



Volume 2, Number 1

MEGABRAIN

R E P O R T

THE JOURNAL OF MIND TECHNOLOGY

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MEGABRAIN REPORT

EDITORIAL

Here we are again!

Here we are again! Since the last issue of MEGABRAIN REPORT, the magazine has undergone some changes that may not be immediately obvious in its overall appearance, but will have profound and beneficial effects on the frequency and regularity with which MBR appears.

Hitherto, as many subscribers are aware, MBR has been largely a one-man operation, with me not only writing a substantial part of the publication, but also editing it, and overseeing all the myriad details of layout, printing, mailing, maintaining subscription lists, etc. As we've discovered, it has been too much for me to accomplish with any sort of regularity, if I want to continue with my other writing projects.

In the last year, among other projects, I have completed a new book, MEGABRAIN POWER, which will be published in early 1994, and a new series of peak performance audiotapes, MEGA BRAIN ZONES, which are now available. The result has been that, even while I had many of the articles for issues 5, 6 and 7 already written, in hand, and ready to print, the magazine had to be put on the back burner, to the dismay of many subscribers. For your patience, I'm enormously grateful. For your inconvenience as a result of the delays between publications, my deepest apologies.

However, MEGABRAIN REPORT is now owned and published by a new company, Megabrain Communications, Inc. Among those joining me in this new enterprise are Alex Kochkin (whose article proposing a Mind-Body Database and Information Service was published in MBR #3), and Dennis Campbell, an expert in consciousness technology and EEG. Alex, whose letter to readers appears on this page, is undertaking the responsibility for publishing the magazine, from overseeing the printing and mailing, to making sure that each issue goes out on schedule. At last, we can now state with reasonable certainty that MBR will be published regularly! For the time being, that means that it will be a quarterly, with a new issue each three months.

We have an extraordinary variety of articles lined up for future issues, including our special issue on the exciting breakthroughs in EEG biofeedback, new EEG research, new EEG systems, and how EEG is being linked to other brain machines, such as light/sound systems. Alex and I will also be exploring the possibility of publishing a smaller Megabrain professional newsletter, bringing the latest information to all those therapists and other professionals who are using brain tech in their practice.

So here's MBR #5 (Vol. 2, Issue 1). I think you'll find it timely and wide-ranging. Dr. Julian Isaacs brings us up to date on the recent developments in the field. Dr. Walt Jessen has contributed a powerful and insightful article about flotation and personal change. Several articles, including Scott Preston's expose of the FDA, Dr. Ross Pelton and Lee Overholser's update on "Smart Drugs: The Second Generation," and my own piece on "Techno-Shamanism and the Democratization of Bliss" address directly or touch peripherally upon the problem posed by the FDA's fierce opposition to cognitive enhancing nutrients, consciousness technology and preventive and alternative medicine.

I urge all readers to write your representatives in Congress, telling them to oppose the dangerously repressive agenda of the FDA, and to support the Hatch-Richardson bills now before Congress (S. 784 and H.R. 1709). In addition to writing, call: the Capitol switchboard is 202-224-3121.

Michael Hutchison

Letter from the Publisher

Dear Reader,

As one of the investors in Megabrain Communications, I have assumed the responsibilities of CEO and publisher.

Some immediate goals for Megabrain Communications include:

- a major circulation expansion for MB Report
- development of new tapes, videos, books
- introduction of a professional bulletin focusing on clinical applications
- a comprehensive directory of providers of psycho-technology products and services, etc.

I am interested in hearing your ideas. Please feel free to write. Until we add more staff to handle our increasing phone activity, may not be able to return calls as promptly as I would like. However, if you do need to get hold of us quickly, please do call.

Nearly all my life I have been keenly interested in the Big Questions concerning who we are and why we are here. For the past several years, I have explored various modalities for consciousness growth and healing. Professionally, I have over 15 years' experience in market research, product development and marketing management; and I maintain an interest in the consulting and research firm which I co-founded, ASK* Marketing and Research Group.

Alex Kochkin

P.S. To our subscribers, - a special thank you:

We are all very grateful that MEGABRAIN has strong supporters like you. In appreciation for your enduring patience with the hiatus in publishing this report, all current subscribers will receive a one-issue extension to their subscription - so if you have subscribed for one year, you will get a fifth issue free. To help clean up the record keeping, with the next issue, you will get a statement concerning your subscription account.

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MEGABRAIN REPORT

TECHNO-SHAMANISM AND THE DEMOCRATIZATION OF BLISS

The Laughing Buddha:

by Michael Hutchison

WHO WANTS TO SLEEP (WHEN THERE'S A PARTY GOING ON?)

The neuroscientific breakthroughs of the last decade have established beyond doubt that given the proper type of stimulation, the ordinary human brain has extraordinary or exceptional powers, that what we call "normal" consciousness is in fact a sort of sleep from which we "awaken" when we enter peak or heightened states. And, as the neuroscientific research has made clear, these nonordinary or "metanormal" powers are not mysterious, but the result of clear and quantifiable changes in the patterns of neurological activity of the brain.

We've all had the experience of shifting into a heightened or metanormal state – call it lucidity, insight, mastery, wisdom, enlightenment, grace, bliss, satori, creativity, learning, waking up – a state in which we know beyond doubt that our ordinary state is a deep sleep compared to this rich awakening. And we know too, this is how we should be all the time. After all, sleep is a fine and restful state, but who among us would choose to spend our entire lives in even the most comfortable bed? Most of us would like to be in this high-gear, high-efficiency state as often as possible.

In fact, it has become clear that humans are genetically programmed to seek out these altered, awakened states. I believe, and recent evidence supports my belief, that a key to human evolution, to our species' rapid growth in brain size, and to our unique creative capacities, has been our instinctive drive to experience these metanormal or exceptional realms of consciousness and performance. From kids who spin themselves into dizzy altered states and euphorically roll down hills, to performers, surgeons, rock climbers, chess players or creative artists who find that the most vital and

rewarding parts of their lives occur when they're in a state of "flow," humans naturally crave the experience of being awake.

Psychiatrist Stanislav Grof, M.D., who has spent his career studying the effects of nonordinary states of consciousness, observes that "the transcendental impulse is the most vital and powerful force in human beings." This human impulse to connect with the spiritual domain, Grof has found, is so powerful that "It resembles, in its

nature, sexuality, but is much more fundamental and compelling."

Michael Murphy, founder of Esalen Institute, and author of *The Future of the Body*, a massive compilation of examples of exceptional human performance, has classified exceptional or peak performance into a dozen different realms, among which are:

- Extraordinary perceptions of things outside ourselves, such as transcendent beauty in ordinary things;

- Exceptional somatic or body awareness, such as voluntary control of blood pressure or heart rate;
- Nonordinary communication abilities, such as the communication of thoughts and mental states;
- Phenomenal vitality, as when we perform "superhuman" feats;
- Extraordinary movement abilities, such as uncanny athletic agility;
- Inexplicable abilities to influence events at a distance, such as spiritual healing;
- Exceptional abilities to alter pain and pleasure, such as delight that persists despite sickness or adversity;
- Extraordinary cognitions, such as creative insights, mystical experiences, and the works of genius; and
- Love that transcends personal wants and needs and manifests a fundamental unity with others.

All of us exhibit each of these attributes in an ordinary way. But we can also manifest these attributes in an extraordinary or metanormal way. In the right place, at the right time (when your child is trapped under a car, when you're under extreme pressure, when you suddenly fall in love, when you take a certain psychedelic substance) and so on.

We all perceive external events, for example, to take the first attribute on Murphy's list – we perceive the doorbell ringing, we perceive the voice of a friend talking to us. But we've all had the experience of perceiving external events in an entirely different way – with a sudden cleansing of "the doors of perception," a seeing of "ordinary" reality with extraordinary new sense of clarity, significance and illumination.

We all have movement abilities, but many of us have experienced times – often in sports – when we are suddenly playing "in the zone," when the baseball speeding at you seems so big and slow you can count the stitches and see which way they're spinning, when you effortlessly drive the golf ball 50 yards farther than you ever have before, when you suddenly execute with ease a perfect and seemingly impossible backhand.

In virtually every aspect of our lives, humans are capable of performing exceptionally – in a peak state.

There is now strong evidence that these experiences are essential. Without our moments of being awake, in the zone, we become sick. As Stanislav Grof observes, "human beings have a profound need for transpersonal experiences and for states in which they transcend their individual identities to feel their place in a larger whole that is timeless. This spiritual craving seems to be more basic and compelling than the sexual drive, and if it is not satisfied it can result in serious psychological disturbances."

In virtually every aspect of our lives, humans are capable of performing exceptionally – in a peak state.

"The transcendental impulse is the most vital and powerful force in human beings... It resembles sexuality, but is much more fundamental and compelling."

MEGABRAIN REPORT

THE LAUGHING BUDDHA CONTINUED

IN SEARCH OF TOOLS FOR WAKING UP

A central thread running through human history has been the quest for effective and reliable techniques for entering these awakened states – “spiritual technologies.” Humans have devoted an enormous amount of ingenuity and effort to finding gateways to this realm of lucidity. And in their compulsive pursuit of these transcendental experiences, humans have always used the most advanced technology available to them, from the earliest technology of creating and manipulating fire and light, to the technology of drums and chants, onward through human history. Technology, after all, comes from the Greek words technos and logos, meaning, in essence, an organized way of using reason, or the systematic application of a body of knowledge. Using technology, then, has much to do with what it means to be human.

Mind machines can be seen as our own technological culture's spiritual tools: techno-shamanism.

One of the most ancient spiritual technologies is shamanism. This pragmatic system of mind-body techniques is, in the estimation of anthropologist Michael Harner, at least 30,000 to 50,000 years old – probably far older – and surely emerges out of techniques developed over the course of human evolution. Out of shamanism and paralleling it have emerged a vast number of other spiritual technologies, including the mind-body exercises of yoga, and a rich variety of esoteric schools, mystery cults and technological rituals, including gnosticism, Sufism, Kabballism, trantricism, taoism, alchemy and meditation. In exploring these spiritual technologies, humans have pounded on drums, danced, chanted, fasted, tried different ways of breathing, stood on their heads, spent years in dark caves, prayed, muttered magic phrases, eaten wild herbs and plants, gazed into fires, devised odd sexual practices, contemplated symbols, created stirring rituals. And the ingenuity and effort paid off. Humans have devised a variety of technologies for entering peak states that really do work. One example is the vast array of meditative practices, including types of chanting, dancing, breathing, sitting still, moving, maintaining control over the mind. They work. But a problem is that for most people they only work imperfectly, unpredictably. It's interesting to note, for example, that studies of the brainwaves of many people who claim to be “experienced” or “long term” meditators have revealed that a substantial number of these individuals are actually only in a state of light alpha – a relaxing, passive state, but quite different from the distinctive brainwave patterns of true, deep meditative states.

And perhaps the most frustrating and discouraging aspect for many about the various spiritual technologies is that they often require enormous amounts of practice – hard, rigorous discipline – before they really work powerfully and reliably. Studies of Zen monks, for example, have shown that

for the most part, virtually the only monks who can get into the deepest state of Zen meditation quickly and at will are those who have meditated for over 20 years.

So throughout human history, the awakened state – lucidity, illumination, mastery, serenity, ecstasy, grace – has been for many a tantalizing goal.

Sometimes it emerges, out of nowhere, spontaneously, and for a few moments we are there. And then, it is gone again. As despite the wealth of spiritual technologies available, most of us have discovered, it's no easy thing to enter these peak performance domains at will.

TECHNO-SHAMANISM AND TOOLS FOR TRANSCENDENCE

All that has changed forever as a result of recent breakthroughs in neuroscience and technology. First, scientists have begun to discover what happens in our brain when we enter those nonordinary states, and they have found that the brain undergoes a number of clear and quantifiable changes, including changes in brainwave activity and patterns of brain activation.

What's more, it's now clear that it doesn't require years of training or mysterious meditative powers to produce these unique patterns of brain activity associated with peak brain states. In fact, the scientists have found that these changes can be actively and quickly induced using external mechanical stimulations or devices such as flickering lights, minute electrical current, flotation tanks, precise combinations of pulsating sound waves, or rhythmic physical movement.

Out of these discoveries have emerged a variety of high-tech gizmos that hundreds of thousands of people are now using regularly to experience altered, enjoyable and in many cases awakened or transcendent states. In other words, science has now revealed that mind machines can be seen as our own technological culture's spiritual tools: techno-shamanism.

It's important to note that a variety of studies emerging over recent years has suggested that the mechanically induced peak states seem to be as “real” in their psychobiological effects as the peak states attained through rigorous meditative practice. Because, of course, being able to produce the physical brain patterns of meditation in someone is interesting, but as we all know, there's a big difference between someone who's mechanically producing the patterns of a dance step, and actual dancing.

But repeated testing has made it clear that, for the subjects being stimulated, this mechanical stimulation of the brain could produce subjective experiences that seemed qualitatively identical to or indistinguishable from the heightened states attained by traditional techniques. For example, it's now apparent that people who use such brain-tech tools as light and sound (LS) devices, flotation tanks, cranial electrostimulators (CES), acoustic field

systems (or "sound beds") and more, can undergo profound beneficial personality transformations, experience life-altering spiritual insights, and more.

POWER TO THE PEOPLE

Perhaps the most intriguing and important conflict throughout human history has been the continuing struggle between the forces of authority and those individuals seeking freedom to follow their own exploratory impulses. The forces of authority, aware that their power over others rests on maintaining the status quo, have throughout the ages attempted to restrict social change by controlling or suppressing the flow of information. The seekers of social change and individual freedom, on the other hand, have always attempted to spread new information as widely as possible. Compare, for example, the jealous guarding of information by ancient rulers, emperors and church authorities with the command of Jesus to his disciples to "go out into the world and spread the Gospel." In the area of spiritual wisdom and spiritual technologies, this has meant that throughout history those in positions of spiritual authority, those in control of the spiritual technologies, and who seek to maintain power, have attempted to keep the spiritual technologies secret. Thus they have perpetuated the tradition of spiritual "mysteries," known only to a small circle of initiates, passed down to selected individuals who will perpetuate the tradition and maintain the secrecy – and the authority – of the spiritual technologies.

On the other hand, the seekers of change, wanting to spread information as widely as possible, have always sought to tear away the veil of secrecy that has hidden the spiritual mysteries. Thus, one central impulse throughout history has been to find ways of systematizing and simplifying spiritual technologies to make them more easily taught, and to provide access to the core mystical experience to as many people as possible. As an example: for millennia, the mysteries of how to attain states of spiritual ecstasy was kept secret, passed down in monasteries and mystery schools from master to pupil.

But then, as Dr. Herbert Benson observes in *The Relaxation Response*, by the twelfth century... it was realized that this ecstasy could be induced in the ordinary man in a relatively short time by rhythmic exercises, involving posture, control of breath, coordinated movements, and oral repetitions.

In many ways the western rationalist, materialist scientific tradition of the last five hundred years can be seen as an attempt to systematize and make accessible to all – that is, to democratize – these mystical experiences. Power to the people.

One central impulse throughout history has been to find ways to provide access to the core mystical experience to as many people as possible.

The development and explosive growth of printing, for example, made it possible to pass along to an infinite number of potential readers essential information about spiritual technologies that had previously had to be laboriously handed down from teacher to pupil, from generation to generation.

Yet there have always been those in authority – from the hierarchy of the medieval Catholic Church, to dictators ruling large populations of "peasants" – who have feared the spread of literacy, and attempted to keep books out of the hands of the masses.

HIGH PRIESTS OF SCIENCE AND THE NUCLEAR MYSTERY

The development of modern science was to a large degree an attempt to reveal to human understanding – that is to the understanding of anyone who was interested, not just to an inner circle of those in power – the coherent, mystical order or organizing principle of the universe. However, even in science the conflict between those who desire to maintain authority and power through secrecy, and those who seek the free flow of information, has continued. Science has always had its "mystery schools" of those who have tried to keep important scientific information secret, out of the hands of those who might use it to upset the power structure. Consider, for example, the extraordinary security measures taken by the U.S. government to keep the secret and maintain the "mystery" of making nuclear weapons, from the Manhattan Project until the present. On the other hand, the seekers of change, the scientists who believe in the free flow of information, that is the democratizers, have for many years believed that the best way to keep nuclear weapons from being used as tools of control by various power cliques or authoritarian power structures, is to spread the information to all.

However, despite its stated goal of understanding and revealing to all the essential mystery, the coherent order of the universe, modern academic and materialist science, with its emphasis on a limited definition of reality, has generally denied and repressed the transcendental impulse. As Grof notes, "Within the present century, academic psychology and psychiatry dismissed spirituality as a product of superstition, primitive magical thinking, and outright pathology." But the spiritual drive is so powerful that orthodox science has been unable to suppress it. It now seems clear that this transcendental impulse is rooted in our genes, an instinctive and essential component of our human nature.

"Academic psychology and psychiatry dismiss spirituality as a product of superstition, primitive magical thinking, and outright pathology." Condemning mind machines because they do not automatically make you a better person is like condemning airplanes because they don't automatically turn you into a saint.

MEGABRAIN REPORT

Abraham Maslow pointed out that virtually all humans report having a profound sense of "unitive consciousness" at some point in their lives. Even in this most secular and materialistic era, a recent survey of Americans found that nearly 90 percent of them described themselves as strongly "religious" or "spiritual."

More astonishing is the substantial number of Americans who report having what can only be called mystical experiences. A 1989 survey found that fully a third of them answered a resounding yes to the statement "You felt as though you were very close to a powerful spiritual force that seemed to lift you out of your self." And a full 12 percent claimed that they had experienced this transcendent feeling "often" or on numerous occasions.

NEUROSCIENCE AS A SPIRITUAL QUEST

Says Arnold Scheibel, professor of medicine at UCLA, speaking of himself and his wife, Marian Diamond, neuroanatomist at UC Berkeley, "We like to think that somehow the brain in a sense will become the religion of the future..." In many ways it makes most sense to see the Brain Revolution as a spiritual quest: a sudden blossoming of scientists driven by a compulsion to understand the mystery of the universe by understanding the workings of the "last frontier," the most complex system in the universe. Spiritual seekers using all their sophisticated technology to uncover what happens in this mysterious human brain when it is going through the ineffable experience known as illumination or transcendence. As neuroscientists have learned in recent years, these experiences of awakening are linked to certain clear physiological changes in the brain, including alterations in the chemistry of the brain, and changes in the electrical activity of the brain.

The shining way is a path that can be hiked just as well on a 747 as on the Interstate highways of America.

It has been established beyond doubt that mind machines, can produce the very same dramatic alterations in brain chemistry and in patterns of brainwave activity that are found in individuals spontaneously undergoing transcendent, metanormal or transpersonal experiences. It makes sense to assume that by reproducing the same patterns or fluctuations in brain chemistry and electricity, the mind tools can actually induce these extraordinary experiences.

There is a wealth of evidence, in the form of scientific research, clinical evidence and reports by thousands of individuals, that the mind tools not only can but do produce spiritual experiences for many of their users.

ARE YOU A BUDDHA CHEATER?

