced the man to buy a Synchro-Energizer, even though the man said "I did not get any of the results described in the articles or which he said I would get." The man purchased the machine, at Gorges's urging, but after protracted use still did not get the desired or expected effects: "the only results I got were a feeling of depression, restless sleep pattern, and constipation." The

The contract was a forgery. . . . In fact, the signature not only did not even look like my signature, it even appeared to misspell my name.

man then asked to return the machine and get his money back, citing Gorges's previous promise to him that "if anyone wanted to return the machine he would give back the money." The writer continues, "After much discussion, he finally told me that approximately one-third of the people who use the machine had adverse effects from it and that if I wanted to return it he would give my money back to me. He insisted that I send back the machine by United Parcel Service and insure it for \$5,000.00, the amount that I had paid for it."

The writer continues, "I shipped the machine back to him on October 29, 1985. He told me he did not get the machine and that I should make a claim to UPS. I made a claim to UPS and after two and a half months they produced a receipt signed by 'Doctor,' a last name with initials that I could not read. At first Gorges told me he did not know anyone by the name of Doctor. I relayed this to UPS: they spent more time investigating and accused me of trying to defraud them of the money in conspiracy with Gorges.

"My understanding," he continues, "is that UPS got a handwriting expert; he said that the receipt was signed by Gorges using the name

'Doctor.' They also threatened to prosecute Gorges because they said a similar incident had happened not long ago. After four months, Gorges signed a UPS form saying that he had received the machine."

"I then requested my money from him," says the letter writer, "and he has refused to give it to me because he says that I purchased 'an interest in the organization' and business investments are not refundable under the law."

He concludes by writing, "Enclosed is a letter from the FDA which indicates they not only did not classify this machine, they consider it to be dangerous if used by a layman."

False Accusations

During that time and since then, Gorges and his company have continued to send out threatening letters to users and distributors of competing devices. He apparently also began making highly questionable claims about some of his competitors. One of these competitors was David Siever, maker of the DAVID devices. A letter from Siever's attorney to Gorges states that they were advised from various sources that Gorges had stated:

- "1. that my clients stole their machine and board design from you;
- "2. that you are suing Comptronic Devices and that the Siever company is consequently tied up in litigation;
- "3. that a person or persons have died while on the David I machine;
- "4. that David Siever is being sued;
- "5. that David Siever has been convicted of a criminal offence and 'is on his way to jail.'

"These are blatant lies and we believe you to have made these statements maliciously, with forethought and with the clear intention of appropriating business to your company at my clients' expense. . . . Furthermore, we know that you have photocopied portions of the Comptronic Promotions brochure and are using it as your own. We demand that you immediately cease this defamatory conduct." According to David Siever, "Gorges has harassed 40 to 50 of our customers for no good reason. There is no patent infringement. He is defaming the character of people in the industry with the stories that he spreads. Gorges is a very dangerous person."

I was soon to learn that Gorges had apparently been spreading defamatory stories about other people, including me. Randall Stephens, owner of a mind-spa in California called the "Universe of You" asserted in a written statement that Gorges had "at one time or another related to me the following information:

1. That everyone using light and sound brain wave entrainment equipment was out to get him, to steal from him, cheat him and that he had proof they had done so.

That anyone who designed, sold, manufactured, and used any device using light and sound . . . would be prosecuted by him, the FDA, the FBI, the U.S. Attorney General, would be fined, put out of business and jailed. That he had already put some people out of business, specifically the makers of a machine called MC Squared [ed. note: MC² remains in business to this day].

2. That Michael Hutchison of Megabrain did drugs.

That he would put Michael Hutchison in jail and take over Megabrain. That Michael Hutchison had signed a contract with him which Michael Hutchison had broken That he was bringing a law suit against Mr. Hutchison and that he would put him out of business.

3. That John David of the John David Institute of California was homosexual, was charged with having sex with minors, that he dealt Cocaine, that there were law suits pending on these charges, that John David was using dangerous and illegal equipment, and that he had broken contracts signed with Mr. Gorges' Synchro Tech Corp.

4. That Mr. W.A. Robinson of Psych Research, Inc. had signed and broken contracts with him. That Mr. Robinson had accepted 10s of thousands of dollars to develop a machine named the Inner Quest and then market that machine as his own, thus cheating Mr. Gorges . . .

5. That David Siever, creator of the David I machine had stolen his ideas to create the David I. that his equipment was illegal and was smuggled into the U.S.A"

"In my opinion these statements represent a general pattern of behavior toward Mr. Gorges' peers He often put down equipment and devices other than his own as ineffective and fraudulent and derided the people



who created them with personal inferences and statements about them, and threatened to take various actions against them."

I was also informed by a number of people, including Dr. Daniel Kirsch, president of Electromedical Products, Inc., that Gorges had claimed to him that he, Gorges, "owned" Megabrain and had "control" over the Megabrain Workshops. Kirsch, in a July 1990 conversation with MEGABRAIN REPORT said, "Gorges told me that he had bought Megabrain, Inc. . . . He said that he was arranging all the seminars and everything, that it was all new, things would be different—he bought it. That was about two years ago."

In response to these and other allegations, my own attorney, Jerry Simon Chasen, and I were forced to send a letter to Gorges (dated November 8, 1988) warning him about "libelous and defamatory statements made by you about [Michael Hutchison] and Megabrain, Inc. . . ." and threatening legal action if he did not cease and desist in this "offensive and damaging behavior immediately." I was extremely puzzled by the alleged claims by Gorges that he "owned" and "controlled" Megabrain and the Megabrain workshops. How, I wondered, could anyone make such obviously baseless statements?

The Forged Document and a Day in Court

I did not have to wonder for long. A few days later, in a complaint dated November 11, 1988, Gorges along with Christine Zerrer, operator of a NYC Synchro-Energizer center, brought a legal suit against me, Megabrain, Inc. and organizers of a New York City Megabrain workshop, asking the court to issue an Order "permanently enjoining" us from "conducting, arranging, producing or hosting . . . any seminar, workshop lecture, or other demonstration which in any way displays or promotes the device known as the D.A.V.I.D. . . ." and demanding an award to Gorges and Zerrer of damages of over \$50,000.

When I received the papers I was astonished to find that the suit was based on a "Professional Agreement" I had supposedly signed, a document that stated: "Megabrain and or Michael Hutchison [sic] and all associated parties agree not to promote or display any technology that is in violation of U.S. Patent #4315502 . . .

i.e., David I, MC², Alpha Pacer or any other technology proved illgal [sic] or potentially harmful to the public."

I was even more astonished to see a signature that was supposed to be mine at the bottom of this document. The contract was a forgery. I had not signed it. In fact, the signature not only did not even *look* like my signature, it even appeared to misspell my last name—just as it was misspelled in the document itself—as "Hutchinson" rather than "Hutchison."

Gorges had in fact sent such an agreement to me months before. But my attorney, Jerry Chasen, and I had discussed it and found its terms absurd, and decided against becoming involved with Gorges. Attorney Chasen had sent a letter to Gorges stating that its terms were "unacceptable" and "overreaching." Significantly, the letter from Chasen to Gorges is dated April 20, 1988. The document with my clumsily forged signature was dated Jan. 15, 1988—before either Chasen or I had even received a copy of the document! The line for the signature of a witness was left blank.

At the hearing, I testified that I had not signed the document, and pointed out its clear dissimi-

"Mr. Hutchison" concluded the judge, ". . . did not execute the document."

larity to several of my authentic signatures on sample documents. Zerrer, however, initially testified that she had actually *seen* me sign the contract. However, the court transcripts show then that as questioning progressed Zerrer seemed to grow less certain: "Q. Did you see the people fully signing that document? A [Zerrer]. I believe so. . . . Q. Did you see Michael Hutchison affix his signature? A [Zerrer] I believe so."

It was pointed out to Zerrer that the bottom line of the document, the line that said "Witness," was blank, and under questioning she admitted she had not been asked to witness the agreement, and that in fact she had been "in and out of the room answering phone calls" during the time.

Zerrer admitted that several months before, while in Ohio, she had seen Gorges pull out "a folder with a number of agreements" that I had

supposedly signed and brandish these "agreements" to a number of people. "He [Gorges] read through them," Zerrer testified, "and said these are all agreements that I have, that Michael had signed."

Soon the judge stepped in with serious questions of his own, telling Zerrer that "what we have here is a very serious problem . . . and what I am disposed to do is to have copies of this testimony sent to the District Attorney of this County for further investigation to determine whether or not perjurious testimony has been given." As the judge's questions continued, Zerrer became emotionally agitated, and, breaking into tears, asked the judge a question that is recorded in the transcript as: "Looks so serious?"

"This is very serious," the judge replied. "Perjury is very serious and somebody is going to go to jail." After Zerrer was dismissed as a witness a discussion among the lawyers and the judge took place, and the judge examined a number of documents—two of which, as examples, bore my actual signature, and two of which, the ones being contested, were forged. The judge concluded: "Based on the extensive hearing we had today in which the two witnesses were examined, I have observed the witnesses and the testimony and their demeanor and observed what would be characterized as credibility, and based also upon examining the various documents and information, and two which were admittedly signed by Mr. Hutchison and on the other two he disclaims he signed . . . it is the decision of the Court that the testimony of Mr. Hutchison is credible and believable and, therefore, I find that he did not, is not bound by this agreement because he did not execute the document."

The judge concluded by saying "I'm also going to request a transcript of this record to be sent to the District Attorney's office for information to determine whether or not perjury has been committed in this case and recommend further prosecution to find out same."

Upon leaving the court our attorney stated that not only had the judge decisively thrown Gorges and Zerrer's case out of court, but that it amounted to an enormous repudiation of their charges. In fact, said our attorney, it was only the second time in his 15 years as a litigator that he had seen a plaintiff come into court as accuser seeking damages and go out under the threat of being investigated for perjury.

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Another attorney, after reading the transcript at the request of MEGABRAIN REPORT, raised his eyebrows and said, "Wow, that judge really got mad at her! Obviously he saw what was going on."

Patent, Patent, Who's Got the Patent?

Oddly, Gorges's threats and bluster are all based on his contention that he holds a patent on a sound and light device and that all other sound and light devices are "infringing" on his patent. In fact there are questions about the validity and the extent of his patent—it's well-known that similar sound and light devices had been in use and were even being sold commercially long before Gorges' patent, and that such devices may invalidate Gorges's patent. Jack Schwarz, widely known among New Agers for his feats at self-healing and self-regulation, for his books about techniques for altering consciousness, and as the leader of a spiritual community called the Aletheia Foundation, had created, used and sold a sound and light device in which lights were placed in goggles and flickered at varying frequencies in the beta, alpha, theta and delta ranges and used in conjunction with sounds delivered over headphones, as early as 1972 or 1973 (or nearly 10 years before Gorges's purported patent was granted). This device was called an "Integral Stimulating Intensity Stroboscope" or ISIS, and was "designed for the purpose of aiding one in relaxation and meditation—a learning tool."

Other evidence of preceding devices includes a sound and light device patented in 1974 by New York City scientist Seymour Charas (U.S. Patent #3,838,417, "Visual Color Response Apparatus"), which combines a flashing visual light stimulus of variable frequency between 1 and 16 cycles per second (from delta frequencies up to beta) combined with an audio headset "for substantially simultaneously producing an audio response in the observer correlated with the visual response." This patent was not cited as a preceding U.S. Patent Document in the "References Cited" section, or even cited as "Prior Art," in Gorges' own patent, which is dated Feb. 16, 1982.

What's more, even earlier, in 1973, a scientist named Richard E. Townsend had published an article in the journal *Electroencephalography and Clinical Neurophysiology* (1973: 34: 97-99) titled "A device for generation and presen-

tation of modulated light stimuli." His device utilized LEDs, three per eye, held "1 cm from each closed eye by use of goggles with each eye cup to the center of which the 3 diodes were attached."