The possibility of technologically induced peak performance states is breathtaking in its implications. But it's essential to emphasize that while it's clear that the mind machines allow users to experience these heightened states, they don't guarantee it.

A recent article about mind machines in *Yoga Journal* condemned them, claiming that "Plugging yourself into a machine is not automatically going to make you a deeper or finer person." The writer, a long time meditator, said he feared that to use them would mean that he had to "write off the last 20 years of [meditative] practice as a waste of time." In his opinion, they did not automatically produce a state that was identical to meditation, and therefore were attempts to "cheat the Buddha."

Evolution has given us a chemical reward system for behaviors that enhance our survival: this includes eating, sex and having new ideas.

If such cranky nonsense were not so dangerous it would be humorous. Condemning mind machines because they do not automatically make you a better person is like condemning airplanes because flying in one does not automatically turn you into a saint. Like airplanes, mind machines are simply tools: modern technology applied to expanding human powers and capabilities. Humans have always wanted to get from one place to another. The technology of movement has evolved from walking through riding animals, riding in carts, ships, steamships, trains and so on. So today, there are a lot of ways to get from New York to Los Angeles. You can walk, ride a horse, bicycle, drive a car, etc. If you walk, you'll definitely spend many weeks, meet a lot of people along the way and have a whole bunch of interesting and life-altering experiences. Or you can fly. But whether you walk for three months or fly for six hours, you reach the exact same place: Los Angeles. You will definitely arrive a different person if you walk than if you fly, but you're still at the same place. What you do there is up to you: you can seek God, go surfing, get high, or buy a gun and go shoot up a fast-food outlet. Mind technology, like air-planes, can get you places very quickly, and very reliably. Just because many of us choose to fly doesn't mean we don't choose to walk sometimes, or condemn those who choose to walk all the time. Just because I generally choose to fly between Los Angeles to New York doesn't mean, as the *Yoga Journal* writer would suggest, that "I have to write off 20 years of walking as a waste of time." In the realm of human spiritual growth, nothing is ever wasted. And choosing flying instead of walking in no way "cheats the Buddha." As the Buddha said, "Everything arises and passes away... When you see this, you are above sorrow. This is the shining way." I believe the shining way is a path that can be hiked just as well on a 747 as on the Interstate Highways of America.

THE LAUGHING BUDDHA: ON THE EVOLUTIONARY VALUES OF SEX, FUN, INFORMATION AND MIND MACHINES

Such criticisms as those of the Yoga Journal would be comical, like some old codger in 1920 yelling at people whizzing by in cars to "get a horse!" Except in this case, such ignorance can lead to the suppression of important technology, and the suppression of information that can lead to crucial social change and evolution. The writer of the article, after first claiming mind machines can't be of any value because they're too easy and too much fun ("True meditation... isn't blissing out in a chaise longue, but barely surviving in a house on fire"), then paradoxically claims they're too dangerous to be made available to the general public (they're so powerful they expose people to dangerous things hidden within their subconscious), and suggests that the FDA may soon move to regulate or control access to mind technology. Such a move would, in essence, make mind machines available only by prescription, or illegal, and have a disastrous effect on the serious scientific research into brain technology that is now underway and advancing at an accelerating pace. The FDA has already shown its willingness and eagerness to suppress "dangerous" performance-boosting technology in the form of cognition enhancing "smart drugs," despite an enormous body of evidence that such smart drugs are both safe and effective. It is now attempting the same sort of suppression of vitamins and nutrients. (see "The Problem with the FDA" elsewhere in this issue). Those who scoff at the possibility of the FDA making mind machines illegal should

Authoritarian systems depend on people acting in predictable ways.... Information, or novelty, by creating unpredictability, threatens their stability and authority.

remember the fate of Wilhelm Reich, psychedelic drugs and other such dangers to the American people.

I believe that the flow of information should be unimpeded. Information, by one scientific definition, is inversely related to predictability: i.e. anything that's 100 percent predictable contains no information. Another way of saying this is that information is related to novelty and unpredictability.

And information makes people behave in unpredictable ways. Information is also fun – neuroscientists have documented how the learning centers and the pleasure centers of the brain are virtually one and the same: having a new idea causes a rush of euphoria-producing neurochemicals, such as dopamine and endorphins. Evolution has given us a chemical reward system for behaviors that enhance our survival: this includes eating,

sex and having new ideas. Wisdom (illumination, waking up) and mind machines are both also fun.

Both can make us behave in unpredictable ways. The Buddha was a Laughing Buddha, who taught that wisdom emerged unpredictably.

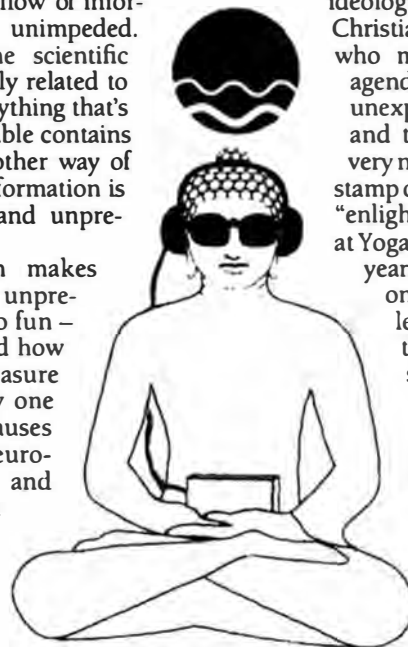
WHY AUTHORITARIAN SYSTEMS HATE WHATEVER'S NEW

As I pointed out at the beginning of this article, throughout history authoritarian systems or power structures have by necessity attempted to restrict the free flow of information. Why? Because information, or novelty, by creating unpredictability, threatens their stability and authority.

Authoritarian systems depend on people acting in predictable ways. For similar reasons such power structures also suppress fun. And sex: throughout history all authoritarian systems, from religions to armies, have attempted to control and suppress human sexual energies in one way or another.

There's no doubt that mind technology can be a powerful source of new information in the world. And while mind machines, as the Yoga Journal writer observed, may not automatically make you into a finer person, what the hell – neither does sex. But I'm not going to give it up on that account. Simply by plugging us in – to ourselves and to others – they can provide us with an infinite amount of information. Sounds like fun to me. So obviously, mind machines (like fun and sex) constitute a threat to some in positions of power, who would like people to behave in predictable ways, and who would like to maintain the status quo. They also are a threat to individuals who have invested much of themselves and their lives in

following authoritarian doctrines, dogma or ideologies. Such as fundamentalists – Christian, Muslim, Marxist. Such as those who must follow a Politically Correct agenda that automatically condemns the unexpected, the unpredictable, the novel and the unprecedented, since by their very nature they cannot come bearing the stamp of Political Correctness. And such as "enlightened" New Age folks like the writer at Yoga Journal who've apparently spent 20 years of meditative practice learning only what they have been taught to learn, fearing to experience first hand the laughing Buddha's unpredictable shining path.



MEGABRAIN REPORT

Psycho-technology: Its Present & Future

by Julian Isaacs, Ph.D.

One of the many positive features of Megabrain Report is that it encourages us to think globally about psychotechnology as a growing scientific field and technology. Here, I want to ascend from the specific to the general, to consider our field from the longer perspective and from the point of view of its development as a scientific discipline. I shall do a bit of crystal gazing too, to try to predict its future development. What place will psych-tech have in our culture by the year 2020?

FROM THE STEAM ENGINE TO MAGICAL TECHNOLOGY TO PARADIGM SHIFT?

First, is psychotechnology itself a sufficiently unified field of endeavor to survive as a "natural kind", an area of study which could be consolidated sufficiently to generate future university departments bearing its name? I strongly believe it could. I think the advent of psychotechnology bears the seeds of an important paradigm shift, an important development of the way we as humans view ourselves, which would unify the field and give it a broadly based theoretical foundation and a coherent approach to applications. I develop this theme below.

The answer to the question whether psychotechnology will actually survive and grow as a separate scientific discipline is not so clear. There are so many competing claims to psychotechnology's areas of study from other scientific disciplines.

What we have now is essentially a "magical technology" which shows great promise, but in which the technology and applications are far outstripping the fundamental research that would ordinarily lead to the development of the technology.

While we as psych-tech enthusiasts can see our field somehow as having a separate integral existence as part of applied psychology or applied neuroscience, the existing specialisms - biofeedback, psychotherapy, humanistic and transpersonal psychology, parapsychology, medicine, anthropology, social science, education, etc. each stand poised to claim that part of psychotechnology which overlaps their territory. They are already organised to engulf the areas of psych-tech which are "respectable" enough for them to find desirable. Yet there is much about current psych-tech that repels such a take-over, like the often exaggerated or as yet ill-founded claims of manufacturers, the absence of a solid foundation of research demonstrating

effectiveness of much of present psych-tech in its applications, and its high-tech "kookie" image. There remains also a prejudice, bordering on religious fervor, notably in the biofeedback community, against any form of state-altering technology founded on simply driving the state of the person rather than providing feedback so that classical learning can occur. What we have now is essentially

a "magical technology" which shows great promise, but in which the technology and applications are far outstripping the fundamental research that would ordinarily lead to the development of the technology. It's a magical technology because we don't yet really know how it works, even though it seems to work and lots of us use it. In the history of human development, like nuclear power, often it's science first, then technological applications. But this pattern is not universal. As with the invention of the steam engine and many other useful technologies having high value, the marketplace has spurred psych-tech into rapid advance, ahead of the kind of solid slow research that is needed to lend full scientific credibility. This has a few advantages. It's exciting, the field is open to anyone to make useful discoveries, creativity has not been stifled by institutionalisation or, for example, the deification and inflation characteristic of medicine in America. But there are many dangers. We might pursue chimeras, fool ourselves, or just create a deviant, marginal subculture devoted to kookie machines and far-out experiences, eventually to get our knuckles rapped by the FDA and all our toys taken away from us by the big boys who know how to run their respectable mega-corporations. The "Bass-Ackwards Growth Paradigm Psychotechnology" is both a science and technology: science insofar as we are exploring the properties of the interface between consciousness, performance and state induction techniques, including machine technology - and we need to understand this area as deeply as possible; technology insofar as the aim is always to extend human experience and abilities, to push the envelope of performance, to develop useful applications which add to the sum of human capability - and we need processes and machines to help us do this. As such it seems likely that if there really are applications that do substantially improve the human lot, then the technology will survive. But will it birth a separate scientific discipline of psychotechnology? Here we could look at the usual ways that new scientific disciplines develop. Typically, research in the area of the future specialisation develops in separate institutions and then an informal community of investigators grows. Eventually, founding conferences are convened, a name is generated for the field and academic journals are created, textbooks are written, students recruited and university departments opened to institutionalise the study of the field. Eventually applications are developed and a new technology is born. Given this model, where are we? "Bass-ackwards" development characterises our field. We have the technology before the development of a community of commu-

Not only this, but most of the founding techniques have already been developed by existing clinical specialties or have been practised for millennia by mystics and magicians.

nicating scientists investigating the foundations on which the technology is based. Not only this, but most of the founding techniques have already been developed by existing clinical specialities or have been practised for millennia by mystics and magicians. For example, biofeedback pioneered the investigation of various types of machine-assisted deep relaxation techniques and the induction of altered states by brainwave manipulation. Clinical psychology has utilised and developed hypnotic trance techniques for more than a century. The use of imagery was initiated by mystics, healing and magical practitioners, long before psycho-tech developed. Subtle-energy based consciousness modulation devices, if one includes them as part of psych-tech, are probably almost as old as our history as a species (when did magic get invented?). So none of this is really new, is it?

However, as I hope to elaborate in a separate writing at much greater length, we may be on the verge of a paradigm shift which will enable us to see the world (in this area) as never before, to see old behavior with new eyes, with new understanding. The core of such a paradigm shift is the realization that humankind has used state altering social rituals and behaviors since stone-age times, and still does so, ubiquitously, in all societies. All of this is psych-tech even if no visible technology is used, because it all involves need satisfaction by alteration of consciousness. But the big secret is that this feature of human life is usually invisible to the participants, because the social forms are so taken for granted, as is ingestion of state altering substances, that none of us realize how much of our lives is bound up into the modulation of our

conscious state until we view this behavior from the vantage-point afforded by consideration of psychotechnology. Anthropology and social psychology have studied such rituals and social forms for decades, but without the necessary awareness of the state-altering properties of such forms, so that their linkage with drug use and more overt state manipulation technologies has not been appreciated.

What's new about psychotechnology as a field is that it encourages us to think about the commonalities between all state-altering procedures, substances and devices, allowing us to class them all together under the common rubric of "state alteration in service to needs". This is the paradigm shift and it leads to an increased understanding of ourselves as the species which expends so much energy modulating its conscious state in service to its ever changing activities.

This is the paradigm shift which could unify our vision of psychotechnology and lead to the field's emergence as a new cognitive entity. It is the generality of the

concept of psychotechnology which is of crucial significance here. This concept no longer limits consciousness technology to one application or even to one field of application, which the specialities have done so far, but embraces the global view, the view of consciousness and behavior (and hence also performance) as complex interpenetrating interactive systems amenable to controlled forms of influence from many sources, including high-tech sources, applied to any human need which could be met by such resources. This is the paradigm shift required in our thinking, to see the universality and generality of this orientation. But before such a shift can be comprehended societally, it has to be framed so as to make this view acceptable and coherent. Michael Hutchison's "Megabrain" was a seminal work in many ways, and communicated the overall vision, but this needs following up with a more academic and scholarly corpus of literature to establish the argument I am framing here.

PSYCH-TECH APPLICATIONS AND THE HIERARCHY OF NEEDS

In considering the future of psychotechnology, clearly its progress will to a great extent depend upon whether it can satisfy real needs. Given the generality of the new viewpoint I am outlining here, one perforce has to think more globally about its potential applications. Applications can be usefully organized by considering what needs they serve. A useful frame here is the hierarchy of needs identified by Maslow. As I have stated above, we find already existing state-altering rituals, processes, substances and techniques satisfying important individual and social needs by the score, disguised because of their very familiarity and embeddedness within the social fabric of our lives and by the obvious feature that as yet, high tech devices have not been incorporated into their forms. But the needs are there and many of them may be addressable using the new technologies if we could only creatively envision these applications.

SURVIVAL

Taking the lowest level need first - survival - business and other skills needed in the highly competitive world of the 90's can benefit from the superior performance seemingly promised by psychotechnology. It offers improved creativity, productivity and decision-making. Most crucially for our increasingly information-based culture, it may significantly enhance learning, memory and intuition.

But the most fundamental survival application of psych-tech, which also right now sells the majority of products today, is driven by our need for relief from the huge stresses imposed by our lifestyle. It has become clear that the major direct and indirect source of illness and mortality in the so-called developed world

This is the paradigm shift and it leads to an increased understanding of ourselves as the species which expends so much energy modulating its conscious state in service to its ever changing activities.

MEGABRAIN REPORT

PSYCHO-TECHNOLOGY: ITS PRESENT & FUTURE CONTINUED

...If psych-tech can really deliver the goods in reducing stress and relieving our bodies and minds of the tensions of our age, consistently, reliably, and over the long term, it will have made a massive positive contribution to our individual and collective wellbeing.

is stress, in the US usually caused by the work situation. As evidenced by a recent positively toned review in Forbes Magazine's "FYI" supplement, psych-tech relaxation is really needed in the corporate world, and the perception is that it has something to offer. So if psych-tech can really deliver the goods in reducing stress and relieving our bodies and minds of the tensions of our age, consistently, reliably, and over the long term, it will have made a massive positive contribution to our individual and collective wellbeing. As such it will be here to stay, as long as we maintain our present lifestyle (or are allowed by shrinking resources to indulge in such a lifestyle).

Medical uses of psych-tech for pain control, immune system enhancement and accelerated healing are already in development and we can expect to see it in wide deployment at some time in the future. The use of light and sound devices for control of chronic pain is already in process, and the increasing use of relaxation and imagery techniques for psychoneuroimmunological control of bodily processes will surely offer further psych-tech applications in medicine.

SEXUALITY

Next to survival, reproduction is the most fundamental requirement for any species. The application of psychotechnology has been used for sexual purposes, probably since humans evolved. Taking a good American stereotype - what is the champagne dinner followed by soft music and low lighting but an induction technique aimed at producing specific states of body/mind and behavior? Similarly for the Playboy channel and its grittier cousins in video pornography. Heightening sexual responsiveness and sensation are clearly legitimate psychotechnological applications. The recent article about psychotechnology in the magazine Future Sex clearly heralds this development.

SOCIABILITY

Consciousness altering substances and procedures have always been used for human leisure-time socialisation (dancing, singing, drinking etc). "Acid house" parties and "Raves" in England and San Francisco already incorporate psych-tech devices and the development of large scale technologies for inducing altered states in dance-party contexts is likely to proceed much further. Social rituals, even if not religious in intent, are always intended to produce specific psychological effects in their participants in that they induce specific emotions and

states of mind (as an Englishman it was interesting for me to observe the local natives in California getting teary-eyed during the Clinton presidential inauguration activities). The improvement of empathy and release of interpersonal inhibitions would also be legitimate and possible applications of psych-tech.

SELF-EXPRESSION

The arts have always had a major psychotechnological component in that they are intended to evoke emotion, produce absorption and trance, facilitate empathic identification and catharsis, communicate directly to the unconscious. Artists can be expected to exploit the new resources made available to them by the development of psych-tech. For example, after the recent one day conference sponsored by Synetics Systems in Seattle there was a light and sound performance created for a theatre full of spectators. In retrospect these beginnings will probably seem primitive to our 2020 historians.

In sports, psychotechnology has a bright future. The world of sports, which covertly celebrates the physical skills needed for survival in our original, primal, pre-technological world and now provides arenas for self expression, demands ever high levels of achievement and so is ripe for invasion by psych-tech assists. A recent article by Michael Hutchison in Muscle & Fitness magazine points the way for this application.

The world of sports... demands ever high levels of achievement and so is ripe for invasion by psych-tech assists.

SELF-ACTUALIZATION

Psychotechnology has many applications in psychotherapy in rehabilitation of perception, cognition and skills, and has very promising applications in correcting attention deficit disorder (ADD) and hyperactivity. Some 30% of the US school population is estimated to suffer from some degree of ADD. Biofeedback has a very successful track record with ADD, but light and sound may provide a cheaper alternative. The educational applications of psych-tech have barely been tapped as yet and the increasing requirements for retraining of the work force and improvement of the American school system should provide a huge field for psych-tech enhanced accelerated learning applications.

Perhaps the second most common use of psychotechnology today is in pursuit of individual self-improvement. A huge video and audio cassette tape industry thrives on this application and psychotechnology in the form of audiotapes, light and sound, brainwave biofeedback, ganzfeld device and cranial electrostimulation devices is certain to develop much further to fulfill this need.

Perhaps the second most common use of psychotechnology today is in pursuit of individual self-improvement.

TRANSCENDENCE

The ability to have profound experiences without paying the price ... makes psych-tech approaches to the induction of transcendent experiences a very attractive option.