These kinds of claims may call into question the validity of Gorges' patent. According to Robert Austin, manufacturer of the MindsEye sound and light machines, the report by Townsend is "of interest as the first published description I have found describing goggle mounted incandescent bulbs or LEDs for photic driving. A similar though more cumbersome device was described in the same journal later in 1973 by a research group at UCSD School of Medicine." The importance of the Townsend article, Austin contends, "is that

Light expert John Ott told us he is not aware of the existence of any full spectrum lights of the size used in Synchro Tech equipment.

someone was using (and had published a description of) a device similar to that for which Gorges received a patent. This single reference may invalidate such a patent, certainly the most important part of it." Kim Graf, barrister and solicitor representing David Siever's Comptronic Devices stated in a letter to me that they considered "his [Gorges'] so-called patent infringement claim to be unfounded and frivolous."

Another attorney consulted by MEGABRAIN REPORT pointed out that even though he has threatened lawsuits against numerous people for patent infringement, the fact is that Gorges has *not* in actual fact sued *anyone* for patent infringement. This fact is important, according to the attorney, because of the legal doctrine of *laches*, which has to do with the failure to take action, or failure to protect. The fact that even though he has been aware of so-called patent infringements for years Gorges has not yet taken any legal action to protect that patent, could work against his patent: "Failure to take action," the attorney told us, "constitutes a defense to a suit for patent infringement under the legal doctrine of *laches*." If the other sound and light machines are in fact infringing on his patent, why hasn't Mr. Gorges sued the manufacturers rather than threatened them for year

after year? Because, some of the manufacturers have told MEGABRAIN REPORT, his patent is very limited and does not apply to their devices at all.

Now I See the Light—But Is It Full Spectrum?

Gorges' apparent tendency to make questionable claims extends to his claims about his own devices, such as the Synchro-Energizer and the "Relaxman." One of those claims, which Gorges and his distributors make repeatedly, is that his devices use "full spectrum" lights, compared to most of the other sound and light machines, which use red LEDs. There is abundant evidence of the benefits of true full spectrum light, much of it deriving from the work of pioneering light researcher John Ott. Full spectrum light has been found effective in treating jet lag, psoriasis, jaundice, SAD (seasonal affective depression disorder), reducing fatigue, improving visual acuity, improving calcium absorption, enhancing concentration and much more.

I suspect this is one explanation behind Gorges' aggressive propaganda campaigns against "the dangers" [however fanciful] "of red LEDs." In essence it seems to be a marketing ploy: full spectrum light is good; his device (he claims) has "full spectrum light," and the others don't; therefore people should purchase his machine. Full spectrum light may indeed be a better light source for brainwave entrainment devices, but at this point we cannot know, for despite Gorges' claims, MEGABRAIN REPORT has been told by experts that the Relaxman does *not* have full-spectrum lights, that in fact full spectrum lights of the size used in such machines do not exist.

"Full spectrum light" means light that is similar in composition to sunlight or natural outdoor light. All life on our planet has evolved in and is dependent on light from the sun and sky, i.e. full spectrum light, which is a *specific* balance of visible color and invisible ultraviolet wavelengths. The sunlight spectrum can be charted as a curve (or *spectral distribution curve*) that moves from extremely low levels of irradiance in the invisible ultraviolet (UV) wavelengths (from about 290 to 380 nanometers) and rises sharply through violet, reaches a peak level of irradiance in the blue and green wavelengths (440 to 570 nanometers) and then begins to drop off again through yellow, or-



ange and red (570 to 700 nanometers) and finally drops sharply off toward nothing through the invisible infrared range (800-1500 nanometers). There are a number of light bulbs, such as the Vita-lite fluorescent light and others, that approximate the spectral distribution curve of natural outdoor light. These lights are known as "full spectrum" lights.

However, the lights used in the Synchro-Energizer and Relaxman devices are, according to a number of experts, *not* full spectrum lights at all. They are small incandescent bulbs, very much like the standard light bulbs you screw into your lamp fixtures. The light comes from a filament that gets so hot it glows. The spectral distribution curve of these incandescent bulbs is dramatically different from natural or true full-spectrum light—it moves from extremely low levels of irradiance in the violet and blue ranges and curves slowly upward through yellow and orange and peaks in the red and invisible infrared frequencies. According to the experts, approximately 80 percent or more of the light emitted by such incandescent bulbs is in the invisible infrared part of the spectrum. That is, they're a relatively inefficient light source, with a slow rise time, and the visible light they give off tends to be concentrated on the red side of the spectrum. And most of their output is in the form of infrared wavelengths, which means (among other things) *heat*.

The bulbs used by Gorges' devices are simple incandescent bulbs, say experts who have examined them—"very red," according to three separate sources. And yet he and his company continue to claim otherwise. For example, in a recently published magazine there is a two-page advertising spread for his devices that claims "The Ultimate in Coherent-Full Spectrum Light." The copy of the ad boasts that "The SynchroENERGIZER" uses only full spectrum frequency white light. . . . In an interview in the same magazine, Gorges cites some of the health benefits of full spectrum light discovered by John Ott and others, and then states, "I believe that stimulation with pulsed full-spectrum light in the Synchro-Energizer configuration has many of the benefits that have been demonstrated with these large-scale, high-intensity full-spectrum lighting systems, and even some benefits they don't."

However, among the light experts consulted by MEGABRAIN REPORTS, we could find no

one who even knew of any company anywhere in the world that actually manufactured true full-spectrum light bulbs in the miniature size of the incandescent bulbs used in the Relaxman and Synchro-Energizer.

We have also been told by several sources that representatives of Synchro Tech have been claiming that the Synchro-Energizer equipment

"There is no inherent merit in using the machine," says researcher Dr. Gary Howard. "I cannot recommend it, and I regret that some of my exploratory research studies are being used to promote sales of the Synchro Energizer."

is endorsed by John Ott. "That was their major claim, that their lights were endorsed by John Ott," said one former Synchro Tech associate (who has since begun selling other devices), who heard the Synchro Tech representatives making this claim at a recent trade fair in Cleveland, Ohio, the home town of Gorges.

But when MEGABRAIN REPORT spoke with John Ott we found he was quite upset by such statements. "I've never even *seen* any of Gorges' products," he told us. "Gorges called me about a year or so ago and said he had a large number of medical clinics all over the world. He asked me for information on full spectrum lighting. I sent him some material and later began hearing from different sources that Gorges was stating that I endorsed his product. It's just not true." Ott also told us that he was not aware of the existence of *any* small full spectrum lights of the size used in Synchro Tech equipment.