Overlapping its use for psychological improvement, the applications of psych-tech for induction of spiritual, transcendent and transpersonal experiences and for meditation have been developed and used by many individuals but have not yet generated a commonly accessible know-how in print. This is an area in which we can expect the literature and practice to develop quite strongly in future. The ability to have profound experiences without paying the price—in time for traditional practices, and in risk and possible legal and bodily damage using psychedelics—makes psych-tech approaches to the induction of transcendent experiences a very attractive option. Undoubtedly, sophisticated EEG biofeedback will be the technique of choice for this area, a potential which remains vast and almost untapped. The intelligent application of psychology and technology to the spiritual life should greatly benefit us all, since the learning of some of the skills necessary for spiritual growth may be amenable to acceleration, even if not all growth can be so enhanced.

PSYCHO-TECHNOLOGY IN 2020: LIGHT AND SOUND

Having looked at some of the fields of application, now let us envision the development of psychotechnology from 1993 to 2020. Taking light and sound first, the fast pace of hardware development will probably continue. We can expect more powerful and feature-packed light and sound machines to be developed. So far, none has the combination of every desirable feature (low price, programmability, manual control, program downloading, multicolor diffused-light goggles etc). Probably devices approximating this specification will be developed within the next few years. Downloadable programs (programs you can input into the light and sound device from cassette tape - or later - the mini CD) will probably sweep the market because they represent the first and essential step in combining the light and sound "hardware" (i.e. the machine) with purpose-designed "software" (suggestion tapes, imagery and other exercises, to be used while on the machine). So far, only the Mastermind DLS from Synetics has download capability and it remains to be seen whether its "Polysync" tape download system is glitch-free and reliable. The old tape downloading systems for computers were notoriously unreliable and slow. Undoubtedly, feedback will be incorporated into light and sound devices. Obvious candidates are EEG feedback and EMG feedback (muscle tension). But one feature of light and sound devices which may become increasingly problematic is their capacity to induce epileptic seizures. Although the percentage of the population at risk is very low, as increasing numbers of people are exposed to light and sound stimulation, inevitably, more individuals will suffer seizures. This has already led to law suits against The

Sharper Image, and, I believe, to law suits by Sharper Image against IQ International, which is now out of business. The problem is that although most susceptible individuals can be identified by a screening interview, not all can. This might lead to regulation of light and sound devices, which would be a serious blow to the field. As far as I know, Sharper Image did not screen people trying out the IQ 9110, and careful screening will reduce the risk, but it cannot eliminate it. We may see manufacturers move to using green LED goggles because they are less likely to induce seizures than red LEDs.

A NEW/OLD MODALITY: BREATHING OUR WAY TO THE MILLENNIUM

A new form of relaxation/meditation feedback device will become available shortly which may well become a major force in the psychotechnological market. I hope the reader will not object if I detail some of my personal work in this field. I am currently developing and experimenting with a little known (in the US) modality employing feedback of the breath. The user puts on a breath sensor consisting of an elasticated belt around the belly. One wears headphones and goggles, just as with light and sound devices. When the user expands or contracts the diaphragm and belly by breathing in or out, a sound like breathing is put through the headphones and the goggles light up. Breath feedback devices have been used clinically in Europe for a number of years. There is quite a lot of European research indicating that feedback of breathing rapidly produces theta dominant brainwave states - ideal for rescripting, absorbing positive suggestions etc. Breath feedback seems to be very potent in activating some very ancient neurological pathways leading to states of great calm and centering. Clearly it's no accident that so many meditational techniques focus on the breath. Giving breath feedback seems to provide the benefits of meditation in an easily accessible form, so I expect breath feedback devices to figure in the future of psych-tech to a large extent. Meditators who find light and sound too "busy" may enjoy breath feedback because it's much calmer. These devices have the great advantage of not producing epileptic seizures in seizure-prone individuals, so are inherently safer than light and sound. The breath feedback device is usable on its own, with light and sound, with a cassette program or with many other modalities. As to availability of breath feedback devices, so far there is an expensive US-made professional device available (around \$6000), a French device which is not yet available in the US, and my own device the Thetamate, which will be available in a couple of months for a price in the region of \$500. I expect breath feedback devices to be increasingly used as a substitute for or complement to, light and sound devices, and breath feedback will surely be combined with various other modalities in the future.

MEGABRAIN REPORT

PSYCHO-TECHNOLOGY: ITS PRESENT & FUTURE CONTINUED

TWILIGHT TRAINING WITHOUT EEG TECHNOLOGY ?

One of the most promising areas of psychotechnology, in terms of its application to mass markets, lies in the development of inexpensive, easy to use biofeedback devices.

In principle it is also possible to produce a true twilight trainer using a breath feedback device. Twilight trainers switch on two separate cassette recorders, one containing relaxation material when the person is producing alpha waves, and one containing positive suggestions for use when the person is in the theta dominant brainwave state. They can also somewhat awaken the user if they fall too deeply asleep. The idea is to expose the user to positive suggestions only when they are in the theta state - minimising resistance to accepting the suggestions. Until now this switching has had to be done by monitoring the user's brainwaves, but there is another non-EEG monitoring technique to detect the alpha/theta switch in the user which is much less expensive to instrument because it does not use exotic EEG technology. Dr. Thomas Budzynski developed the original twilight trainer, which now costs about \$3,500 and results have been very exciting, suggesting that deep-set negative beliefs and attitudes can be changed using twilight training. An interesting twilight training dissertation study was performed by clinical psychologist Rita

Sullivan, now head of an Oregon substance abuse clinic, which produced very promising results with long term alcoholics. I am planning to investigate the possibility of developing a breath-based twilight trainer which would be substantially cheaper than the existing twilight trainer and if successful will report my findings to Megabrain Report. Remember, you read it first in Megabrain Report

BIOFEEDBACK FROM THE BODY

One of the most promising areas of psychotechnology, in terms of its application to mass markets, lies in the development of inexpensive, easy to use biofeedback devices. Tools for Exploration has, with my encouragement, pioneered the sale of such devices to the public. With simple devices and adequate accompanying documentation, the lay person can easily learn to use modalities which have been proven very effective in teaching deep relaxation. For example, Tools now sells the "Antense", a beautifully crafted forehead muscle tension monitor which for under \$100 provides quality muscle relaxation training in a very easy to use package. An audio tone tells you how relaxed your forehead is. The forehead muscles mirror the state of most of the body. So far, its manufacturer has not woken up to the extension of their market which adding an input for cassette tape player would produce - the combination of relaxation tape with muscle tension feedback is extremely potent. Similarly, Tools now sells skin resistance and temperature feedback devices. By 2020 we can expect to see complex integrated biofeedback systems being used as optional add-ons to most psychotechnological devices.

SONGS FROM THE BRAIN: EEG FEEDBACK

But of course the most exciting area is brainwave (EEG) feedback. Here, the technology for full scientific analysis will remain too expensive for the average consumer. But the preliminary results from today's brain-mapping EEG analyses of transcendent states are already fascinating, and full of promise. Probably, the research will reveal common patterns between individuals undergoing transcendent experiences, and then training inductions and more modest (and less expensive) EEG feedback systems will be developed to coach users into achieving these states. Probably Mind-Spas will start to invest in these systems, so that expensive complex technology will become available for use in these centers. Sophisticated software will be needed to sift through the EEG records to identify features which really relate to the experiences, rather than incidental features. A cartography of transcendent experiences will have to be mapped out in order to understand the complex relationships between EEG data and experiences. This will be fascinating work and we may need to use much of the accumulated knowledge of the various spiritual traditions to get handles on these regions. A present day problem here is that there is so little funding available for this type of research.

A cartography of transcendent experiences will have to be mapped out in order to understand the complex relationships between EEG data and experiences.

THE SYNERGY OF THINGS TO COME

I have for a long time thought that integrated packages should be marketed, combining hardware with educational and instructional materials and suitable induction components, including tapes etc. This integration is already starting to happen. The DLS is the first really substantial move in this direction. So is the creation of Raymer Ditson Sommer's tape series on accelerated learning for light and sound machines. Like many of us active in the field now, I hope to be creating some integrated packages myself, and Michael Hutchison's next book, Mega Brain Power, will deal in detail with the applications of psych-tech and the software and inductions areas of psychotechnology - the book will provide a wide variety of "programs" for using psychotech devices to attain specific goals (see Michael's articles "Beyond Entertainment: How to Use Mind Machines for Peak Performance" in issue #4 of Megabrain Report). The integration of hardware, information, instructional courses and inductions is clearly a necessary next step in the development of these technologies.

An important future trend will be the synergistic use of multiple induction devices, which will develop further, probably involving motion machines, vibration beds, acoustic field generators, sound and light, and flotation tanks (see Walter Jessen's exploration of floating, and Terry Patten's review of acoustic field generators, both in

this issue). These composite devices will also probably be configured with biofeedback loops to allow control of their output by some physiological function(s) of the user. Looking into the farther future, the ultimate devices may utilise virtual reality systems of high definition to provide truly flexible experiential content and although this is just about technically possible now, cost will be a deciding factor in its application.

THERE GO (HERE COME) MIND SPAS: FINDING THE OTHER 90 PERCENT

A loss of many of the US mind spas occurred in the past three years or so. The problem was that people tended only to visit once to test equipment that they then bought more cheaply elsewhere, never to return. Or else people visited out of curiosity to have a "trip". Curiosity satisfied, they too tended not to return. However, there is now an upsurge in new mind spas and it is to be hoped that this next generation will be more successful. Mind spas are not so new now, so they may find bigger markets. They will only be successful if they can develop educational or other programs that provide benefits on a long term continuing basis to clients and most of the new entrepreneurs seem to realize this. Look for a national chain of new mind spas titled "The Other Ninety Percent", aimed at liberating the abilities of the other 90% of the brain. I consulted for this company for several years and they are likely to provide the first big US national chain. By 2020 we can expect to see several national mind spa chains, boasting sophisticated computer controlled systems.

An important future trend will be the synergistic use of multiple induction devices, which will develop further, probably involving motion machines, vibration beds, acoustic field generators, sound and light, and flotation tanks

THE PSYCH-TECH HAIKU: JAPANESE COMPETITION

In Japan psychotechnology has already made more inroads in some ways than in the US (not surprising, given the stress levels). There are now national chains of mind spas in Japan and the future has been taken from California to Tokyo. Some of their mind spas include EEG monitoring and feedback. Psych-tech is big in Japan and when the Japanese electronic manufacturers see a large enough world market they will probably launch a flood of cheap devices. Already, at Tools For Exploration we are starting to see Japanese products sent to us for inclusion in the catalog.

ELECTRIC MIND AND BODY

Cranial electrostimulation (CES) seems to be slowly gaining acceptance within the professional clinical psychological community, with widely scattered groups finding exciting applications in the treatment of ADD, dyslexia and closed head injuries. In my work I encounter many psychologists venturing into the use of CES and

most excitingly, preliminary trials of CES for CFDS (chronic fatigue syndrome) have shown great promise, with one manufacturer poised to perform some major research in this area. The CFDS epidemic is much more widespread than AIDS—a little known fact—and seriously affects the health, productivity and wellbeing of millions of Americans. It has a clear cerebral component and the hope is that CES may ameliorate this component of the disease. One problem with the publicity about CES I encounter almost on a daily basis, is that some early writings on CES have been interpreted to suggest that it would unconditionally increase intelligence and perhaps provide instant access to meditative states. Tools For Exploration has a steady stream of calls from people inquiring about CES because either they want to increase their IQ or to use it every day for meditation. The original reports did not make it sufficiently clear that the IQ improvements seen in CES research occurred to individuals who were either of lower than normal IQ, or else had imbalances between verbal and non verbal IQ, the CES treatment leading to equalisation of IQ or tending to restore IQ to normal levels. There is no clear evidence that CES increases IQ in normal individuals. CES is also unsuitable for intensive usage over the long term, both because of habituation and because of the as yet unknown risks created by consistent long term usage. To my knowledge, there are no extant studies showing that CES facilitates meditation either. However, to bring some perspective to the risk question, many of us spend all our working days in strong AC magnetic fields generated by computers which are clearly hazardous, yet accept these many thousands of hours of exposure without a second thought. A few hours spent on CES might not be so dangerous by comparison.

In Japan psychotechnology has already made more inroads in some ways than in the US (not surprising, given the stress levels).

NEW SOUND BREAKTHROUGHS

Moving on to sound, it seems likely that the use of ever more sophisticated sound mixes on audio cassette tapes and CDs will certainly allow more powerful inductions to be created. Michael Hutchison, who created the programs and devised his "harmonic superimposition of binaural beats" technique for his earlier "Mega Brain Sync" tape series has now created a new six tape/CD series that builds on recent EEG brainmapping research into peak states, and combines a variety of new audio brain stimulation with Tomatis-based sound shaping techniques in a way that may well represent a significant advance in the art. Tools For Exploration also recently produced a series of four "Neuroacoustic" tapes using a powerfully synergistic set of techniques including binaural beats, primordial sounds, 3D holographic sounds and specific window frequencies. The release of the new tapes was combined with a research project where

...preliminary trials of CES for CFDS (chronic fatigue syndrome) have shown great promise...

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MEGABRAIN REPORT

SMART PILLS AND NUTRIENTS

The Second Generation

by Ross Pelton and Lee Overholser

From the moment we enter life we are limited by our genetic potential, the genome. But do we realize, either individually or as a species, all of our genetic potential?

Pharmacology participates, very modestly, in one of the great efforts of humanity, that of answering Plato's question: "Who are we?" The aim is "to know oneself," but toward what end? It seems to us that the deeper sense of this Socratic imperative is to know oneself neither in a narcissistic nor timid fashion, but in order to create oneself. Humankind will not wait passively for millions of years so that evolution can offer a better brain. Mankind must refashion itself by realizing its highest genetic potential in the direction that evolution is taking, that is to say, by increasing the integrative capacity of the forebrain. All things considered, developing a pharmacology of the brain's integrative activity has a place in this great human undertaking.

Dr. Corneliu Giurgea, tr. by Lee Overholser

From the moment we enter life we are limited by our genetic potential, the genome. But do we realize, either individually or as a species, all of our genetic potential?

As readers of Megabrain, you are doubtless familiar with the first generation of cognitive enhancing drugs – smart pills – that have been publicized and popularized over the past decade. Since the publication of *Mind Food and Smart Pills* in 1986 and the appearance of the expanded version in 1989, there has been an exponential growth in research in this area.

The first generation of intelligence enhancing drugs generated a great deal of excitement. Not only was there the potential for treating cognitive decline in the elderly, research also indicated that normal healthy individuals could improve memory and learning capabilities. According to *Fortune* magazine the pharmaceutical industry foresees the probability of a \$1-billion-plus per year market for cognitive enhancing drugs.

Following the development of piracetam, many pharmaceutical companies began to develop structurally similar nootropics. There is significant ongoing research in three very important areas:

A) enhancement of intelligence and the ability to think,
B) improvement of memory and learning and

C) prevention of brain aging and the loss of cognitive capabilities so that senility doesn't develop or develops at a much later age.

This article will bring you up to date on the explosion of activity in this field of research. The devel-

opment of the second generation of smart pills is now well under way.

THE NEED FOR A BETTER BRAIN

In a world that demands the integration of ever greater masses of information from a multitude of sources, we cannot get by with a stone age brain. During the course of evolution the mammalian brain has devoted more and more of its cortex to the task of integrating and interpreting sensory information. The forward third of the human brain, the frontal lobes, is devoted entirely to processing information. This area makes plans for the future and handles complex social interactions. In rats the frontal lobes are dedicated to analyzing olfactory input.

This human capacity to plan for the future is both a blessing and a curse. Technology has freed us from having to hunt for our food and conquered most infectious diseases. On the other hand the pollution, environmental destruction and the population explosion threaten the existence of all forms of life on the planet. To survive we must enlarge our capacity to handle and integrate information. If ecology is the integrated functioning of life systems, the brain is a similar integrated system that must be enhanced if we are to survive.

Dr. Giurgea, the developer of Piracetam, the first nootropic or intelligence-enhancing drug, is a leader in the effort to transcend our genetic limitations. He realized that the real breakthrough represented by Piracetam was that it increased the functioning of the integrative areas of the cortex.

The accompanying illustration compares the rat and human brains with the primary sensory and motor areas in black and the associative or integrative areas in white. The difference is obvious. Most of



Human Brain



Rat Brain

A comparison of the primary sensory and motor areas of the rat and human brains. The primary sensory and motor areas of the cortex are blacked in and the areas devoted to the integration and processing of information are white.

the rat brain is occupied with receiving information and giving orders to the muscles. Most of the human brain is devoted to complex analysis of incoming information.

The promise of smart pills is that they will enable us to deal with the incredibly complex problems that are pressing in on us both individually and as a society.

The promise of smart pills is that they will enable us to deal with the incredibly complex problems that are pressing in on us both individually and as a society. Unfortunately, the pharmaceutical industry has not shown a major interest in developing "smart pills" or in preventing brain aging in healthy individuals. Instead, economic forces and FDA policy necessitate a focus on treating diseases. Much of the current research effort concentrates on

developing drugs that can treat cognitive impairment due to aging.

Nevertheless, many of these drugs show considerable promise for helping healthy people stay smart and think smarter.

CATEGORIES OF SMART PILLS

Drs. Merlini and Pinza divide cognitive enhancing agents into six categories:

- nootropics,
- brain metabolism activators,
- neuropeptides,
- cholinergic drugs,
- cerebral vasodilators and
- miscellaneous compounds.

They reserve the term nootropic for piracetam and its analogs which have a primary influence on intelligence.

We will look at each of these categories under three headings: Future Brain, Memory, and Keeping Your Brain Young, according to the major effect of each category of cognitive enhancing agents.

FUTURE BRAIN

The current situation in the development of smart pills is much like the early years of the space program. The first rockets weren't very impressive, but eventually the benefits from that exploration filtered

The current situation in the development of smart pills is much like the early years of the space program.

down to the general public in the form of products like teflon, new and stronger metal alloys, improved computers and other advances. (OK, there was Tang, too. Not every new development was a great leap forward.)

Dr. Giurgea's development of piracetam opened the door to a completely unexpected realm. Before then it was inconceivable that there was any drug that could actually make a normal person smarter or improve mental functioning. One of the fascinating features of these new

drugs, the nootropics, is that they affect the integrative areas of the brain.

Drugs like amphetamines and caffeine speed up most of the neuronal functions. A person feels more alert, but high doses can cause shaking, nervousness and even paranoia. Other psychoactive drugs strongly influence emotional behavior. Alcohol would fall in this category. It not only alters emotions, it also powerfully degrades motor and sensory abilities, as the scene of an angry or euphoric drunk falling down stairs demonstrates.

Smart pills have very little influence on areas of the brain other than those that process and integrate information. For this reason they lack the distressing side effects of other mind altering drugs and are among the safest drugs that have ever been developed. They are much safer, in fact, than that most common of drugs – aspirin.

Nootropics: Piracetam was the first nootropic drug to be discovered. The term "nootropic" literally means "acting upon the mind." Nootropics are a unique class of drugs whose common features include: a) enhancing learning, b) alleviation of impaired learning and memory, c) protection against brain insults, especially oxygen deprivation and d) low toxicity.