Research, Research, Who's Doing the Research?

Another of Gorges' contentions is that his device has been the subject of numerous serious scientific studies, while other devices have not. Caroline Walter of Synchro Tech, in one of her letters to Maryellen Krygowski-Visconti, claims "The FDA has on record 14 university based institutional review board reports which

have agreed on the safety and effectiveness of research on Synchro-Energizer technology. . . ." However, Walter Schmidt, as noted earlier, was not able to find any reference to these studies in the FDA files. As he told me, "There *are* no FDA files, that's the point! . . . I even had a letter that went out to that effect, that essentially there *were* no files on the subject."

As an example of the type of "scientific research" that has been done of the Synchro Energizer equipment, Gorges has cited to me, and to others, work by researchers Tom Fine and John Turner at the Medical College of Ohio. However, when I recently spoke with Dr. Turner, of the Department of Physiology and Biophysics at Medical College of Ohio, he told me, "We have *never* done any research with the Synchro Energizer." He explained that, "In 1986, in response to a request from Gorges offering funding, we proposed physiological testing of their machine called a 'synchroenergizer'. This never materialized. Nothing was done. Several months later, we were informed by another party that Gorges was publicly claiming that the synchroenergizer was being researched at the Medical College of Ohio. I quickly informed Gorges personally and by mail to desist from any further such statements."

Another "scientific study" Gorges and his representatives have used to promote the Synchro Energizer is one done at the University of California at San Francisco by Dr. Cary Howard and associates. The study ("A Comparison of Methods for Reducing Stress Among Dental Students," *Journal of Dental Education*, Vol. 50, No. 9, 1986) compared the Synchro Energizer with a popular relaxation method called "Progressive Relaxation Training" (PRT) or the "Jacobson technique." Both groups were tested for a variety of personality and stress factors; then both groups relaxed using either the SE or PRT, both groups received positive suggestions. The study showed that both groups showed reduced stress, and thus is cited by Synchro Tech representatives as evidence of the benefits of the SE. However, what is not mentioned by Synchro Tech are the key findings of the study: first, the PRT group, "showed a significant increase in life satisfaction, while SE subjects indicated a decrease in satisfaction." The study concluded that "in this study [the SE] did not appear any more effective than a technique requiring no special

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apparatus or financial investment.” And as Dr. Howard pointed out recently to MEGABRAIN REPORT, “We have never tested the effectiveness of the SE *by itself*, i.e. *without* accompanying positive suggestions.”

Later Dr. Howard undertook another study of the SE at Leeward Community College in Hawaii. An article about Dr. Howard’s work appeared in a local newspaper. This article, according to Dr. Howard, “is being used to promote the SE.” The article states (without any supporting evidence) that the SE “has been shown to be an effective relaxation tool.” The writer also cites “preliminary evidence” that the SE “enhances learning by promoting brain synchrony, or ‘hemispheric integration,’ and can improve both long- and short-term memory, creative ability and mental efficiency.” This article, distributed at seminars and other places by Synchro Tech representatives is, as Dr. Howard points out, “misleading,” since it never actually reports the findings of her research. She did report these findings in a “Preliminary Report on Relaxation”: “Students using the Synchro-Energizer did not show significantly greater stress and anxiety reduction than students practicing progressive relaxation training (This confirms earlier findings in a similar study conducted at the University of California, San Francisco.” And: “There was no significant memory improvement in any group. . . . Among other things this may suggest that the Synchro-Energizer does not produced enhanced memory through promoting brain synchrony.”

Looking back on these studies that are being used to promote the SE, Dr. Howard told MEGABRAIN REPORT, “I have discovered that many of the initial claims made for the machine were never tested as reported by Synchro Tech. I personally worked with the Synchro Energizer over a two year period and introduced it to colleagues and students. There were *no conclusive results* proving its benefit from the two preliminary research studies I helped conduct, because it was used in conjunction with positive suggestions and deep breathing techniques. There was no evidence of memory improvement or accelerated learning ability. I have come to the conclusion that *there is no inherent merit in using the machine*. In fact, in some people it produces headaches and irritability. I cannot recommend it, and I regret that some of my exploratory research

studies are being used to promote sales of the Synchro Energizer.”

Reporter Timothy Maier is another of a number of individuals who have found some of Gorges’ “research” claims questionable. “For example,” he wrote in the *Baltimore Business Journal*, “Don Schuster, psychology professor at Iowa State University, said the results of his research, which Gorges used to promote the device, are not complimentary.

“Schuster said the Synchro-Energizer did not help the average individual to relax, nor did it produce an atmosphere conducive for learning. Instead, he said ‘it has a learning disadvantage.’”

“Other scientists and doctors Gorges listed,” Maier continues, “could not be located. . . .”

Cheap Knock Offs?

One of Gorges’ continuing complaints against competing devices is that many of them are what he calls “cheap knock offs,” while his Relaxman is of far higher quality. According to electrical engineers and other investigators this is not the case. Several of these individuals, independently of each other, have approached me or MEGABRAIN REPORT in recent months to report that, in the words of one engineer, “The circuitry of the Relaxman and the MC² are virtually *identical*.” The similarities are so close, in the opinion of these experts, that it could not be a coincidence—both of the devices, for example, incorporate certain unusual elements in the circuitry that are not necessary, and in both devices these unnecessary elements are the same.

One MIT-trained electrical engineer sent me a diagram of circuitry in both the MC² and the Relaxman, and pointed out that: “Both implementations of the audio circuits have identical overall designs. It seems too much of a coincidence that not only do both circuits have the *same* unique errors, but that both circuits also share what appears to be idiosyncratic component value selection.”* If it wasn’t such an

impossible thing, one might even be excused for wondering if the same person didn’t design both circuits.