Much of the excitement driving current research is the possibility that new variants of piracetam and other drugs will have even greater cognitive improving effects. UCB-Pharmaceutical, the Belgian company that originally discovered piracetam, has now developed a new second generation nootropic called ucb L059 which is structurally similar to piracetam, yet possesses considerably more pharmacological activity.

Other drugs with a structure somewhat similar to piracetam's 2-pyrrolidinone ring structure are oxiracetam, pramiracetam, etiracetam, aniracetam, propaniracetam, D-pyrogutamic acid, hopantenate, eburnamonine, WEB 1881, ubc L059 and BMY 21502. Aniracetam was effective on nine different tests of learning and memory, whereas piracetam was only effective on six tests.

Aniracetam also proved to be ten times more potent in improving test scores than piracetam.

In the last few years several compounds have been developed which differed structurally from piracetam, but which showed interesting cognition enhancing effects. This new group includes tenilsetam, rolziracetam, minaprine, bifemelane, indeloxazine, and idebenone.

Many of the nootropic drugs are also able to increase the transcallosal flow of electrical informa-

Dr. Giurgea's development of piracetam opened the door to a completely unexpected realm. Before then it was inconceivable that there was any drug that could actually make a normal person smarter or improve mental functioning.

MEGABRAIN REPORT

SMART DRUGS AND NUTRIENTS: THE NEXT GENERATION CONTINUED

tion between the left and right hemisphere of the brain. This has been called "Superconnecting" both halves of the brain. When both hemispheres are interacting, creativity is enhanced and the ability to integrate artistic abilities with reasoning is increased.

Poor integration between the halves of the brain is implicated in some learning disorders. It has been estimated that up to 10% of school-age children suffer from some type of learning disability. Nootropics may eventually become the treatment of choice for dyslexia and other learning disorders.

Brain Metabolism Activators: Agents that enhance the metabolism of brain cells are classified as brain metabolism activators or enhancers. They are placed in the Future Brain section because their primary effect is on cognitive abilities. Hydergine is the most famous drug in this category.

Newer drugs in this category include acetyl-L-carnitine, phosphatidylserine, derivatives of griseolic acid and naftidrofuryl, to name a few. An interesting effect of phosphatidylserine is that postnatal administration to laboratory animals led to improved memory in adulthood.

MEMORY AND LEARNING:

The TV show Jeopardy is taken by many as a measure of intelligence. Those who remember the most trivial pieces of information are the smartest. This is an idea that has its roots in the way our educational system rewards those with the best memories with good grades since most courses emphasize the acquisition of information in place of creativity and reasoning skills.

A good memory can boost overall intelligence since facts and figures are the raw stuff of reasoning. But those with photographic or eidetic memories are rarely able to do much with all the little bits and pieces of information that they fill their brains with. What we forget can be as important as what we remember when it comes to making new discoveries. A little forgetting sorts out the unimportant material so the things that really make a difference stand out.

Current evidence points to the synapse as the main storage unit of memory. Previously it was theorized that memories were stored in coded RNA or in specific patterns of synaptic interconnections. When animals or

people have to learn more, the neurons involved develop more RNA and grow larger dendritic trees with more synapses. However, it now appears that this increased activity supports memory formation by providing more of the medium needed for laying down memories.

The actual memories are stored in networks of synapses by changing the sensitivity of groups of synapses to firing when stimulated. Those drugs which favor the facilitation of changes in synaptic sensitivity and supply more neurotransmitter to the synapses will increase the ability to form memories.

The Neuropeptides: Neuropeptides have multiple functions. They act as neurotransmitters and they also act as modulators or regulators at other sites. Vasopressin is a neuropeptide that is well established as a facilitator of memory.

Several analogs of vasopressin have been developed. Interestingly, the vasopressin analog DDAVP has been shown to facilitate memory in men but not in women. Another vasopressin analog, DGAVP has produced improvements in various types of learning. Some of the other neuropeptides that are currently under investigation are the ACTH analogs, thyrotropin releasing hormone (TRH) and its analogs, cholecystokinin-8 (CCK-8) and neuropeptide Y.

Neuropeptides have multiple functions. They act as neurotransmitters and they also act as modulators or regulators at other sites.

KEEPING YOUR BRAIN YOUNG

The search for drugs that can treat the aging brain is concentrated on those that can reverse the damage that has already occurred. However, when it comes to brain health, an ounce of prevention is definitely worth a pound of cure. Some of the drugs that have a little effect in reducing the effects of Alzheimer's disease and senility are proving more effective in preventing brain aging. Increasing cognitive abilities is useful, but the long term implications of being able to prevent brain aging may ultimately be much more important.

Whatever controversy there might be about the value of becoming smarter, there is no debate about the value of not becoming dumber. Much of the damage in the aging brain centers around the synapses. As the number of synapses in the cortex decreases along with the quantity of neurotransmitter for carrying messages, both memory and reasoning abilities enter a slow decline. Maintaining healthy synaptic functioning is the key to keeping your brain young.

Cholinergic Drugs: Acetylcholine is the neurotransmitter used by about 90% of the brain's cells. Acetylcholine precursors such as choline or lecithin have been somewhat disappointing in the treatment of cognitive decline. Perhaps this is because there has already been too much destruction of brain cells by

Increasing cognitive abilities is useful, but the long term implications of being able to prevent brain aging may ultimately be much more important.

Those drugs which favor the facilitation of changes in synaptic sensitivity and supply more neurotransmitter to the synapses will increase the ability to form memories..

the time the problem is recognized. Deanol and Lucidril (centrophoxine) are structurally related to choline and have shown positive memory improving effects in human trials.

Lucidril is a particularly exciting drug because it has been shown to produce significant life extension in laboratory animals, restore the synaptic contact zones between brain cells and actually reverse one of the primary processes of brain aging, the build-up of lipofuscin, a form of cellular garbage, in brain cells.

An analog of Lucidril, initially named BCE-001, has reportedly shown twice the activity level of Lucidril.

Vasodilators: Some cognitive decline in the elderly may be due to a decrease in the blood supply to the brain due to arteriosclerosis of "hardening of the arteries" which results in a narrowing of the cerebral blood vessels. So far these drugs have not been very effective, which may indicate that the circulatory problem is not a major cause of the decrease in mental sharpness. Some of the new drugs in this group include vinpocetine, bromvincamine and vincamine.

Miscellaneous Compounds: There are a few compounds with structures and mechanisms of action that are different from the preceding groups which

seem to be able to reverse induced amnesia in laboratory animals or to protect other cerebral functions.

Pyritinol is an exciting new drug that has been shown to produce an increase in the regional blood flow within the grey matter of the brain. In elderly patients with diminished mental capacity it activated the dominant frontal lobe and enhanced cerebral electrical activity. In healthy volunteers it improved both psychomotor performance and short-term memory.

Deprenyl is another drug that appears to slow the damage caused by Parkinson's and Alzheimer's disease. A substance called MAO-B (monamine oxidase type B) seems to be the culprit in the destruction of nerve cells that causes Parkinson's disease and Deprenyl is an MAO-B inhibitor.

At about age 45 the nerve cells that use dopamine as a neurotransmitter enter a period of slow decline. When the dopamine level reaches about 30% of normal, the shaking and other symptoms of Parkinson's show up. The rate of change varies from person to person and those who have a very slow loss of these nerve cells never develop the disease. Dr. Jozef Knoll, the world's most

Our entire society needs all the brain power it can get. The sooner the knowledge of how to increase brain power and prevent brain aging is disseminated, the better.

THE MEGABRAIN FORUM

Cognition-Enhancing Nutrients and Peak Performance Pills

In this issue, Ross Pelton's "Smart Drugs: The Second Generation," and our expose of the FDA's war on cognition-enhancing drugs and the constitution continue our groundbreaking exploration of mind food, smart pills, and their potential interactions with mind technology.

As the next step in our investigation of mind nutrients, we want to devote our MEGABRAIN FORUM in the same issue to an exploration of your experiences with and thoughts about these controversial substances.

The goal of Megabrain Report is to increase the free flow of information regarding mind technology and peak states. In THE MEGABRAIN FORUM we try to facilitate this process by inviting readers to share their knowledge or information about a specific question of wide interest. We then print selections from the responses we receive, together with discussions of the question by prominent researchers or authorities in the field. We hope that the convergence of information from many sources, the striking together of ideas, will create some sparks of insight and, in the process, generate new information.

We invite your ideas and information about a constellation of issues having to do with cognition-enhancing drugs:

– What have been your own personal experiences with these substances, both taken by themselves and in combination with other types of mind-technology, such as mind machines?

– Have these nutrients proven to be valuable and authentic mind-enhancement tools? (That is, through your use of such brain-nutrients have you produced/learned/created/understood things, or grown/matured/transformed in ways, that you would not have done otherwise, or more rapidly and easily than you would have without the use of these substances?)

– Will these substances become widely used, and if so what will be the impact on our society of widespread use of brain-drugs?

Please send your responses to:

THE MEGABRAIN FORUM
P.O. Box 2744
Sausalito, CA 94966

Your response will become a part of our Megabrain Report Archives, and responses that are particularly focused and quotable will find their way into the pages of MEGABRAIN REPORT. We hope to hear from you!

MEGABRAIN REPORT

prominent deprenyl researcher recommends the long-term use of deprenyl to prevent the inevitable aging of dopamine producing brain cells.

Nerve cells that use dopamine are also involved in producing many of the drives that motivate people. As age lowers the brain's dopamine levels, there is a gradual decline in drives, particularly the male sex drive. This is why patients who take L-dopa for Parkinson's disease often experience a sudden increase in sex drive.

This drug is particularly useful because it does not produce the "cheese effect." Other MAO-B inhibitors cause high blood pressure as the neurons begin to take in tyramine from foods such as aged cheese, yeast, beans, chicken liver, herring and certain wines. Not only is deprenyl safe in this regard, but, since the drug was discovered over 30 years ago, no reports of significant side effects have appeared.

Dr. Knoll has developed even more selective MAO-B inhibitors, J-508 and U-1424, that do not interfere with other processes such as the normal uptake of MAO-A by nerve cells. These are currently being tested for therapeutic effect.

EVOLUTION OR DEVOLUTION?

As the demands on our mental capacities increase, we are gaining the capacity to meet the challenge. Scientific advances and technological innovations are creating the communication and information glut that is overwhelming us. At the same time science and technology are giving us ways of speeding up evolution to develop the brain power we need.

As the baby boomers enter maturity and life span continues to increase, there will soon be a crisis in dealing with the aging brain. Drugs like deprenyl hold out the promise of preventing brain aging. Other strategies to prevent brain aging include good nutrition and using sound and light technology to exercise and focus the brain.

We face a clear choice. Will we use drugs, brain enhancing devices and good nutrition to move forward on the evolutionary ladder or will we be overwhelmed by the information explosion and be forced backwards? This isn't just a question of individual improvement. Our entire society needs all the brain power it can get. The sooner the knowledge of how to increase brain power and prevent brain aging is disseminated, the better.

Ross Pelton R.Ph. Ph.D. is a pharmacist, a nutritionist and an educator in the areas of anti-aging and life extension. He is the author of *Mind Food and Smart Pills*, which is a sourcebook for the vitamins, herbs and drugs that can increase intelligence improve memory and prevent brain aging. He has just finished a new book, *Revolution in Cancer Therapy*, which will be published by Simon & Schuster.

Lee Overholzer received his Doctorate in Linguistics from the University of Michigan and went on to receive a Masters in Counseling Psychology. He worked with Ross Pelton on his book *Mind Food and Smart Pills*, and has published his own book on hypnosis.

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How To Obtain Megabrain Drugs and Nutrients By Mail Order

Many of the substances described by Dr. Pelton (and those explored in "Cognition-Enhancement Drugs and Peak Performance Pills," by John Morgenthaler and Michael Hutchison, in Megabrain Report #1) are not available in the U.S., or are available only by prescription. However, it is legal to obtain these substances by mail order. One reason some of these substances are not available in the U.S. is that they have not yet gone through the extraordinarily expensive and lengthy process required to obtain FDA approval. This does not mean however that it is not quite legal to use these substances. And some of the substances have been approved by the FDA for limited medical applications. This does not mean that it is not quite proper to use these substances for "unapproved" or "off-label" purposes.

In the April, 1982 issue of the FDA Drug Bulletin, the agency included a policy statement clarifying the question of "unapproved" uses for drugs, clearly stating that "unapproved" uses may be appropriate and rational in certain circumstances, and may, in fact, reflect approaches to drug therapy that have been extensively reported in medical literature. Valid new uses for drugs already on the market are often first discovered through serendipitous observations and therapeutic innovations. In sum, the FDA clearly approves of the "unapproved" uses as an important means for innovation and discovery.

Also, though it is not widely known, a July, 1989 FDA ruling now makes it quite legal to import effective drugs used elsewhere but not available in the U.S. The FDA now allows the importation and mail shipment of a three month supply of drugs, for personal use, as long as they are regarded as safe in other countries. The new ruling, FDA pilot guidelines chapter 971, was made as a result of heavy pressure from AIDS political action groups, which insisted AIDS sufferers were denied access to potentially life-saving substances that were widely used abroad but were still unapproved for use in the U.S.

The drugs discussed here, as well as the many other cognition enhancing nutrients described in MBR #1 can be purchased without a prescription. When you write to place an order, we recommend you send a signed letter, so that it can be returned with your shipment. This letter should include your name, address and phone number, and your doctor's name, address and phone number. Cognition Enhancement Research Institute (CERI) suggests that the letter "should also state the following:

- 1) that the drug is for personal use only,
- 2) that the amount is within the personal-use guideline (3 months' supply),
- 3) that the drug is not approved in the United States,
- 4) that you were responsible for requesting the drug,
- 5) that the company shipping it to you did not engage in promotional activities related to the drug or you,
- 6) that your doctor will be supervising your use of the drug (provide a photocopy of the prescription, if you have one), and 7) that the drug is for treating a life-threatening or debilitating condition (you may or may not want to

detail your medical condition... The FDA regulations specify that the drug must be for a life-threatening or debilitating condition. If you are basically healthy, you might want to avoid the details of your medical reason for ordering the drug. If they insist, you can always argue that you are suffering from age-related mental decline (a debilitating illness) or from aging (a life-threatening illness)."

A sample letter suggested by CERI is:

To whom it may concern:

This letter is to confirm that the enclosed medication has been obtained for my personal use under the FDA personal importation policy for life-threatening or debilitating illnesses. My physician, Dr. [name], will be providing medical supervision for my use of the drug. I have purchased the drug from [company] on my own initiative; no promotional activities on their part were involved in this transaction. If you have further questions, please call at your earliest opportunity. I appreciate any efforts you can make to expedite arrival of this important medical treatment. (Your name, address, phone number and your doctor's name, address, phone number)

Such a letter will in all probability never be necessary. I have heard of only a few cases in which shipments were detained. However, as this is written, the FDA's future policy on the importation of smart drugs from abroad cannot be predicted.

FOREIGN SOURCES:

QWILLERAN P.O. Box 1210 Birmingham B10 9QA England (They do not supply a price list; you must send a letter asking for prices of specific substances in which you are interested.)

B. MOUGIOS and Co. Pittakou 23 T.K. 546 45 Thessaloniki Greece Phone: 031 859.680 Fax: 031 821.819

INHOUSE HEALTH SERVICES, Box 2112 CH2800 Delemont Switzerland

WORLD HEALTH SERVICES P.O. Box 20, CH-2822 Courroux Switzerland

VIPHARM(OL. Skouvara & Co.) 35, Agorakritoy Street, 104 40 Athens GREECE Fax: 30-01-88-31-680

Some sample prices are:

Centrophenoquine (60 X 250mg tablets) \$10
Hydergine (100 X 5mg oral tablets) \$39
Piracetam (30 X 1200mg tablets) \$15
Piracetam (60 X 400 mg tablets) \$12
Sulbutiamine (20 X 200mg tablets) \$9
Vasopressin (12ml nasal spray) \$22
Phenytoin (Generic Dilantin, 100 X 100 mg tablets) \$5

These sources are current as this is written. However, prices are subject to change.

DOMESTIC SOURCES:

For information about smart nutrients in various formulations available in the U.S., write: Michael Hutchison Box 2659 Sausalito, CA 94966

SMART DRUG NEWS An excellent source for continuing information about smart drugs is the SMART DRUG NEWS. This newsletter, published by CERI (Cognition Enhancement Research Institute), was started by John Morgenthaler (who continues as a contributing editor) and Ward Dean, M.D. (he is the medical editor). Editor is Steven Wm. Fowkes, who is an extraordinary fount of wisdom and leading-edge information about not only smart drugs but life extension, longevity and health. Write or call:

SMART DRUG NEWS
Box 4029
Menlo Park, CA 94026.
Tel. 415-321-2374

FOREFRONT Steven Wm. Fowkes publishes another excellent cutting-edge newsletter called FOREFRONT HEALTH INVESTIGATIONS, that focuses on more detailed, in-depth "health information on life extension and biological technology." Write or call:

Forefront The MegaHealth Society
Box 60637
Palo Alto, CA 94306.
Tel. 415-949-0919.

DISCLAIMER/WARNING The information in the accompanying articles about smart drugs is not intended to provide medical advice. It is intended to be educational and informational only. Please consult with a health professional for medical advice. The author and editor are not recommending that anyone use any of the substances described, but rather are presenting and seeking information. Adequate studies of both long and short term effects of some of these substances have not been performed, some of them can have adverse side effects, and 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 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 and pregnant or lactating women should not experiment with these substances under any circumstances.