This is interesting, in light of an interview with Gorges published in the Summer, 1988 issue of *Reality Hackers*. At that point, Gorges’ initial Synchro-Energizer, which then cost over \$8,000, had been left in the dust by far more

“The Synchro Energizer did not help the average individual to relax, nor did it produce an atmosphere conducive for learning,” said psychologist Don Schuster. Instead, he said “it has a learning disadvantage.”

sophisticated devices that were much smaller, and cost only a few hundred dollars. Among the devices that were then competing with Gorges was the small pre-programmed MC². Gorges, perhaps eager to find a smaller device, was selling devices that had been manufactured by another competitor, Rob Robinson, of Psych Research. According to Randall Stephens, owner of the Universe of You, who was then using the Synchro-Energizer, “Gorges was selling the InnerQuest unit at that time, with red lights and the whole bit, despite his propaganda. That’s one of the things that really pissed me—he sends me a machine to sell that had red lights in it and all this time he’s been going around with this red light propaganda . . . They did not have the InnerQuest logo on them, they had Synchro-Energizer stamped on them. . . . And we were supposed to get them from Gorges at \$1200 wholesale and sell them for \$1600 retail. . . . And then after I found out they were made by Psych Research, I found out that Rob Robinson was producing them for him for \$250! And he was charging me \$1200, I couldn’t believe that!”

*This engineer included with the circuit diagrams a lengthy note that pointed out that in both designs “the use of a 10 micro-farad capacitor in two places tends to accentuate the higher harmonic frequencies, while the intent of the filtering is to attenuate it! The output capacitors should have a higher value.” In another place, he wrote, “both machines use resistors of similar values, when the SAA 1099 data sheet recommends something else entirely there.” He also pointed out that in both machines a certain resistor, at the same point in the circuitry of both machines, and the 0.01 micro-farad capacitor near it are supposed to be a RC [resistor-capacitor] filter, but, he says, “this design is faulty since the negative input of the op amp is a virtual ground, therefore the 10 micro-farad capacitor shunts the RC filter to ground. This has the effect of making the 0.01 micro-farad capacitor next to useless.” Finally, he wonders, “Why are both manufacturers using RC filters when an op-amp is right there? Why not use an active filter!” This engineer concluded, “I could go on, but you should get the point by now!”



One reliable source, who used to work for Gorges and does not wish to be identified because he fears reprisals, told MEGABRAIN REPORT: "You're aware he used to sell the InnerQuest I for \$1800? It was not just identical to the InnerQuest I, it was the InnerQuest I, he just stenciled his logo on it. Absolutely. It was the InnerQuest I, all he did was stencil it."

But apparently Gorges was looking for a new, smaller, less expensive device. According to the *Reality Hackers* article, "Denis Gorges' strongest ally and future hope lies in Ron Logsdon, a brilliant young (32 year old) electrical engineer. . . ." Logsdon, the article continued, had played a key role in designing the MC², but then had parted from the manufacturers of the MC² amidst what the magazine called "a good deal of acrimony," and was then (spring of 1988) working with Gorges. The makers of the MC², said the article, "were left with the rudimentary MC² while he [Logsdon] kept all the software which was still at the drafting board stage. In joining up with Gorges, he plans to extend the dynamics of the basic MC² and open up its software capabilities." Soon thereafter, Gorges began selling his "new" device, The Relaxman. I had several conversations with Logsdon during that period and the fall of 1988. He contended to me at that time that he was the designer of the Relaxman. (He soon left Gorges, as have so many of Gorges' former associates and distributors, amidst "a good deal of acrimony.")

According to Rob Robinson, who was then selling Gorges the Innerquest, which Gorges then resold under the Synchro Tech imprint, "In touring through what he said was his manufacturing plant—I also found out that it was nothing but a subcontractor—I passed the little room where they did their so-called R&D work, and there laid out on the bench was an MC², gutted, and the circuit board all laid out and a large drafting paper there where they were drawing the circuitry. I took a couple of minutes to really look and see what they were doing, they weren't trying to repair it or modify it or anything, they were drawing the circuitry. The only thing they did then was change the power supply component to make it put out enough volts to power the incandescent bulbs. In about six weeks, two months later, comes the Relaxman. . . . The only difference is they have a different power supply that takes a couple volts higher to power the incandes-

cent bulbs, and they built in a battery source that the MC² doesn't have. But ten programs, same lengths, same purposes, same functions, the keypad . . . he didn't do an original thing at all, he didn't innovate a thing, he simply copied the MC² and put the other glasses with it."

When MEGABRAIN REPORT asked Larry Gillen, whose company, Light & Sound Research, Inc., manufactures the MC², about the alleged similarities between his device and the Relaxman, he pointed out that "the MC² was introduced in August 1987. The Relaxman came out eight or nine months later." And what about electrical engineer Ron Logsdon? According to Gillen, Logsdon did indeed work with Light & Sound Research, and then left and did work with Gorges "in the spring of

"Laid out on the bench was an MC², gutted, and the circuit board all laid out . . . they were drawing the circuitry. . . . Six weeks, two months later, comes the Relaxman."

1988." Also, stated Gillen, during the period the MC² was being designed, in 1987, the name they considered using for the device was, oddly enough, the Relaxman.

This information may cast some light on why the circuitry of the Relaxman (which Gorges sells for about \$650) is according to our sources "virtually identical" to that of the older MC² (which sells for about \$250). (We should point out that the circuitry of the MC² has been altered and improved.) Gorges accuses devices like the MC² of being "cheap knock offs" of his Synchro-Energizer. If that is so, then what, one must wonder, is the Relaxman?

Secret Mind Machines for the Saudis?

Another continuing pattern of behavior of Gorges is making extraordinary and grandiose claims about the sales of his apparatus. One recent British magazine article says that Gorges "claims, discreetly, that the Saudi Arabian royal family are clients. 'They're ordering substantial quantities of machines. I can only infer they are for the military,'" said Gorges.

Upon investigation, MEGABRAIN REPORT was told by a reliable source that Gorges had indeed had contact with a member of the Saudi royal family, but that it had been several years ago. At that time, Gorges sold this member of the Saudi royal family a single Synchro-Energizer. Our source stated that since then, that member of the Saudi royal family had had no further contact with—and bought no Synchro-Energizers from—Gorges.

When we read him the Gorges statement about "substantial quantities of the machines" being sold to the Saudi royal family, our source laughed, and said, "We don't have any knowledge of such sales. . . I couldn't tell you 100 percent he's not, but I know he's not doing it to our knowledge. . . We bought just one, and that was it. . . Several years ago."