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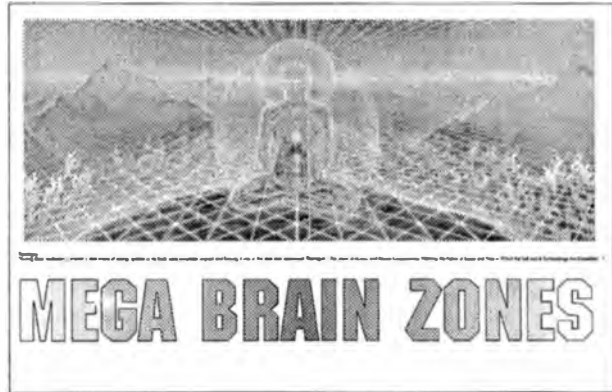
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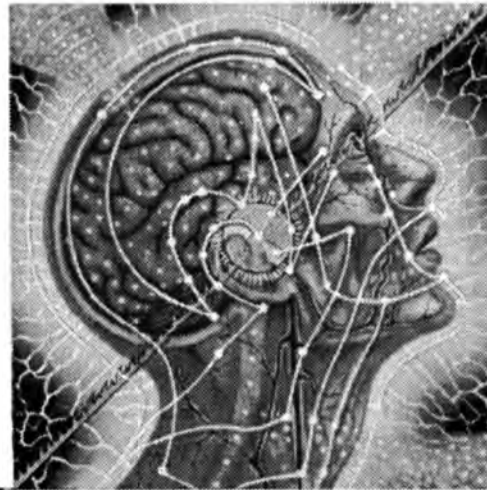
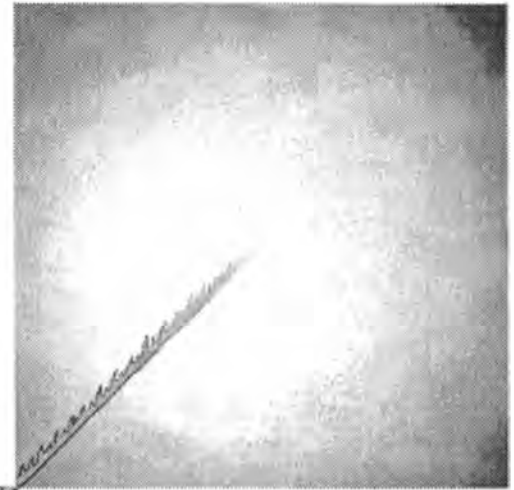
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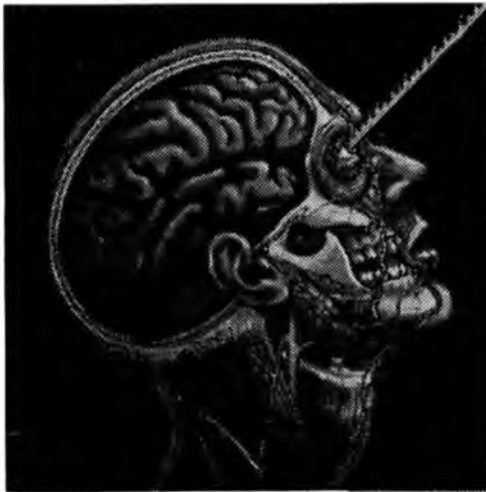


MEGA BRAIN ZONES

By Michael Hutchison

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MEGABRAIN REPORT

COMMENTARY

The Problem With The FDA

by Scott Preston

Several months ago I proposed doing an article for *Megabrain Report* on a research company that tested cognition enhancing drugs. The interview was planned. They were told that the article would be done for *Megabrain Report* and they tentatively agreed to see me. But, when time came to do the interview, they suddenly adopted a paranoid tone.

"We don't want to appear in any publication talking about smart drugs," a spokeswoman for the company said. When I reminded her that she was previously inclined to talk to me, had mentioned testing the drug piracetam for the Belgian company UCB, and that the drug is considered a smart drug, she cut the interview short. She abruptly said that the FDA was "pulling" a number of these drugs off the market. That was all she would say about it.

The key justification for the FDA's battle to restrict smart drugs, and all health information in the US marketplace, is based in the distinction between political speech and commercial speech.

About this time, a friend of mine mentioned he had ordered vasopressin from an overseas pharmaceutical company. His check was soon returned along with a letter, from someone in the company, saying that U.S. Customs had been intercepting shipments to the United States. The director of the company in question couldn't understand why.

"These drugs are safe, legal and available throughout Europe," he wrote. "We are certainly not breaking any laws in our country. And while your government can't prosecute us, we have no idea what they can do to you. Since this presents a possible risk to our American

customers we have no alternative but to return your payment in full. We don't understand the problem with your FDA."

Some of you readers of *Megabrain Report* trying to get shipments of vasopressin, Hydergine, piracetam or centrophenoxyne have probably been thwarted recently in your attempts. You should be aware that the FDA is preparing a heavy handed, totalitarian assault on your right to make health decisions.

FDA TERRORIST ASSAULTS

On May 22 1992 armed FDA agents battered down the door to the Seattle clinic of Jonathan Wright M.D., before his staff could answer a hasty knock at the door. They burst in, guns drawn, and systematically bullied and terrorized everyone for 13 hours while they ransacked the premises. Phone lines were ripped out, computers confiscated, office equipment and patient files were impounded. It was legal for them to do this without charging Dr. Wright with a crime, nor did he have a right to due process.

What was Dr. Wright guilty of? Treating his patients with vitamins. He was using a German made injectable B complex, because of its superior quality

and freedom from preservatives. A number of his patients are allergic to even minute amounts of preservatives which cause them to break out in hives. The vitamins were approved under the stricter standards of the German FDA, but not the U.S. FDA. The fact that the FDA could have written Dr. Wright a letter telling him to cease using the German vitamins, but instead broke down his door and endangered innocent employees and patients by brandishing loaded firearms, amounts to terrorist tactics. This terrorist campaign has been carried out in similar fashion against a number of clinics and wholistic health practitioners in the last few years.

The usual tactics have been armed raids, banning sales of products, and Kafkaesque bureaucratic harassment, that ultimately force the clinic or company to fold under the weight of continuing and apparently ceaseless legal fees and prohibitions on sales of products.

THE FDA WAR ON SMART DRUG AND THE FIRST AMENDMENT

Regarding smart drugs, the FDA is planning the same unyielding, terrorist approach to regulation. In their position statement they make the astonishing statement: "Any product, regardless of its composition, that is clearly associated with smart drug claims... is illegal and subject to seizure and other actions by the [FDA] to protect the public health." Such matters as truth, safety, benefits, and the First Amendment ("Congress shall make no law...abridging the freedom of speech, or of the press"), obviously, are of absolutely no importance to the FDA.

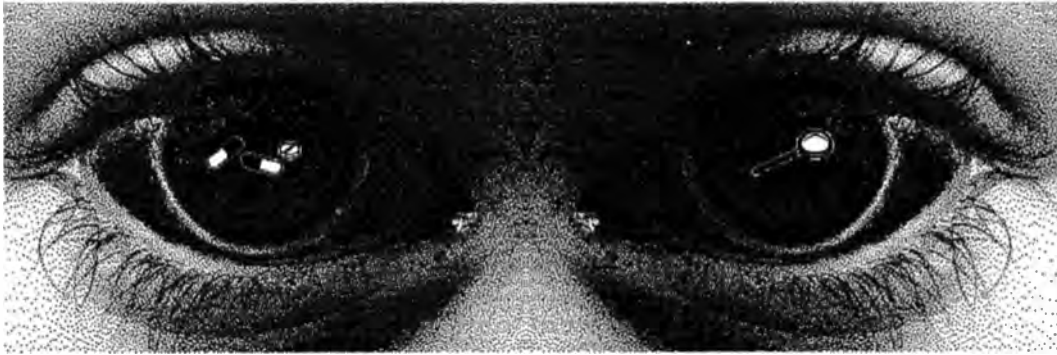
The key justification for the FDA's battle to restrict smart drugs, and all health information in the US marketplace, is based in the distinction between political speech and commercial speech. According to Food Drug and Cosmetic Act (FD&C Act), political speech advocates ideas (and thus is protected by the First Amendment) while commercial speech promotes the sale of a product, and is thus subject to restriction based on truthfulness. However, as the above FDA position statement makes clear (and has long been the case), the FDA restrictions on commercial speech no longer have anything to do with actual truth: they are purely arbitrary. When a nutrient or drug causes certain beneficial effects in the body, and those effects are backed up by research data, then stating or publishing those findings is a scientific statement, i.e. an idea -

The FDA, in its quest to extend its power, does not give the individual credit for the intelligence to make his or her own health decisions based on available scientific data.



the experiments were done, because truth should never be restricted by national boundaries.

Galileo was held under house arrest for seventeen years for asserting a scientific viewpoint, that the earth went around the sun. Ever since, partly as a result of this shameful example, scientific claims have generally been protected. Even if I made an unproven claim that X might cure Y, and state it in the form of a working, testable hypothesis, then that is also a scientific statement. If that should stimulate someone's curiosity to the point that he might wish to buy a safe nutrient or pharmaceutical – then that person should have the right to try that product, because he certainly has the right to test the hypothesis himself.



If these smart drugs are used properly, in moderation and with caution, it is highly unlikely that adverse reactions will be found beyond the usual side effects described in the literature. The National Poison Control Center has recorded no deaths from these drugs to date, something that can't be said for the humble household aspirin. So far, nowhere in the literature nor in the popular media has there been any evidence of the type of extreme adverse reactions to smart drugs that one can find with substances like Halcion or Prozac. There have even been occasional negative implications made about NutraSweet's effect on the central nervous system.

The FDA, in its quest to extend its power, does not give the individual credit for the intelligence to make his or her own health decisions based on available scientific data. In fact, in its own talk paper, (T92-11) Smart Drugs, it admits that "no injuries have been reported to the FDA."

The intelligent use of any drug, be it a smart drug, medicine prescribed by a doctor, or a sybaritic drug like alcohol, requires the assumption that all drugs are dangerous to varying degrees. Drugs should always be approached with knowledge, caution, and self-awareness of the effect it is having in the body.

No drug or medicine escapes this caveat. Even the regular daily use of aspirin, to control minor arthritic pain, can result in thinning of the blood, which can cause internal hemorrhage in the bowels and even the

brain. Not all the effects of aspirin are known. People have died from what they thought was the salutary use of this product, yet no one would think of preventing us from buying as much of it as we please.

Most people know how to use aspirin safely; the same is also true of those using cognition enhancing drugs. It is possible to make decisions regarding the use of these medicines based on research data and subjective evaluation.

The effects of smart drugs have been reported in the scientific literature as well as in the popular media: *Smart Drugs and Nutrients* by Ward Dean and John Morgenthaler, and *Mind Food and Smart Pills* by Ross Pelton are two excellent examples. The information in these popular books is supported by extensive

research done inside and outside the United States, as noted in the bibliographies. Because these books were written for the popular press, an even greater body of evidence to support their claims was left out due to space requirements.

Piracetam comes as close as anything to being a relatively safe drug; the toxic dose for a 170 pound man would be around 1 1/3 pounds! Another nice thing about this drug is that it does not take large amounts to produce beneficial effects. Although not everyone using this drug has received measurable positive effects, a number of us consider its usage in moderation a benefit.

The friend of mine who only takes vasopressin under the supervision of both a physician and a pharmacist, and only when going on a job interview, certainly has the right to take advantage of it, provided that his action does no harm to himself or others. Since no major injuries have been reported to the FDA, it makes sense, from a scientific point of view, to wait until a pattern of predictable ill effects is displayed. In Europe these drugs have been used safely for years.

FDA FLAWED CONCEPTS

Despite the wide availability of these medicines in Europe and years of safe use, a substantial body of scientific evidence, the FDA talk paper implies that the theories about how the drugs work are "based on misconceptions."

"One of the flawed concepts," the paper goes on to say, "is that drugs used to help correct dysfunctional brain conditions such as epilepsy or dementia can somehow elevate normal brain functioning to a



MEGABRAIN REPORT

THE PROBLEM WITH THE FDA CONTINUED

"FDA policies are the single largest factor in making US drug prices the highest in the world. The FDA's import ban, rather than being an attempt to keep out dangerous drugs, is an attempt to keep Americans from realizing the magnitude of the price differential and the true cost of FDA 'protection.'"

Steven Wm. Fowkes

smarter, 'better-than-normal' state." This statement does not mention the drugs phenytoin or Hydergine by name, but even a cursory scanning of the literature will bring up numerous studies published in reputable journals, such as the *Journal of the American Geriatric Society*, which refute the FDA's flawed argument.

"On the other hand," the FDA says, "scientists not involved in smart drug promotions and who were interviewed in press reports attribute smart drugs' reputed benefits to placebo effects or to misinterpretations of the action of stimulant ingredients such as caffeine." Who ever these supposed experts are, they have certainly lost some credibility in attributing cognition enhancement to the effects of caffeine. Tests have shown that caffeine has negative effects on memory, and none of the drugs which we consider smart drugs have caffeine in them. It would be totally pointless to use it. And placebo effects always, always, have been taken into consideration in every double blind study done with these drugs. To attribute the effects of these drugs to placebo or caffeine is to deceive the general public by relying on its ignorance.

The FDA also says, "None of the claims for smart drugs have been subjected to testing in controlled clinical trials – the standard regularly accepted by health officials and researchers." This blatantly ignores the wealth of controlled clinical trials in Europe. More obviously, in the Washington D.C. metropolitan area where the FDA is located, there is a major, highly respected, world recognized, and widely published research company named Memory Assessment Clinics. This company has been openly testing cognition enhancing drugs for a number of years. Furthermore, this company advertises frequently on local Washington D.C. area radio stations for test subjects over the age of fifty, who are in good health, and have noticed some loss of memory. It is unlikely that members of the FDA haven't heard these ads on their car radios while commuting to and from work.

The FDA should know, in any case, that there have been and will continue to be tests done on these drugs. Among the many drugs tested in the Washington area, for the Belgian Company UCB, by Memory Assessment Clinics, is the drug piracetam. To say that such drugs are untested is a blatant lie.

CUI BONO? FOLLOW THE MONEY.

Most human actions are to either avoid some danger or to gain some benefit.

When there is no clear and present danger – "no injuries have been reported to the FDA" – then one should ask the question: "who benefits from these prohibitive actions?" There's reason to believe that the major beneficiaries may be the companies that originally developed these drugs and for whom the patent rights have now expired, thus opening the gateway for the production of inexpensive generic versions, should they be approved by the FDA. Developing a patentable analog to a drug like piracetam could bring a new but similar drug to the market at a much higher price, resulting in many millions of dollars in profits. But of course if the generic competition has to be eliminated by restrictive and oppressive government action, then one suspects the new expensive drugs aren't better than the old cheap ones. Why pay \$60 for 18 tablets of a piracetam-like drug when you could get piracetam at 60 tablets for \$18?

Steven Wm. Fowkes, the publisher of two alternative health newsletters, *Forefront* and *Smart Drug News*, and a long-time FDA observer, notes that the recent popularity of smart drugs has brought "healthy, young, affluent and influential people" into the arena of "personal importation of unapproved drugs," which was formerly of interest mainly to the gravely ill. Says Fowkes, "Unchecked, an open-access drug import policy would have meant big-time political trouble for the FDA as US consumers discovered that 1) foreign drugs cost only half, a quarter, or a tenth of what US drugs cost, 2) new drugs get approved ten years earlier in other countries, and 3) whole classes of valuable high-tech drugs can even get approved in the US."

The greed of drug companies is often blamed for the high prices of drugs in the US, but Fowkes points out that "FDA policies are the single largest factor in making US drug prices the highest in the world. The FDA's import ban, rather than being an attempt to keep out dangerous drugs, is an attempt to keep Americans from realizing the magnitude of the price differential and the true cost of FDA 'protection.'"

There are many ways the FDA "profits" by its import ban, and its support of major drug companies. Many observers have noted suspiciously close relationships between individuals in the FDA and the major drug companies – with former FDA employees often leaving government service to take lucrative jobs in the drug industry, and high level FDA jobs filled by drug company employees. The FDA has total power to regulate the drug approval process. According to a recent Tufts University study, it requires up to \$231 million for a drug company to get a new drug approval from the FDA. As Fowkes points out,

"Getting drugs approved expeditiously is a matter of economic survival in the competitive world of the pharmaceutical industry. The friendlier one company's representatives are with their FDA counterparts, the faster their drugs are approved



and the sooner that company can turn a financial bottomless pit into a cash cow... Drug companies do not like competition from non-drug therapeutic agents, especially when they are more effective, less toxic and lower priced. It is the FDA's job to eliminate such therapies when they start to get legitimate... The FDA's power to classify vitamins and nutrients as drugs gives it the absolute power to prohibit the marketing of nutrient-based medical therapies."

THE WAXMAN COMETH

"Giving regulators unilateral authority to shut down a factory smacks of a police state."

One can only wonder at what a tangled web has been woven in the subterranean halls of congress, what "deals" may have been struck, for example, with Congressman Henry A. Waxman (D-CA, the influential chairman of the House Subcommittee on Health and the Environment, a vehement supporter of increased FDA power) – deals that might benefit the drug companies that contribute to his famous and massive war chest of PAC funds. Members of the National Pharmaceutical Alliance and the American Pharmaceutical Association PACs are among those in a position to influence the congressman and his many allies on the hill. Waxman has been known to use his war chest – too rich by far for him to begin to deplete in his own political campaigns – to contribute financially to the campaigns of other representatives. It has been observed that people in the influential sphere of the Waxman war chest tend to follow his lead on voting with few deviations. Sources say that Waxman uses this tremendous influence to further his own ideologically driven agenda, which includes plans for a bigger, more powerful FDA. Expanding the FDA's Power It can be argued that the predations of FDA Commissioner David Kessler are made possible by the structure and language of the laws governing the FDA. On October 10, 1992, a house subcommittee approved legislation (HR 2597), sponsored by subcommittee Chairman Henry A. Waxman and full committee Chairman John Dingell, that expands the enforcement powers of the FDA. The voice vote of approval from Waxman's clones overwhelmed the vehement objections of industries regulated by the FDA. The bill would allow for the seizure, embargo of products and civil fines of up to \$250,000 for individuals and \$1,000,000 for corporations. This would add greatly to the FDA's already enormous power. "...it is estimated that FDA oversees the production and sale of products that account for 25 cents of every dollar spent," said Julie Rovner in an article in the 1991 Congressional Quarterly. The article goes on to say:

Even the Democrats who supported the bill voiced concerns about the potential for inadvertent disclosure of trade secrets and the lack

of "due process" for business to protest agency action.

"Perishable products would rot while a court determines if FDA acted properly," said Ralph M. Hall, D-Texas. The bill was also officially opposed by the Bush Administration, although earlier this year FDA Commissioner David Kessler testified that the agency needs increased enforcement authority.



Former Congressman William E. Dannemeyer R-California, who was the ranking Republican on the subcommittee said: "Giving regulators unilateral authority to shut down a factory smacks of a police state." A source told me that Dannemeyer's off the record statements were much harsher particularly toward Kessler: "gestapo tactics" and "power hungry bully" were phrases that came to mind.

WILL THE FDA SHUT US DOWN FOR PUBLISHING THIS ARTICLE?

"Kessler's Kops," as they have been referred to around Washington, could decide to raid your local bookstore or the editorial offices of this magazine for making "third party claims" that do not meet their stringent requirements.

Statements that would normally be protected by the constitution could run afoul of the Nutrition Labeling and Education Act (NLEA). The NLEA was first passed by Congress in 1990 with the intent of expanding health-related claims on foods and supplements. In this it was supported by such agencies as the National Cancer Institute and the Federal Trade Commission, and welcomed by nutritionists as an aid that would help the consumer make healthy choices about food and supplements.

Statements that would normally be protected by the constitution could run afoul of the Nutrition Labeling and Education Act (NLEA).

The FDA, of course, fiercely opposed any such expansion of health-related claims (such as that bran could help prevent colon cancer). The FDA was already frustrated and incensed at the increasing scientific, popular, and even medical acceptability of vitamins and nutrients – substances they insisted should be in their regulatory sphere of influence. Thus the FDA cleverly wrote NLEA regulations that totally subvert the intention of the NLEA, making the FDA the sole decision maker on the "expanded" health-related claims. So, consequently, when nutritionists made claims that certain vitamins and foods taken in specified amounts would help alleviate or prevent certain diseases, the FDA marched in to declare that, because of these health claims, the products must be considered "drugs" and be placed under its jurisdiction.

The claim that bran can relieve constipation or prevent colon cancer, printed on the side of a box of cereal, could possibly make that product a "drug".