The story of the Saudi military use of Gorges's device comes hard on the heels of statements by Gorges in a 1988 interview in *Reality Hackers*. According to that magazine, "There are 150 Synchro-Energizer centers going up in the Middle East, mostly on military bases. The Kuwaiti government is buying them up. . . ." However, at this date, two years later, I have been unable to find any evidence of even one, let alone 150 Synchro-Energizer centers in the Middle East.

How Big Are Your Sales? SOOOOOOOOOOOOO Big.

In some ways the principle seems to be similar to the idea that if you put your letter on some impressive and imposing letterhead, it will be more convincing: if you describe your sales as exceedingly vast, people will be more impressed, more likely to buy your machine, and your story.

Too often, this technique works. A recent example of a highly questionable and grandiose claim made by Gorges, gullibly accepted by a reporter and printed in a recent article about sound and light devices in *Longevity* magazine, is the claim that Gorges has sold 150,000 of the Relaxman since it appeared in 1988 (accompanied by an equally extraordinary claim about the multi-station Synchro-Energizer 4A unit [priced starting at \$9,000]: "the company says about 26,000 are already being used in 'mind spas,' research clinics and universities around the world").

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Former associates of Gorges interviewed by MEGABRAIN REPORT have laughed uproariously at those figures as exaggerated to an extraordinary degree. One of our sources, a former leading distributor for Synchro Tech, who has since severed his relationship with Gorges, recently told MEGABRAIN REPORT that during a gathering of Gorges distributors last fall, he was taken on a guided tour through the factory where the Relaxman was then being made. "I began to look carefully at the serial numbers being stamped on the machines," he told us. "At that time they were approaching 2000."

Larry Hughes, co-owner of Altered States center, who once distributed Synchro Tech equipment but has since ceased to do so, laughed in disbelief when he heard the 150,000 figure. "The last Relaxman we had here, in our last shipment," he told us, "which was in the first quarter, about March, 1990, was just over 3000." Another former associate of Gorges who has since broken with him says the 3000 figure "sounds about right."

Ten Million Centers on the Moon by 2000!

Another way Gorges attempts to inflate the size and influence of Synchro Tech and the Synchro-Energizer is to claim that there are numerous SynchroENERGIZER™ "centers" all over the world. For example, in an interview in the Summer 1990 edition of *Mondo 2000* (the magazine says he "comes across as the archetypal New Age huckster"), Gorges, speaking about himself and Synchro Tech, says "We have broad worldwide group of 58 centers in this country and abroad." A two-page Synchro-Energizer advertisement in the same issue claims "There are over 50 SynchroENERGIZER™ centers worldwide," and lists among them "Altered States in Los Angeles." MEGABRAIN REPORT spoke with Jeff Labno and Larry Hughes, owners of Altered States. Labno told us that Altered States had formerly distributed Synchro Tech devices, but had ended their relationship with that company and Gorges. "We did a lot of research," said Labno, "and discovered many details, which you're aware of. So then we started ordering machines from the other companies. Like the MindsEye, the Courier, the DAVID Jr., IQ Jr., MC2, Innervision, etc. . . Now we can say we carry a large selection of quality machines here."

We read him the advertisement claiming that Altered States was a "SynchroENERGIZER™ center," and asked if Gorges or Synchro Tech had any ownership or any other sort of control over Altered States. "No he does not," said Labno. Did he ever? "Never," said Labno. Larry Hughes expanded on this by pointing out that Altered States began operation as a flotation center nearly a decade ago, and that even when they were distributing Synchro Tech products "they constituted only a small part of our business. I would say 80 to 90 percent of our business comes from income from flotation." In addition to flotation and a variety of sound and light machines, Altered States sells and rents sessions on a wide variety of mind machines, none of them in any way associated with Gorges or Synchro Tech.

What about all the other centers that Gorges grandly claims as Synchro-Energizer Centers? Said Labno, "He's treating his dealers as if they were franchises of Synchro Tech. Of course, they're not. In his *mind* he's thinking of them as if they are. He's *trying* to form some corporation, legal corporation, to have everyone absorbed into his scheme. And that

"He's treating his dealers as if they were franchises of Synchro Tech. Of course, they're not. In his mind he's thinking of them as if they are."

hasn't occurred, so he's just talking as if it is in reality."

Something of the sort seems to be the case with Gorges' talk about his "worldwide" organization of Synchro-Energizer centers ("By 1995 we plan to have 2,500," he told one magazine). For example, he speaks frequently about "his" Synchro-Energizer centers in Japan. The same British journal in which Gorges described his "substantial sales" to the Saudi Arabian royal family states, "Gorges claims that Synchro Tech have just done a \$16 million deal with the Japanese for Energizer centers and that \$200 million of capital is already in the bank to fund further expansions." In an "interview" distributed as part of an advertisement for Gorges's Relaxman, Gorges says "Our current centers in Japan (5), with 15 in 1990 are 2-5 million dollar invest-

ments each, fully computerized, ultra high tech meta brain/mind gyms." In fact, Gorges has even obtained videotape footage of two of the "ultra high tech brain/mind gyms" in Japan, in Tokyo and Osaka, and sources claim he proudly shows it as footage of "SynchroEnergizer centers" to potential distributors or investors.

MEGABRAIN REPORT sat down recently for a meeting with Mr. Yosuke Morimoto, the president of MM International Co. Ltd., the company that owns and operates an expanding chain of brain fitness centers in Japan under the trade name "Brain Mind Gyms." These include the very same "ultra high tech" brain mind gyms in Tokyo and Osaka that Gorges, and advertisements for Synchro Tech, have been claiming are "SynchroENERGIZER™ centers," and which are exhibited in the videotape footage Gorges has been showing to potential investors and distributors as "SynchroENERGIZER™ centers." We asked Mr. Morimoto if his company's Brain Mind Gyms are in some way a part of what Gorges claims is "a broad worldwide group" of "SynchroENERGIZER™ centers." Said Mr. Morimoto, "Our centers are not Synchro Energizer Centers, they are Brain Mind Gyms. They are owned by MM International Co. Denis Gorges is not an owner. He is not a partner."