MEGABRAIN REPORT

THE PROBLEM WITH THE FDA CONTINUED



This means that supplements or foods making health-related claims must be approved for each health claim by means of the rigorous testing that all drugs go through. This process would likely take, in each case, ten years and well over \$100 million dollars.

The FDA's new NLEA regulations also expressly prohibit "third parties," such as the American Heart Association, the American College of Nutrition, or the American Association of Retired Persons – or you or me – from making health related claims associated with diet or any health product. As a result, any author writing a book about how certain vitamins or herbs can have beneficial effects on the body or mind may be subject to legal action by the government.

Claims about such herbs as echinacea (which is used by millions to successfully combat colds), ginkgo biloba (a natural cognition enhancer), and vitamins could come under the jurisdiction of the FDA. This means that the FDA could prohibit *Megabrain Report* from stating that vitamin C can decrease cardiovascular disease, despite the fact that there is no way this can be construed as "commercial" speech, and despite massive evidence that the statement is true, such as a ten-year study of over 11,000 people that concluded that vitamin C decreases incidence of cardiovascular disease by 25 to 42 percent and increases life expectancy by one to six years.

Reporting on other recent findings – such as two large scale studies at Harvard demonstrating that daily vitamin E supplements cut the risk of heart disease in half, and daily doses of vitamin A cut the rate of heart attack in half – could make us subject to legal action by the FDA. Truth is no defense against the FDA.

WE ARE LOSING OUR RIGHTS.

On page 60381 of the Federal Register it says: "The agency believes that a statement of identity, such as 'vitamin E', on the label of a product is a claim about the nutritional value of the food." On page 60545: "If a claimed effect can only be achieved at a level of a vitamin, mineral or other substance that scientifically cannot be characterized as nutritional but rather as therapeutic, then that fact will be considered by the agency in deciding whether the

claim is appropriate for food, or whether it is in fact a claim that would make the product a drug...."

If these actions are taken, you may have to go begging to your doctor for a prescription just to get Vitamin C in quantities over a few milligrams. The Vitamin C that could be bought over the counter would contain very low doses, possibly even less than the Recommended Daily Allowance (RDA). Similar prohibitions would be placed on such nutrients as amino acids – as the FDA has already done with the amino acid tryptophan.

THE HEALTH AND FREEDOM ACT

The FDA's actions and sinister plans are stirring up a backlash. One leader of the uprising against the FDA has been Republican Senator Orin Hatch of Utah, who proposed the Health and Freedom Act of 1992. In sponsoring the act in the Senate, Hatch observed, "In our free society, consumers should be able to purchase any food they want whether it is an egg, ice cream, a steak, coffee, potato chips, or a dietary supplement – regardless of whether some of those in the Federal Government approve. Unfortunately, however, some people in the government, including some people at this U.S. Food and Drug Administration (FDA), appear to have unfairly treated dietary supplements and have tried to establish unreasonable regulatory burdens on such products. For example, although FDA readily allows people to eat conventional food products that may be high in saturated fat, cholesterol, caffeine, sodium, or calories, or lacking in important vitamins or minerals, yet the agency raises regulatory objections over safe dietary supplements of food substances that are desired by many consumers and that may be recommended by nutritionists or other health professionals."

Senator Hatch's proposed Health and Freedom Act would help to nip this regulatory abuse in the bud by correctly defining what dietary supplements are and allowing for freedom of choice in their use. The new law would also provide that "a dietary supplement shall not be deemed to be a drug...." It also would take the obvious but seemingly radical step of declaring that the legality of a claim will be linked to its scientific and medical validity. Currently, claims are only legal if the FDA agrees with them, and scientific evidence cannot be used to

contest FDA decisions. Thus the current Catch-22 situation in which the "truth" cannot be used by companies to defend themselves against charges of fraud!

The Health and Freedom Act is very important to those who are interested in taking cognition enhancing medications as well as vitamins. Any erosion of our freedom regarding nutrients effects the right to take medicines as well. This can have serious health implications for the future when further real improvements in cognition enhancement can possibly make even more positive differences in the quality of life.

There are also serious implications for the present. People who are HIV positive are forced to join technically illegal buyer's clubs that are only tolerated by virtue of the political pressure that has been exerted on the government – they could be closed down at a moment's notice. Those with family members who have Age Associated Mental Impairment or Alzheimer's Disease will have to fly overseas and break the law by smuggling commonly available European medications back into the United States.

The Health and Freedom Act can help by limiting the totalitarian powers of the FDA, broaden and protect the rights American citizens already have, and take into consideration the right to make greater personal health decisions regarding medications in addition to purely nutritive ones involving vitamins and herbs.

A successful curbing of the FDA's terror tactics and mind-control policies could mean a great leap forward in public health. As Steven Wm. Fowkes observes, "The removal of arbitrary restrictions on claims will encourage both consumer education and competitiveness. This function alone may do more to eliminate real fraud in the health food industry than the FDA's actions ever accomplished."

The Health and Freedom Act will be reintroduced in the new 1993 Congress. Health-conscious consumers, like the readers of *Megabrain Report*, can be of crucial importance. Letters to your Senators and Representatives, especially the newly elected members, will alert them to the magnitude of the issue, and the enormous mass of American citizens who want health freedom. Write and call now, and continue in your efforts. Only a

powerful expression of the will of the people, and their refusal to submit to the unconstitutional practices of the FDA, can spur the members of Congress to solve the FDA problem before the dreaded and dreadful NLEA regulations go into effect in December, 1993.

The Health and Freedom act of 1992 was introduced to congress this past winter and was subsequently referred to the Senate Committee on Labor

and Human Resources. The hearings scheduled for this summer never materialized.

(Editor's note: Readers are encouraged to voice their opinions to Congress and the FDA. See Michael Hutchison's Editorial in this issue for contact information.)



The Deadly Idealist: David Kessler

David Kessler was described to me by someone on the hill as an ideologically driven man—an idealist. When ever I hear the word idealist, I reach for my revolver. If an ideologue is a person who is willing to sacrifice everything for a cause—you can be damn sure that he's even more willing to sacrifice everything you have for that cause.

It appears that the embattled FDA Commissioner is finally reduced to sacrificing the last thing he has for his cause at the FDA—his last shred of dignity. But that shouldn't matter much, he's used to sacrificing other people's dignity, freedom and peace of mind on a large scale. Dr. Jonathan Wright comes to mind as one of his victims. It can only be a small solace to Dr. Wright to know that Kessler's tenure at the FDA may soon be over.

Last winter Kessler gave a speech before the Food Drug and Law Institute that has been described by attendees as "self-serving, vituperative and wholly offensive". He has been seen as groveling before President Clinton in a thus far successful effort, at the time of this writing, to stay on as FDA Commissioner. His major selling point to Clinton is that he was never loyal to the Bush administration and often worked against it. It is a little like applying for a job at Macy's and telling them that you shoplifted at Gimbel's.

Kessler was granted a three month reprieve by the new president and then allowed to keep his job because he came to be seen by enough Democrats as a new deal liberal capable of working

with them on a number of issues. His agreement with some of the goals of Henry Waxman (D-CA), his work on the hill with congress, and his closeness to Nadarite Dr. Sidney Wolfe, certainly appear to give him liberal qualifications. However, if liberalism represents a drive toward honesty in government, and concern for the health and well-being of all the people, then Kessler is clearly no liberal.

A quote from the January 12, 1993 Wall Street Journal provides an interesting glimpse of Kessler the man:

"Mr. Clinton promised more activist government, but he also vowed he'd create 'no more big bureaucracies'. David Kessler is the archetypal bureaucratic empire builder, the sort who makes all kinds of enemies for a President. Instead of talking about new drugs approved and lives saved, Dr. Kessler boasts that 'the number of injunctions, the number of seizures, the number of criminal cases referred to justice have all increased' in his term..."

"Beyond policy, the issue is also loyalty. If Dr. Kessler can show such contempt for the President who appointed him, why should he show any greater deference to Bill Clinton?"

The Food and Drug Insider Report gave ten reasons to boot David Kessler. One of them was: "Booting David Kessler will allow him to go back to practicing medicine where he can face

the dilemma of trying to save the life of a patient who can't get desperately needed medical technology because FDA has decided it is only experimental and refused to approve its use."

Steven Wm. Fowkes the publisher of two alternative health newsletters, *Forefront* and *Smart Drug News*, had this to say: "I personally hope that Kessler stays in. Since he's such an evil Darth Vader type it makes it easier to ultimately get FDA reform."

You have probably seen some of the recent news stories about the FDA's battles to destroy the sale of herbs and vitamins. This carefully crafted propaganda includes statements from David Kessler who is trying to convince the consumer that there is something grossly wrong with the vitamin and health food industries.

These stories contain poignant interviews with people who claim to have been hurt by the misuse of herbal remedies. In one recent headliner, a woman who poisoned herself herself by continuously drinking very large quantities of comfrey solution, tells a sympathetic newscaster that the government should have some how protected her from herself.

Such emotional images are preparing the public for possible raids on health food vendors and seizures of merchandise. Free speech may be affected when published health claims come under FDA control.

Scott Preston

MEGABRAIN REPORT

THE MOTIVAIIDER

Product Review

A REMINDER TO REMEMBER: CARRYING "ON BOARD" CUE GENERATORS

In the last issue of MBR, I described how mind machines can be used to help implant anchors. An anchor is basically a conditioning or stimulus/response mechanism: Pavlov conditioned his dogs to salivate at the sound of a bell by teaching them to associate the bell with food. Anchors are created whenever we're in a heightened or intense mental state, and we receive a specific signal or stimulus at the peak of that state: at that point a neurological link between the stimulus and the state is created. For more information about using mind technology to implant anchors, see my article "Beyond Entertainment: How to Use Mind Machines for Peak Performance," in MBR #4, pp.9-10.

It's clear that the mind responds well to cues and anchors, which are basically just reminders. Unfortunately, as most of us have discovered at one time or another, the mind is not so good at generating its own reminders. For example, if we want to breathe more deeply, we will quickly do so when a friend reminds us, but often we can go for long periods "forgetting" to breathe deeply, until some internal or external cue reminds us. Thus the comic-strip image of tying a string around your finger. As we discovered in our exploration of anchors, we have an extraordinary capacity to assign virtually any deeply personal meaning to a cue or stimulus that is in itself without inherent meaning, such as touching thumb to forefinger. So we can assign the meaning "relax" to a finger signal, and whenever we give ourselves that finger signal, we automatically activate a complex relaxation response. In this case, the cue is a self-generated cue. But, as we've noted, while we can be great at responding to cues, we can be lousy at remembering to give ourselves the cues. One answer is the use of external anchors or cues.

One type of external cue is something in the external world. We can, while in our hypersuggestible trance state, arbitrarily assign the meaning "relax" or "breathe deeply" to the ring of a phone, or a car horn, and when we hear the cue, we automatically relax or breathe deeply.

GETTING A BUZZ

However, there is an even more effective technique for generating cues, and that is by carrying with us an "onboard" cue generator. One such tool that I have found extremely valuable is a small and very inexpensive "intention arousing device" called the MotivAider. While it doesn't fit under any of the "mind machine" categories, the MotivAider is in fact one of the most powerful tools for boosting brain power and performance that I've encountered. The device looks like a small pager, and is worn on a belt or waistband or carried in your pocket. It is user-

programmable, and works privately and automatically, by periodically sending you a brief, silent buzz or vibration. You can adjust the timing, so that the machine will give its brief, tingling vibration from once every minute to once a day. Or, in a new model, you can set it to deliver its vibrating reminder on a random rather than a regular interval basis.

The brainchild of Minnesota clinical psychologist Dr. Steve Levinson, the MotivAider was originally developed to help motivated patients follow through with medically prescribed self-care. Levinson was aware of how people can be strongly motivated to do something, yet lack a mechanism to keep their attention focused on their good intentions. With the MotivAider, he developed a way people can regularly be reminded to follow through on their good intentions. The device is now being used for everything from sports training (reminding athletes at intervals throughout the day to relax, or visualize themselves executing a perfect play), to quitting smoking, to alleviating teeth grinding.

Simply by creating a message ("breathe deeply") and "attaching" the message to the vibration of the MotivAider, the vibration quickly becomes the message. I have discovered that by using the MotivAider in combination with mind technology, you can not only "attach" the message to the MotivAider much more tightly, but you can attach a far more powerful message to the device: you can, in fact, turn it into a powerful anchor for peak states or dramatic state changes.

ACTION: USING CUES WITH BRAINTeCH

Here's how it works. First, decide what state or meaning you want the device to anchor for you. If you're a teacher, you might want the signal to remind you that "praise works." If you have a temper, you might want it to remind you to smile. Cancer patients use the device to remind them to do a healing visualization. A broadcasting school uses the device to help students remember proper breathing and vocal delivery techniques. Those with stress-related problems may want to be reminded to "relax" or "let go." Someone who wants to improve their public speaking might use it to anchor an image of themselves speaking confidently to an audience.

Once you've decided on what you want the device to anchor, adjust the timing so the MotivAider vibrates once every minute. Now put it off to one side, near your hand, as you put on your mind machine, become relaxed, and go into a trance-like or suggestible state. Once there, anchor the state, as described in MBR #4. One key is to experience as fully as possible the state or idea you wish to anchor. Don't just think of it—actually be there, experiencing it with every cell of your body, using every sensory modality. As you experience fully this bodymind state, place

your hand on the MotivAider, or place the MotivAider on your stomach. Now, attach or anchor your state to the vibration of the MotivAider. Suggest to yourself that every time in the future that you feel the vibration, it will automatically trigger a verbal message (such as "high energy," "relax," "speak up," and so on), and activate these bodymind neural circuits, causing you to fully reexperience this energy state. Now, let the device vibrate once, twice, three times or more while you're in your mind tech trance state, each time intensifying the fusion of the state with the vibrating stimulus.

After you've emerged from your mind machine trance, you can adjust the MotivAider to vibrate every five minutes, every half hour, or randomly. By controlling how frequently the vibration is delivered, you can control how prominent the intention or the state will be in your own awareness—whether you want it on the front burner or a back burner. In practice, you'll experimentally and experientially arrive at a level of awareness of a state, thought or intention that produces the most favorable results for you. Of course the MotivAider is not essential to this technique: you can create anchors with other

onboard cue generators, such as digital watches with alarms (though few of us really want to have a watch beeping every five minutes, particularly during a board meeting or while watching a movie). Whatever you use, I strongly suggest you experiment with this technique, since it's effective for such varied applications as accelerated learning, sports training, releasing emotions, pain reduction and much more. However, in terms of convenience and effectiveness, the MotivAider is the best thing I've found for the purpose.

Michael Hutchison

ACCESS:

The MotivAider, with belt clip, battery and QuickStart instructions, costs \$59.95. Available from Tools for Exploration. 1-800-456-9887.

Future of Psycho-technology *continued from page 13*

users could send in their feedback in the form of completed questionnaires which were designed for the project. Findings will be reported in Megabrain Report.

FOUNDING PSYCHO-TECHNOLOGY AS A SOCIAL ENTERPRISE

The future for psychotechnology looks bright. Our culture is becoming increasingly aware of the importance of the quality of our conscious experience. Imagery and relaxation techniques are spreading into many sectors of our society. The growth of mind spas will accelerate this process and by 2020 we can expect to see a society in which the Age of Consciousness has dawned. As long as no catastrophic economic or ecological collapse occurs, we face an increasingly interesting future where access to abilities and skills and transcendent states of consciousness becomes increasingly available.

Meanwhile, in the here and now, as an experimental psychologist, my continual beef is that in this industry far too few resources are being devoted to research, so that questions which are potentially easy to answer by research—like the old perennial "red lights vs white lights" (vs all sorts of other colors) becomes debated like a medieval scholastic argument, rather than simply being put to the test. Similarly with "does simultaneous CES and light and sound provide better entrainment than light and sound alone?" and "which CES frequencies and waveforms are better for certain conditions than others?"

All these questions are readily answerable, given some incisive research. Another major missing piece for potential users of psychotechnology is that we do not at present understand the factors which lead one individual to obtain a very worthwhile and rewarding experience with a certain psych-tech device, while the same device, tape, or process fails to please another individual. We need to research the relationships between personality factors

and the outcomes of using specific technologies and processes. At the very least it might cut out some of the guesswork in our attempts to advise potential users regarding their choice of device, tape, or process. At best it would greatly deepen our understanding of the dynamics of psych-tech usage. Finally, one effective way to progress the field as a whole would be to found a professional association with a professional journal and a lay newsletter and start a research institute for psychotechnology. Such a research institute would be free to pursue both fundamental research and applied research as well as serving as a creative center for exchanging information about psychotechnology and could also develop products for licensing to manufacturers. It would also be able to double-blind test the many subtle energy products which have good user reports but which are currently unsupported by controlled investigation. Michael Hutchison tried to start such a center in 1988-89, with the Neurotechnologies Research Institute, but it never established sufficient funding to function as a research center. Sooner or later such an institute will be founded. Can we hope that the readers of Megabrain Report would be prepared to help in such enterprises? Time will tell.

We need to research the relationships between personality factors and the outcomes of using specific technologies and processes.

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MEGABRAIN REPORT

A THERAPIST'S OBSERVATIONS

Flotation and the Nature of Change

by Walter E. Jessen, Ph.D.

In the tank, floaters discover, change comes spontaneously without an external agent.

Since change is the crucial component of successful therapy, most psychotherapists, especially brief therapists, have been keenly interested in the process of change, and committed to learning how change comes about with their clients. Their concern about meaningful and relevant change has led them to explore tailor made approaches. These in turn have germinated a wide range of techniques specifically designed to facilitate rapid change. Paradoxes, for example, were designed to direct and utilize "problematic" behavior to produce change. Interesting homework assignments, designed to extend therapy outside of the professional office, accelerated change

by empowering the client on a daily basis. Hypnosis was used to connect the client to "hidden resources" that mobilized change in surprising ways. The client's symptomatology was seen not as simply a problem to be eliminated, but as a gateway into change. Behavior modification, Eye-Movement Desensitization Response, strategic

therapy approaches, NeuroLinguistic Programming and physical release methods (such as Rolfing, Focusing, and the Sedona or Release Technique), to name just a few, are outgrowths of this explosion of new techniques and concepts for dealing with problems by facilitating change. Most of these techniques are based on the concept of "producing" change by providing 1) a safe "environment" for change, 2) a corrective stimulus to change, and 3) support for the new (changed) behavior. In each technique, the therapist is seen as actively engineering the coordination and juxtaposition of these events. Although none of these schools of thought claim that they have the corner on knowing how change comes about, they all hold that change is stimulated by some external agent, as though understanding and controlling change has a lot to do with comprehending and controlling the agent of change.

However, the experiences of change that people report after having spent time in a flotation tank present a challenge to this way of thinking. In the tank, floaters discover, change comes spontaneously without an external agent.

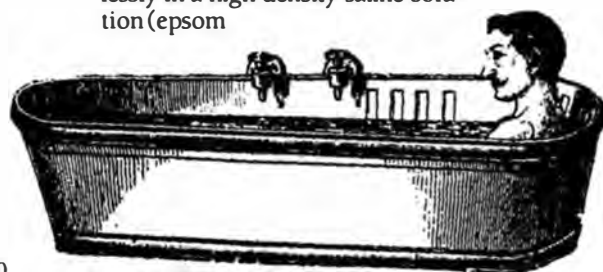
Change, they report, is a process of releasing or permitting rather than actively engineering or controlling. Flotation tanks are totally enclosed containers (8' x 4' x 4') where the person floats effortlessly in a high density saline solution (epsom

salts). Normally there is no light and no auditory stimulation. Gone, in the float tank, are the usual "corrective stimulus" and therapeutic binds engineered by the therapist. Gone are the interpersonal dynamics between therapist and client that provide the support, safety and nurturance for change and new life. Gone are the boundaries between self and environment (self and water), mind and body, past and present, present and future – the boundaries that normally govern our daily lives. In their absence, report people who have floated to explore themselves, change simply occurs. These reports of spontaneous change and subsequent behavioral and attitudinal growth give one pause – and a new perspective – in thinking about change. It appears that without the usual trappings of therapy, therapeutic change occurs anyway. Is this what is called spontaneous remission, where the person suffering from a problem is now returned without therapy to his pre-problem condition? Or does this change have little to do with problems, or coping, or pre-problem state? Does this change have to do not with returning to a prior state but with movement beyond? One thing that has been missing thus far from discussions of therapeutic change has been an exploration of the nature of the change that takes place in the flotation tank. How does floating serve as a gateway into experiencing change? Why is it that the change experienced while floating is therapeutic and growth enhancing?

The experience of flotation is one of heightened awareness of mental, emotional and physical processes.

FLotation AND AWARENESS

The experience of flotation is one of heightened awareness of mental, emotional and physical processes. The floater experiences an intensified consciousness of the body. Not only is there a heightened perception of tension, patterns of tension, and the release and change of these patterns, there can be an awareness of feelings and memories associated with these tensions. There is an acute mental awareness. Imagery is naturally enhanced during the float and may automatically come into play with released memories as the body finds a deep sense of support in the warm water. Thoughts come and go. The awareness of subtle involuntary movement in the body intimately connects the floater with physical signs of what might be considered unconscious processes. In addition, the natural tendency to regress as well as feel more flexibility in time, and to go into trance without induction; the greatly increased ability to visualize; the natural reduction of stress, decrease in breathing rate, decrease of blood pressure, decrease of stressful hormones (cortisol) and increase of beta endorphins – all converge to create a positive experience for the floater. Clinically, many mental/emotional/physical symptoms disappear while the person floats. Some



symptoms "dissolve" for long periods, while some totally disappear after the float. The presence of boundaries changes as the floater loses the sense of where his body ends and the warm supportive tank water begins. Fear is, at best, a momentary issue, as most floaters quickly increase their sense of trust and yield to the comfort. There is a profound awareness of what little energy is required to be yourself, a sense that being yourself is a product of awareness rather than effort. Just as the boundaries between the body and the water disappear, distinctions of internal-external, mental-physical become more vague, to be replaced by a greater sense of openness and awareness of being-in-process. The re-experiencing of memories, be they traumatic or not, is done from a deep sense of comfort, warmth and positiveness. Whether or not the floater uses a therapist to guide him more efficiently through this process using the abundance of available resources to help achieve the floater's stated goals, (Jessen, 1990) it is clear that where the person is, is of primary importance. That place is a flotation tank.

In addition to the plasticity of time, one's body image may also become more plastic, less defined and open to being altered in positive ways

Assessing the experience of change that floaters report in the tank, one is struck by the therapeutic aspects indigenous to this observed process. Without a therapist trying to shape or manipulate events, the floater spontaneously experiences aspects of change that alter his functioning. Two key aspects of change are the link between change and creativity, and the relationship between disappearance and change.

CREATIVITY

Normally, the body is barraged by stimulation from the environment that impinges upon the senses. Well worn voluntary and involuntary muscular patterns, learned behaviors and habits, neural and hormonal responses and more are activated to assist the person in making sense of the environment and in taking effective action. Normally, that is, the brain-mind responds to externally created processes. While the person floats, in lieu of external stimulation, an internal process is actively creating a wide range of stimulation. In other words, without external stimulation, the brain-mind stays quite active.

PLASTICITY

This creative process has several characteristics. First, it takes place in a timeless or time-free environment. Not only is the sense of clock time altered, the floater has the ability to mentally travel backwards into childhood as well as project himself into anticipated futures. He can re-live experiences or create new ones. Regression manifests new options. The floater can think magically like a child and alter

experience. Information can be processed in child-like ways that enable the floater to resolve old problems more satisfactorily.

In addition to the plasticity of time, one's body image may also become more plastic, less defined and open to being altered in positive ways. The impact of generalization at regressed levels with positive emotional learnings can greatly alter the person's adjustment in adult life.

CHANGES IN SELF-DEFINITION

Second, since the environment is not impinging on the floater in its normal manner, the self is less automatic in its responses, and therefore in how it chooses to define itself. Self reference is now perceived in the context of a greater flow of information, changes in experienced body boundaries, emotional trust of the body and the environment (no longer experienced as separate), enhanced relaxation, and more positive feelings. The self is experienced not as something rigid, but as a process that tends to evolve, expand, include new information, ask new questions. In short, the floater becomes directly aware that the self continues to actively create itself. That is, freed of boundaries, new and old information may shift from its normal ways of being organized and reveal that the self not only seeks to expand itself in the flow of information, it is an active process of construction. What we know of the self is not determined as a child, it continues to organize and re-organize based on new information. It is dynamic. These notions are similar to Maturana (1988) and other constructivists who view people as active participants in creating their own experiences: their own ways of knowing and becoming are based on their own variant self organizing properties, and that knowing and learning is a total mind-body phenomena.

ENHANCEMENT OF INTENTIONALITY

Third, floaters frequently enter the tank with an intention – a problem they need to solve or decision that needs to be made.

Of course it tends to be the case that the clearer the formulation, the more obvious the solution that is created. For instance, well framed questions tend to attract information both relevant and apparently irrelevant that challenges and sometimes bombards the floater's consciousness. Memories, thoughts and images are magnetically drawn to the issue, pushing the person not only to re-experience and re-think the problem, but also to become open to unusual solutions that he would normally be less likely to think about. This experience harkens back to Jung's (1936) notion of "complex" – a nucleus that attracts a constellation of feelings, thoughts, perceptions and memories. On less well formulated instructions the floater becomes

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more easily distracted and concurrently may notice changes in attitude, sensation and feelings that may be the precursors to behavioral change.

CREATING THE FUTURE

Fourth, the floater experiences his body not only as a repository of images about its past, but as a resource for creating experiences that alter the future. That is, change (in this case change of the body) unlocks creativity. As the body becomes more relaxed, specific patterns of tension demand more attention and frequently "release" memories (mostly in visual form), accompanied by much of the appropriate affect. Whether the memories are pleasant or unpleasant, the floater experiences them in a positive way and manages to create an optimal distance between himself and the images. The memory is manageable and able to be integrated into consciousness. There are reports from floaters who carry compelling parts of their float into their everyday world. Some floaters report seeing "a white light" in the tank that "communicates" to them that they can take responsibility for their problems. They re-experience this light outside of the tank and change their behavior to effectively cope with problems. Others have reported feeling a comforting presence in the tank, while other have described their feet being cradled by a pair of strong, gentle caring hands, resulting in an increased sense of benevolent support in the world.

DISAPPEARANCE

In an environment where there is minimum external stimulation, there comes a time for most floaters when they experience an inner stillness. Body functions are at rest. The mind is more peaceful, and emotional symptoms begin to unravel or dissolve. The body does not need to maintain its usual mind-body tension. Habitual patterns relax into a sense of flow and ease; what was "stuck" has now become process. Fears, obsessions, anxieties, depression are now transmuted into a flow of images and thoughts that "float by" for the person's consideration and re-evaluation. The "glue" that has held these symptoms now seems to have melted and "they" are free to re-enter the person's mainstream of consciousness where information can be more fully updated and re-evaluated as to its current usefulness. Although this does not mean that all symptoms have disappeared after the person exits the tank, it does mean that they reconstitute in a different way and are more flexible in their emotional demands on the person.

Another aspect of disappearance comes about when the floater experiences a sense of serenity. All thought disappears, all images are stilled. All's well with "the world." There is a quiet sense of emotional freedom. Feelings of happiness and warm joyfulness

can be mixed with other feelings. It all feels just fine. Frequently there is a sense of heartfulness, appreciation of the other, feelings of connectedness along with a comfortable sense of one's aloneness. Paradoxically, in this disappearance of the small self, we experience fullness and abundance. There is a sense of comfort, and change is embraced. New thoughts and insights may appear, to surprise and delight the floater. This is all experienced as a sense of flow and it can comfortably end at any moment, to be revisited in the future.

CONCLUSION

The nature of change as experienced in a flotation tank is a creative process in the fullest sense, one that actively touches all parts of our mental, physical and emotional selves. In the changing of the self, we are provided a new vantage point from which to see that emotional and mental symptoms don't really exist beyond our own creativity. Nor are symptoms created once and just left at that. They are selectively updated in ways to sustain their life.

Disappearance yields a break in the connection between thoughts, images and feelings, that alters their automaticity. It allows problems to unravel or dissolve. The parade of thoughts temporarily ends and now a sense of joyful emptiness becomes the gateway for new thoughts and insights. In disappearance, we experience the appearance of something new. Change as experienced in the tank is inherently positive and growth oriented whether the floater uses a therapist or not.

This work has implications for the development of identity. It is clear that the development of one's identity is a creative process, and is subject to radical change. The experience of disappearance suggests that old patterns of thinking may not need to be actively "attacked" but may simply dissolve, and that this disappearing of the "emotional crust" may result in a more joyful, compassionate person.

Dr. Walt Jessen is a licensed clinical psychologist in private practice in Lost Gatos, CA. He thought that when he grew up he would be either a comic, an artist, a detective, monk or psychotherapist. He never guessed that he would be all of them. P.S. He's still growing up. His address is 200 S. Santa Cruz Ave, Suite 201, Los Gatos, CA 95030.

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Whole Body Acoustic Field Generators

by Terry Patten

You recline, relax, and let go. Music begins, and the device you're lying on doesn't just deliver music to your ears; it tingles your whole body in a sensory bath of sound and vibration, playing upon your skin with the constantly changing vibrations of a wide array of musical styles. Sometimes the musical sounds feel soothing, sometimes powerful and intense, and sometimes exquisite and sublime. Through it all, you relax more and more deeply, letting go into a musical experience that seems to take over your whole being. These are "Whole Body Acoustic Field Generators" also known as "Sound Tables", "Music Beds", or "Vibro-Tactile Stimulators."

It all began in the early 1980's with Michael Bradford's "Cotyledon" (since revised into "The Genesis") an elaborate delivery system for what some believe is "the ultimate experience in consciousness technology." The Cotyledon's pricetag was high (\$56,000 to \$68,000) but many of its users swore that it was worth every penny.

It changed the lives of some of them, including Byron Eakins, who abandoned his successful artistic career to bring this type of technology within reach of ordinary people. Today, he is the manufacturer of the Somatron series of vibrating chairs and tables, and he continues to pursue a vision that "vibrational systems will someday be in every home in America".

Today there are at least eight (mostly small) manufacturers of Sound Tables in America, most of whom offer their products for deep relaxation, pleasure, emotional catharsis and consciousness growth. But because the experience is also lots of fun, its applications are not limited to provoking profound personal catharses and peak experiences. In Japan, body vibration has spawned products directed at much less "evolutionary" applications, including inflatable vibrating car seats, vibrating beds for lovemaking, vibrating theater seats and even-vibrating dance floors!

"ULTIMATE" EXPERIENCES

These devices have "blown the minds" of many users; in their wake we find a striking concentration of enthusiastic, emphatic praise, strong claims, and testimonials laced with superlatives.

Designers of several sound tables have deliberately attempted to create an "ultimate consciousness machine" or something close.

Designers of several sound tables have deliberately attempted to create an "ultimate consciousness machine" or something close. These would-be Svengalis have embellished their machines with a number of creative enhancements in order to boost the already powerful experience of tactile sound into an extra dimension of sensual, psychological and/or spiritual potency.

What are these "extras"? They include quite a range: Some sound tables are suspended from large geometric structures which are

intended to act like a pyramid in focusing and heightening subtle energy. Some incorporate sensors which feed back (to the subject or the operator or both) information about the relative expansion or contraction of the user's "biofield". Other sound tables incorporate optional extra transducers which can be placed under the soles of the feet, laid across the abdomen, or placed under the neck touching the shoulders, vibrating a more and more dominant percentage of the body's surface area.

All sound tables require a console of audio equipment, sometimes provided as part of the initial "package". Some incorporate complex and sophisticated sound processing systems to deliver sound to the body with optimal psycho-physical impact. Certain sound tables include equipment incorporating non-audio equipment powering goggles with flashing lights, which may flash in sync with the rhythm of the music, or at a predetermined brain-wave frequency, and/or in response to an operator's signals. Some come with video displays mounted in front of the subject's face, so that the eyes can be stimulated with a congruent display of colors and shapes while their body is being vibrated by sound frequencies and textures.

Each of these additional features is intended to further potentize an already super-powerful experience. These features distinguish one sound table from another, and they give each manufacturer a basis for claiming that their unit is in some way more "ultimate" than any other. I have experienced some (but not all) of the sound tables which include these embellishments, so I can only say that I think at least some of them (particularly the extra transducers placed on feet, stomach and/or neck) have great value and deserve to be taken seriously.

However, this article will concentrate on the core phenomenon: All of these units build their extras upon a single powerful effect: what music therapist David Ison calls "Vibro-Tactile Stimulation": the vibration of the whole human body with sound and music. This physical, whole-body experience of music is the powerful medicine that has created all these dreams of "ultimate consciousness machines".

THE HEALING POWER OF MUSIC

For nearly 20 years, the scientific literature has contained well-documented studies confirming the impact of music on human physiology. Harrer & Harrer's 1977 publication, "Music, Emotion and Autonomic Function" identified some of the effects that emotional musical experiences have on the autonomic nervous system, particularly tension-related factors including blood pressure, pulse rate, respiration rate, skin resistance, and muscle tension. According to Harrer & Harrer, heart rate seemed sensitive to music volume and rhythm, and both

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WHOLE BODY ACOUSTIC FIELD GENERATORS CONTINUED

Human states of mind and emotion, including many internal physiological tensions, respond instantly and profoundly to musical influence.

heart rate and respiration rate tended to synchronize with music. Other studies have independently measured the effects of music on respiration rate (Kneutgen) and heart rate (Landreth).

In his paper, "Thrills in Response to Music & Other Stimuli", Dr. Avram Goldstein cited experimental evidence that endorphin suppression blocks the subjective experience of "spine tingling thrills" when listening to music, and concludes that the subjective experience of musical "thrill" is endorphin-connected.

The growing field of "Music Therapy" has gained some professional credibility from studies linking music with physiological changes, but its most persuasive evidence is empirical and clinical. Human states of mind and emotion, including many internal physiological tensions, respond instantly and profoundly to musical influence. Since the dawn of human culture, people have intuitively chosen music as a healing influence. Ancient examples range from Shamanic healers to Greek Orphic Asclepians.

The goals of music therapy have been stated to be "the reduction of psychophysiological stress, pain, anxiety and isolation...[helping clients] achieve a state of deep relaxation, develop self-awareness and creativity, improve learning, clarify personal values, and cope with a variety of psychophysiological dysfunctions." If music has this power when heard through our ears, how much more powerful are the effects we experience when it is powerfully felt through the body? It is no wonder that sound tables have found their way into hospitals, private clinics, and universities, where they are used by a wide variety of healers.

CLINICAL REPORTS

Dr. Juanita McElwain, Director of Music Therapy at Phillips University conducted a pilot study involving sessions on the Somatron, the sound table in widest use. She played 30 minutes of native American flute music for headache sufferers. She reports 100% success with complete elimination of migraine, sinus and tension headaches. According to her report, the headaches were gone within 30 minutes and did not return.

Beth Denisch, Music Therapist with the Massachusetts Association for the Blind, has used a Somatron with severely developmentally delayed multi-handicapped children. She reports "[the music bed's] ability to relax and comfort as well as enrich and enliven has made it an indispensable tool.... Muscles of constant hyper-tauticity relax...restless and disgruntled behaviors are calmed and soothed."

The Children's Cancer Center of Tampa, Florida uses a Somatron table during invasive procedures such as spinal taps and bone marrow aspirations, which are quite painful. The bed soothes the children before and after such procedures by reducing their anxiety and distracting them from the unpleasant experience, reducing the pain medication required.

Dr. Arthur Babick, a Clinical Investigator with the Dissociative Disorders Institute of the Southwest, has used the Somatron, along with therapeutic music designed by David Ison, to specifically summon and soothe individual personalities within those suffering from "multiple personality disorders". Ison says that certain music will consistently summon specific personalities in a repeatable and predictable pattern. Babick reports that the unit is known at the facility as the "Magic Table" because of its powerful effects on patients.

Ison is Creative Director for the Society for Neuro-Biology Division on Addiction. He is also a Music Therapist and composer who has worked extensively with Somatron devices and has created several types of therapeutic music for use with them. Some of this music has been used with dissociative disorders as described above. Other examples produce different effects. For instance, Ison reports, "Some music will consistently create a 20% drop in blood pressure. Other music will produce a 15% drop in pulse rate. I have reams and reams of data to this effect."

Ison calls these musical pharmaceuticals "Vibro-Tactile Software". He says, "The body holds trauma in specific areas. Usually a specific memory of a particular trauma is stored in a particular place in the body. Through my work with vibro-tactile music, I know what areas store what kinds of trauma and how to reach them. I help the body to come into resonance with an external sound source. Breathing slows down and the traumatic memories surface so they can be released."

Charles Wilson, co-creator of Discovery Sound Tables, has recently created a two-week certification program for sound table operators. He offers sound table therapeutic sessions in partnership with Donna Hale, a psychologist practicing in Marin County. According to him, "[Using music and the sound table] I can help the client enter into a deep experience faster than any other way I know of. Most therapists spend a lot of their time getting people 'in state'. This technology can help them get in touch with their feelings and emotionally available to work deeply in 15 minutes or so. State specific memories and traumas surface. The client needs to re-enter certain psycho-physical states to do his or her work, and I can help re-create those

Ison says that certain music will consistently summon specific personalities in a repeatable and predictable pattern.

This technology can help them get in touch with their feelings and emotionally available to work deeply in 15 minutes or so.

states, and I can do so so quickly and powerfully because the sound table accesses so many senses."

Don Estes points out, "If I say my name and you hear it, it's in one part of your brain. If you repeat it, it's in two. If you write it, it's in three. If you look at the written name, it's in four. The Vibrasound experience registers, as best as I can compute it, in millions of brain cell sites."