In essence, it seems that Gorges claims that any center that has purchased or distributes or uses one of his products is a "SynchroENERGIZER™ center." This is an effective method of self-aggrandizement, but it bears little relationship to reality—a parallel situation might be if a company like Tunturi, which makes exercise bicycles and sells them to thousands of gyms, Nautilus centers, fitness centers and health spas, were to publish advertisements boasting "We now operate an organization of 10,000 TUNTURI™ centers worldwide!"

Another Misspelled Signature

As this article was being prepared, I learned that the forgery of my misspelled signature is just one example of what may represent more. Randall Stephens, owner of the "Universe of You" mind center in Corte Madera, CA, that once used the SE but has long since switched to other devices, told MEGABRAIN REPORT that when he was attempting to sever his rela-



tionship with Gorges, and to begin working instead with the InnerQuest machines, Gorges came to his office and began threatening to put him out of business. Later Stephens noticed that the file containing copies of his contracts with Synchro Tech were missing from his office.

Among the documents removed from his office, according to Stephens, were several letters between him and Rob Robinson of Psych Research, maker of the InnerQuest. According to Stephens, his lawyer wrote numerous letters to Gorges asking for copies of the contracts between Stephens and Synchro Tech, and finally, under threat of a court order, obtained copies of the documents from Gorges. "But when they came," says Stephens, "they weren't the ones I'd signed. They'd been altered, and material added. And when my files had been stolen, I couldn't find those letters from Rob; so when Gorges sent these copies of my contracts back to my lawyer, he also, apparently by mistake, sent back copies of the letters from Rob Robinson. There was one letter from Rob to me I'd even doodled on, and when we got those letters back from Gorges, there was my doodle! And I said, 'My God, there's only one way anybody could ever get those letters, there's only one copy, and I had them and they were stolen from my office!'"

Not only had the contracts been altered, according to Stephens, but, "In addition, one of the contracts did not have my signature on it. . . . It was my *name*, but not my signature—it's even *misspelled*, Randell, with an e, instead of my actual name, Randall, with an a."

"See how he traps himself all the time?" Stephens told MEGABRAIN REPORT. "He keeps doing that—he keeps committing self-sabotage and trapping himself See, everything he *projects* about everyone else in this field—that they're cheating, and stealing his patents, and all that kind of stuff—is *exactly* what *he* does. . . . He's got a lot of paranoia in him—its the world against him. That's the way he looks at it. So for him, that's the world he creates."

The Common Thread

In the aftermath of our discovery of Walter Schmidt, Deep Brain remarked to MEGABRAIN REPORT, "You know what strikes me as a common thread through everything with Denis Gorges? It's the difference between

Denis and a legitimate company. In a legitimate company, if they tell you they've done something they're proud of, they invite you to call up their references: 'Call up Chevron, call up Pacific Bell, they'll tell you how delighted they are.' And so you call them, they tell you 'Yeah, we purchased these machines, they're working real great!' Or Walter Schmidt. 'What's his number?' 'Here's his number, call

"There's only one way anybody could ever get those letters," says Stephens, "there's only one copy, and I had them and they were stolen from my office!"

him up and he'll verify everything.' That's what a legitimate company does. Denis is exactly the opposite—there's no way you can ever verify anything that he says, because everything always leads to dead ends. The only reason he really gets away with what he gets away with is because people don't bother to push and try to verify it in the first place, or if they run into a dead end they don't try to get past it.

"I think this article in MEGABRAIN REPORT will make a lot of people stop and think, 'Well, gee, maybe I *should* have checked some of this stuff that Denis was telling me.' And maybe they will do some thinking for themselves."

Discussing the various revelations of the Walter Schmidt affair, Deep Brain told us he felt "elated and excited. What I'm excited about in all this is that everyone was scared of Denis and what he potentially could do. . . in the media and so on. With this new information," Deep Brain said with some satisfaction, "the fear that people have of him will change to joy that finally the facts are known, the truth is revealed, and finally we can move on in our industry."



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the \$24.95 "application" tapes) repeat the same program on both sides. (2) On his dual induction tapes, he speaks a metaphorical script into the left ear (which is neurologically linked to the right brain hemisphere) and a logically progressive NLP exercise into the right ear (for the left hemisphere). (3) A few of Scheele's tapes have as many as five voice tracks, spatially separated. When he goes to multiple voices, he abandons the left-right hemisphere separation and supplies a dominant voice, the non-dominant voices simply supporting the dominant message.

Does Scheele's technique (of scripting the hemispheres independently through the opposite ear) have scientific basis? The ears are cross-laterally connected to the brain, but we don't usually mentally image what we hear through each ear in separate, opposite hemispheres. Many other factors affect mental lateralization of auditory stimuli, such as the nature of the message spoken, the loudness or softness of the sound itself, the background environment, and the general state of arousal or trance. No scientific study has ever proven that we process what we hear in a cross-lateral fashion, and there are many reasons to suspect that we don't, at least not strictly.

The approach has an excellent pedigree, at least. Scheele first saw it employed in public seminars conducted by NLP originators Bandler and Grinder, and then in Ericksonian seminars conducted by Gilligan and Carter. One leader sat to the participants' left and the other to the right, and they spoke simultaneously, weaving their conversations in and out of congruence, each speaking to the appropriate hemisphere's "disposition" or "processing mode." I asked Dr. Thomas Budzynski, the noted biofeedback expert at Seattle's St.

Luke's Medical Center, who has done extensive study and research on hemispheric differentiation and cross lateralization, and he said Scheele's approach may have some merit. "If the messages are spoken at equal volumes, and if they are properly addressed to the appropriate hemisphere, they may well achieve cross-lateral imaging, perhaps with valuable results."

Scheele's usually follows a process of subtle, gentle transitions from a single voice into two simultaneous voices. First, you hear a single flat voice in the middle of your head, then it becomes sonically "round," then it travels, spatially in your head. Then it splits into two voices, one in each ear, but you don't notice at first that the two voices are independent. At first it just seems like one voice travelling back and forth, because they don't overlap, and they

speak in a way that "makes sense." But then the two scripts start to diverge, and the two voices speak in an artful counterpoint that your mind can follow from left to right, like watching a ping-ping game, and the scripts weave together non-sequiturs that feel oddly right, until a third conversation, direct to your subconscious mind, begins to emerge. Finally, the voices begin to overlap, and then the fully-simultaneous "double induction" commences.