Dr. Jeffrey Thompson is an innovative sound researcher and composer and a longtime user of the Somatron. He now manufactures the PSI table, an inexpensive massage-table based system. He points out, "A huge section of the brainstem and nervous system is devoted to sensing and processing vibration. The spinal cord is composed of nerve bundles carrying different kinds of sensation such as heat and cold, pain, pressure, vibration, etc. Two entire columns sense vibration and take up almost the whole posterior half of the spinal cord. Large portions of the deep, primitive portions of the brain near the brainstem are devoted to vibration-processing. So when you are lying on a sound table, powerful emotional information, in the form of musical vibrations, gets processed right in the part of the brain where our most deep-seated emotional programs reside. This is one reason sound tables produce such powerful effects."

WHAT PRINCIPLES ARE AT WORK?

When asked why sound tables create such a powerful experience, Byron Eakins points first to the obvious, "Feeling music in the body is a unique experience; we're just not used to it. This has a profound effect. It really gets your attention. And if you 'let go' into the experience, all kinds of things can happen. I've exhibited Somatrons at many trade shows, and I've heard people describe emotional catharsis, mystical experiences, out-of-body travel, amazing things. I stay away from talking about these more mystical experiences in my professional communications because I want the Somatron to be taken seriously. But I hear stories like that all the time."

Don Estes, the creator of the Vibrasound describes the principle of "sensory resonance". In sensory resonance, the senses offer the brain completely congruent information. "Sensory deprivation such as you experience with a floatation tank is a form of sensory resonance. All the sensory inputs are simultaneously, congruently quiet."

On the Vibrasound, all the senses get convergent, simultaneous stimulation. Normally, in order to focus on a single stimulus, your reticular activating system has to screen out countless "background" sensations. When the Vibrasound "drowns out" the background distractions, the attention and mental energy that would otherwise be used up by the task of sorting inputs, is freed up. This in itself is highly

unusual, and it means you have much more consciousness available than you would ordinarily.

"And what is presented to consciousness? Music. And great music is profound. Communication can be boiled down to frequency, amplitude and waveform. Music results when those elements are combined together in the most beautiful, powerful ways possible. Music is the greatest form of communication man has ever created. Music can be emotionally powerful aesthetically powerful, mentally pleasurable, physically healing, deeply relaxing. And consciousness is uniquely freed up. No wonder the result is so profound."

While still in his teens, Dr. Patrick Flanagan invented a unique device called the Neurophone, which communicated sound to the brain via the skin. He points out, "Each cavity in the body is a Helmholtz resonator; it has a specific frequency to which it resonates like a tuning fork. Thus, if the body is resonated by music, certain parts of the body will resonate particularly strongly to each frequency."

Flanagan considers the modality inherently powerful, in part because the human skin is such a powerful sense organ. "Our skin is not just a covering; it is an enormously sensitive organ with hundreds of thousands of receptors for temperature and vibrotactile input. Every organ of perception develops ontologically and phylogenetically out of skin. In the embryo skin folds and then form our eyes and our ears. Our skin may contain the latent capacity to perceive light and sound. I think by stimulating the skin with energy in the right way, you can potentially repolarize the brain and charge it with energy."

Flanagan points out that the technology is still in its infancy. He looks forward to dramatic developments in Acoustic Field Generators, with dramatic refinements in the efficiency with which sound is translated to the body, making possible increasingly profound applications.

FREQUENCY RANGE: DOES TREBLE MATTER?

Dr. Norman Shealy makes successful use of several sound tables in his private practice where he offers residential stress-rain programs. Shealy's protocols involve the use of his Relaxmate flashing light device, his Biogenics self-regulation program, music therapy, Microcurrent CES, and extensive counselling. According to Shealy, high frequencies are not reproduced well by from some tables, and he prefers those on which "you can feel the higher musical tones."

Charles Wilson points out that vibrations above 380 cycles per second are not physically palpable. He speculates that higher frequencies become palpable when sound distortion or "speaker buzz" creates low-frequency shadows of higher tones. Don Estes agrees, saying, "I have spent thousands of dollars

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studying it, and I can't find anybody who can feel more than 350Hz. Theoretically human cells can vibrate up to 2000Hz based on the laws of resonance, so I make sure the Vibrasound reproduces frequencies that high. Above that, though I don't believe there is any effect."

Byron Eakins candidly admits that he lacks hard data, but he says, "Using the Somatron, I can feel the violins and other higher-pitched instruments. I think they make an important difference."

Tomatis stresses the profound physiologic importance of sound conducted through our bones, and he identifies the most important frequency range of the sounds conducted by bones as high frequencies: 2,000 Hz and above!

His intuition is given a boost by the writings of Alfred Tomatis, a French Otolaryngologist who developed a method of music therapy and vocal training based on his pioneering observations of the profound interconnections between the brain, the ear, the voice, and the general state of human health. Tomatis stresses the profound physiologic importance of sound conducted through our bones, and he identifies the most important frequency range of the sounds conducted by bones as high frequencies: 2,000 Hz and above!

But most people do not consciously notice the palpation of such high frequencies, except insofar as they reach the ears through bone conduction. Do high frequency vibrations influence the body without being consciously palpable?

Dr. Patrick Flanagan's work with the Neurophone suggests this. In the Neurophone, two electrodes on either side of the head broadcast radio frequencies to the body which are "heard" in the brain as "sound". However, Flanagan is convinced that they bypass the ear completely. The Neurophone's sounds can be "heard" even by people whose cochlear hearing system is physically damaged. He has experimentally observed that skin numbed by novacaine will block the Neurophone's signals, but when the electrodes are moved beyond the boundary of the numbed area, the Neurophone's "sound" reappears. Flanagan believes "the skin can be an organ for audition" of signals we ordinarily presume we cannot "hear" or "feel". This suggests that we may be sensitive to, and influenced by, sounds beyond our range of normal sensation.

[Interestingly, all the manufacturers I spoke with told me that their units reproduce sounds at least up to 2,000Hz, and usually as high as 20,000Hz (frequently cited as the upper limit of human audition) whether or not they believed these vibrations had a significant effect.]

TECHNICAL CONSIDERATIONS

How do you evaluate a sound table? What should you look for when selecting one? Here is a list of technical considerations you should take into account:

(1) DO I WANT A BED OR A RECLINER CHAIR?

Most sound tables use a flat vibrating surface, such as a bed platform, massage table or waterbed. However, Somatron (and perhaps others) builds vibrating recliner chairs, electric reclining beds, and baby beds. Therapeutic applications usually require a flat bed, but a recliner chair may be more appropriate for home use when an operator will not usually be present.

(2) DO I WANT A FLAT FOAM-BASED SURFACE OR A WATERBED SURFACE?

Most acoustic field generators consist of a series of speakers mounted into a wooden frame

covered with foam and upholstery. In a few, however, speakers are mounted below a waterbed or gel-filled medium. Both types of units have advantages.

The solid medium allows the vibration sources to be localized, enabling an operator to "move the sound" from the bottom to the top of the body, or from the left to the right. In the water or gel medium, this kind of separation isn't possible. Additionally, the waterbed units are much heavier and less easily moved.

On the other hand, the water and gel allow the body to sink into the vibrating medium,

TECHNICAL CONSIDERATIONS CONTINUED

communicating vibration across significantly more skin surface, and creating a sensation of being almost “surrounded” or “embraced” by the vibrational effects. Most people agree that this intensifies the experience significantly.

(3) DO I WANT A UNIT WITH SMALL SEPARATED SPEAKERS?

Most sound tables are intended for use with headphones. However, several are manufactured with small speakers positioned near each ear. These small separated speakers eliminate any discomfort or restriction caused by the headphones pressing onto the head, allowing the head to be turned freely to either side. The subject is not auditorily isolated by the headphones, and the speaker sounds “leak” into the room a bit.

(4) HOW NOISY IS THIS UNIT?

In practice, you may want to use your acoustic field generator without disturbing other members of your household (or the landlady downstairs). Some units operate relatively quietly, isolating their vibrational output so that it is felt without being heard. Some are extremely noisy. Consider this aspect of the unit you buy, and make sure that you are satisfied that it operates quietly enough to suit your needs.

(5) BE A TACTILE AUDIOPHILE

An acoustic field generator is a specialized speaker system. It can and should be evaluated as you would evaluate a high-quality speaker. Make sure it cleanly reproduces “sound” (“vibration”) without distortion — even when played at the maximum “volume” (“vibrational intensity”). Buzzy speakers vibrate a lot; don’t confuse distortion buzz with vibrational power.

A useful concept here: “impedance loss”. Every unit must translate a signal in a sequence; for example: from wire to magnet to speaker cone to air to foam to skin. How efficiently does it do that? How much distortion creeps in?

The best way to evaluate this is to experience it for yourself. Each manufacturer tries to create the best possible product, and each can explain why his or her unit is best. Lie on the table, close your eyes, and feel the sound. Is it clear, pleasing and

strong? It is best if you can compare your experience on several sound tables.

Some manufacturers have a very simple explanation for why their units are especially attractive. For instance, Dr. Jeffrey Thompson’s PSI table uses speakers, but large and powerful speakers, 4 to a table, offering higher power and more separation than any other unit in its price range.

Also quite simple is the rationale for Discovery Sound Tables, either their waterbed-based unit or the massage table unit. The waterbed unit was refined by speaker-designer Paul Hughes using known principles of speaker design. Applying well-established principles “the end result is extremely fine, efficient and affordable.” Their massage table unit uses powerful, specially-designed transducers which Charles Wilson believes outperform the speakers used by his competitors while resulting in a very low priced system.

Some manufacturers have attempted to address “audiophile” values in unique ways. For example, the Somatron has a patented design in which the surface on which the body rests has a “resilient support system” which allows it to vibrate too, becoming, in effect “a second diaphragm”. Byron Eakins believes this enables it to provide the most intense ride with the least room noise and the lowest power. “It’s a heck of a ride for 20 watts.”

Don Estes’ Vibrasound system comes with powerful speakers and sound-processing equipment, designed and tuned in a unique fashion. He points out that speakers cones are normally designed to produce “flat” response across their frequency range. He says his new, redesigned Vibrasound has speakers with non-flat cones designed instead for maximum efficiency. Before it reaches the speakers, however, the sound is corrected so that the end result is felt by the body as proportional and balanced. This is done by means of an extremely sophisticated sound equalization system. He says hundreds of vibrational measurements at different frequencies taken with highly sensitive accelerometers (microphones which sense vibration) allow him to program the equalization process so the experiential result is nearly perfect — and fully-efficient.

MEGABRAIN REPORT

Letters

FEEDBACK ON BECK'S FREQUENCY GENERATOR

Shortly after reading Bob Beck's article and instructions, I decided to assemble the modified Frequency Generator as described. I located the BK 3011, and the transformer without problems. A local electronics store had the rest of the necessary material. Though I have very little experience in electronics, the directions were so clear that I had no problem in constructing the transformer unit modification. The results have been truly astonishing. It works!

For example:

1. This year I have used the Frequency Generator every time that I have felt a common cold symptom coming on. For the first winter season in memory, I have had no colds whatsoever.
2. For several years I have suffered from a persistent, recurrent minor infection. Since using the F.G., it seems to have disappeared.
3. Allergic reactions to what I believe are food additives have diminished following the use of the F.G. The mechanism may be a kill-off of associated Candida by F.G. stimulation.
4. I have just had one of the toughest visits with a Dentist in fifteen years. On the evening prior to the visit I did a session with the F.G. After the visit my mouth felt normal.

I am confident that other benefits will be revealed.

My thanks to Dr. Beck for sharing the information on the Frequency Generator, and to you for publishing it. It is an important and practical demonstration of the potential of electromedicine.

Very truly yours,

Kozak Augustine
Orange, California

TOM BEARDON: SCIENCE FICTION?

I've been involved with writing a critique of some of Tom Bearden's writings. A paragraph by paragraph analysis of the NEWMAGNETICS series and the EXCALIBUR BRIEFING along with some of his Introductions and comments on/to other authors really was an exercise in defending sanity. Since completing the notes I find (I think) several things very disturbing about Bearden.

One: He never explains anything without going through the concrete-facts-to-fairy-tale routine.

Two: He never defends himself against any of his detractors (including me).

Three: It doesn't matter what facet of intellectual endeavor - he can confound any expert in any discipline hands down.

Four: Facts or proven relationships hold no scare - trampling them into incomprehension has been honed to a fine art.

Five: He may very well have single-handedly confounded the Russian scientific world into chaos. We now know that a high percentage of scientific talent was dedicated to "implementing" and "developing" stuff Bearden had written about. His credentials carried weight and his writings always held out a carrot.

Six: Each of his "short stories" - and the combined mass of them - far outshadow Star Wars, Dune, Star Trek or you pick one. He may be the greatest science fiction writer - ever.

Seven: Obviously he is a great speaker - not only does he weave his web but seems to do it "in the clear" or "off the cuff" with

enthusiasm and conviction. This lightning-fast recall + assembly + editing + presentation shows talent rarely found.

Eight: If you like Pogo and Calvin and Hobbs you'll love Bearden. Congratulations to Doris (his wife) who must have twisted sideways (with laughter?) many times and survived. Keeping these observations in mind reread the Bearden interview in MEGABRAIN REPORT Vol. 1 No.4.

While reading MEGABRAIN REPORT Vol.1 No.4 the description of the situation in a D'Arsonval meter movement caught my eye. Par. 4 and 5 on p 15. Since I had an old Westinghouse wall mounted power station meter (12" diameter face) in stock it seemed ideal for our purposes. The movement is large and easy to get probes into. It was designed to read the voltage from a wall socket as described. this was obvious from the markings on the face. I constructed a special probe that would measure voltage without being influence by the strong magnetic field found in the case. After removing the case the wires to the assembly were plugged into a standard wall outlet. The swing of the needle moving to position without indicated critical damping. The circuit consisted of two unidentified units connected in series with the moving coil. One was about the size of a blackboard chalk and about an inch and a half long (36 mm). The other was shaped like a postage stamp and about an inch thick. Both were sealed with some kind of potting compound.

Results with the special probe showed over a hundred volts across the rectangular unit. There was also over a hundred volts across the cylindrical unit BUT THE POLARITY WAS REVERSED! This may have been where the return Whittaker current was evident. Voltage across the meter coil itself was much less than one volt. There seemed to be no voltage on the damping disc which was expected since the pointer was at rest. This would be conclusive proof that two currents do interact in this particular meter. Once the meter coil had moved to a stop there would be no need for further current to generate the power required for its movement. This probably explained the lack of voltage across the coil.

There was no attempt to harness the two reverse polarity voltages and connect them so that their effect could generate double the applied voltage. The primary purpose of the experiment was to find the reversed currents if possible and I have presented the data as it showed on my workbench.

And that's how he does it without cracking a smile. By the way, I'll be tickled to send you a circuit diagram that works this way and a modification that will add the two voltages! I realize that even with the informal style of the writing in MBR there seems to be no out-and-out humor (except Bearden).

So, use this or lose it at your discretion. Keep the faith!

Bill Hounsell
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Sausalito, California 94965

A SAMPLE OF WHAT'S COMING IN MEGABRAIN REPORT

NEW SOUNDS FOR PEAK PERFORMANCE. An in-depth look at a variety of new sound generation techniques that are now being used on tapes and CDs to enhance brain functioning. These include: the use of high frequency sound to "charge" the brain, ranging from the work of French researcher Alfred Tomatis to Patricia Joudry's "Sound Therapy for the Walkman," to new audio high-frequency "Silent Stimulation" techniques; and low frequency or infrasonic tones, similar to the sounds emitted by healers and qi gong masters. Including discussions and reviews of new tapes and CDs that use these techniques.

DO SUBLIMINALS WORK? Subliminal tapes are sold by the millions, but do they really work? MBR looks at the scientific evidence, and talks with researchers who have investigated subliminals, including Dr. Thomas Budzynski, Eldon Taylor, Dr. Julian Isaacs and others. Including a comprehensive and straight-talking "Consumers' Guide to Subliminal Tapes."

RIDING THE BIG WAVE. When is the right time to use your mind machine? What is the difference between morning sessions and evening sessions? Michael Hutchison explores the effects of your natural circadian rhythms, and describes how to map your own "Life Wave" and use brain tech to take advantage of your natural changes in body rhythms, find your own "healing period," and make use of your "energy peaks."

THE BIOELECTRIC INTERVIEWS: PULSED ELECTROMAGNETIC FIELD GENERATORS. Authorities including Robert O. Becker, Bob Beck, Glen Rein, Eldon Byrd, Peter Lindemann, Elizabeth Rauscher and Bill Van Bise discuss the potential benefits and dangers of electromagnetic fields, and take a critical look at a variety of PEMF devices now on the market.

MORE LIGHT: MEGABRAIN EXPLORES LIGHT TECHNOLOGY. Articles exploring full-spectrum lighting systems, colored light therapy systems (such as the Lumatron and Dr. Jacob Liberman's new Color Sensitivity Trainer), "color therapy" eyeglasses, and monochromatic LED light stimulators. With discussions of recent research into the use of light systems for the treatment of learning disorders, phobias, anxiety and more; information about how readers can create their own color projection systems easily and inexpensively; a Consumers Guide to Light Technology; discussions of the work of Jacob Liberman, John Downing, Richard Frenkel, M.D. and much much more.

CHANGING CHANNELS: BRAIN TUNING AND THE STATE CHANGE. An exploration of how brain states define our lives.

SACRED MIRRORS: THE VISIONARY ART OF ALEX GREY. An interview with Alex Grey, creator of "consciousness technology" art: paintings that are tools for inducing heightened states of consciousness, and that serve as maps for exceptional brain states.

ELECTROHOLOMORPHIC FIELDS IN THE BRAIN

CRITICAL VIEW OF SOUND AND LIGHT MACHINES BY NOTED EEG EXPERT

MU BRAIN WAVES AND THE CONTROL OF EXTERNAL DEVICES BY THOUGHT



COMING THIS FALL! SPECIAL EEG ISSUE

EEG FOR YOU AND ME: THE SPECIAL EEG-BIOFEEDBACK ISSUE. The most exciting frontier in mind-tech: New breakthroughs in EEG biofeedback, often linked together with Light/Sound and other types of active stimulation. Clinicians and researchers call it a "revolution," producing unprecedented results in treatment of learning disorders, psychotherapy, self-exploration and transformation. This special issue will feature articles by the leading figures in the revolution, including Dr. Len Ochs, Dr. Siegfried Othmer and others. Also: a survey and review of the wave of new EEG systems, ranging from the Lexicor and CAP Scan systems to the BrainTracer, Mind Mirror III, Interactive Brainwave Visual Analyzer, and more.

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ROBERT ANTON WILSON

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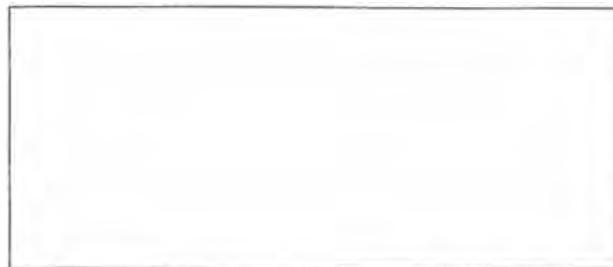
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