According to Budzynski, the cross-lateral effect operates only when the two scripts are fully simultaneous. When you are able to focus back and forth between the two scripts, "the left hemisphere is imaging everything you pay attention to." This phase in Scheele's gradual transition also violates Glauberman's injunction against letting the suggestions become obvious to the conscious mind.

But Scheele knows exactly what he's doing. I was impressed, both in listening to his tapes and in interviewing him, by how thoroughly he has considered every detail of his tapes and the techniques employed in them. He strives to transition invisibly to simultaneous scripts because he observed that more abrupt transitions interrupt the "flow" state he is working to build. "They're simply not worth the cost to

"The second or third listening to the same tape will be a different experience. You will 'sort' each time you listen for resources appropriate to your current needs." —Paul Scheele

the person's state." Additionally, the transitional back-and-forth phase offers the user a different group of choices. "The second or third listening to the same tape will be a different experience. You will 'sort' each time you listen for resources appropriate to your current needs."

Scheele intentionally uses what he calls "thin metaphor." So his left-ear metaphorical scripts are not as complex and rich as Condon & Erickson's, nor are they as entertaining and magical as Glauberman's. But when he combines it with the NLP induction on the right track, he produces something unique: frequent points of convergence between linear and metaphorical scripts. He feels this has a unique level of effectiveness in keying subconscious

learning and change. "It is extremely unnatural to hear the same voice speaking in two completely different ways through both of your ears. This drops you into a different state of mind. And when there is convergence between these two totally different experiences, all the lights go on! There is a profound state of subconscious recognition. It is very powerful to hear these two different styles suddenly finishing each other's sentences."

Scheele's approach is unique in another way also. The storytelling of Glauberman or the metaphorical work of Condon and Erickson can only be evaluated as works of art. One can only judge their successes subjectively and empirically. On the other hand, there is a "right" or skillful and effective way to conduct the NLP exercises on the right track of the Paraliminal tapes. He intends that these be usable separately from left track; thus, by swinging the balance knob all the way to the right, the tapes can be used while fully conscious to lead you through a behavior-changing NLP reframing exercise, for instance.

The Paraliminal Tapes are definitely the most expensive per program of those reviewed here. At the same time, they are excellent and unique tapes, with extremely high production values. The \$34.95 tapes, New Behavior Generator and New History Generator have different programs on both sides. So the Paraliminals average \$15-20 per hypnotic program, and many of the titles, at \$14.95, are within almost anyone's budget. By the way, personally, I don't mind a tape with the same program on both sides. I like to use the types of tapes reviewed here many times, and I appreciate not having to rewind them. Criticisms? I didn't like the inductions so well; Scheele frequently uses a visual induction technique involving looking at a spot and closing the eyes. As a more auditory and kinesthetic individual, this was the only feature of Scheele's tapes that put me off.

Which are best? It's a personal matter. I particularly enjoyed the unique, truly refreshing *10-Minute Supercharger* (It works!) and the excellent, rich *New Behavior Generator*. *Sales Leap* is utterly unique among sales resources — and subconscious programming tapes! — in that it anchors the suggestions with musical tones, which it offers repetitively, scripting an internal "tune-up tune."



THE MEGABRAIN FORUM

Thank you! We appreciate your thought-provoking and insightful responses to **THE MEGABRAIN FORUM**. The Forum poses questions to our readers on a regular basis. In future issues we will print selections from the responses we receive, together with comments on this question by prominent researchers or authorities in the field.

In our inaugural issue, **THE MEGABRAIN FORUM** posed a question which we will restate again: Various machines can be used to attain optimal brain states, also called peak experiences. Some machines (such as Light and Sound Machines, Beat Frequency audio tapes or binaural signal generators and certain Cranial Electro-Stimulation devices directly *induce* such states. Biofeedback offers a technological assist to the autoregulation of such states. Various forms of meditation represent traditional methods of self-generating these same optimal states. Or are they the same? Our question offers you an opportunity to comment: Is there a difference between the optimal brain states achieved through (a) meditation, (b) biofeedback, and (c) other "brain machines."

Please send your responses to:

THE MEGABRAIN FORUM
P.O. Box 2744
Sausalito, Ca 94965

We welcome your responses to this question, brief or extended. Your response will become a part of our Megabrain Report Archives, and responses which are particularly focused and quotable will find their way into the pages of **MEGABRAIN REPORT**. We hope to hear from you!

■ EDITORIAL CONTINUED

The organization would, of course, encourage and facilitate the flow of information about consciousness technology among all its members. In doing so, it could help bring together, for example, manufacturers, users and scientists, to establish research priorities and encourage research in those areas. (Note the disparity of views on the effects of white incandescent lights versus red LEDs expressed in this issue—surely this would be an area in which such an organization would encourage research.) It would oversee periodic meetings or conventions at which new research and new information could be exchanged, and at which members could establish networks, view and experience new technologies and do all that rousing kind of stuff that's done at conventions of leading edge technologies.

Such an organization, by linking us all together in pursuit of information, honesty, responsibility and quality, could work to emphasize to potentially skeptical outside observers (ranging from the news media to the FDA to grant-giving organizations to university science departments) the scientific legitimacy and cultural importance of the field. By emphasizing hard scientific research, integrity, responsibility and real information, the field can insure that it will avoid the dangers of suppression (such as the suppression of electromedicine that followed the Flexner Report in 1910, and the suppression of research into mind-altering drugs that began in the 1960s).

By emphasizing cooperation rather than competition, such an organization could help speed up the process that interests us all: finding increasingly better ways of helping

humans use their brains as effectively as possible.

The fact that so many people have felt the need for this organization means, to me, that such an organization already exists. As yet, perhaps, we only sense its morphic resonance. What is lacking is the right individual to oversee the crystalization process around its morphogenetic field. So **MEGABRAIN REPORT** joins these manufacturers, scientists, and explorers of consciousness technology who have expressed their desire for such an organization, in calling for that individual, who has the curiosity, time, energy and financial resources, to step forward. Now's the time.

—MH



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