High Frontiers

Reality Hackers Newsletter

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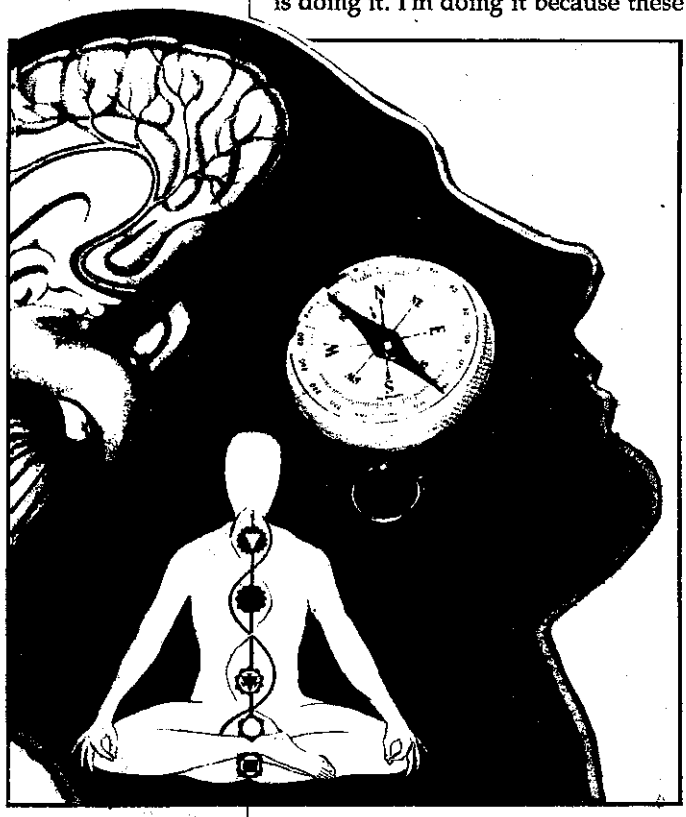
Kundalini Relocates!

Leonard Enos' book A Key to the American Psilocybin Mushroom *was not only the first book on psychedelic mushrooms in this country but the first book to advance a theory on the relation of psychedelics to kundalini. Widely known and celebrated through the pages of* The Last Whole Earth Catalog, *he's received queries and publishing offers over the intervening twenty year span. Deftly dodging all such requests, he persevered in his own peculiar blend of heroic synthetic scholarship and hands-on psychenautics. Following on a hot tip,* Reality Hackers *managed to catch him in a highly ad hoc telephone interview direct to his thatched hut in sunny Lemon Grove and recorded through the miracle of microcasette technology.*

Think of this interview as an appetizer. High Frontiers *has since received a bulky manuscript from the intrepid Enos which should set researchers in a dozen adjacent disciplines buzzing. It is the most boldly synthetic and yet massively documented work on the subject that has come our way. Look for it in* High Frontiers #4.



Leonard Enos: The Kundalini phenomenon has been bandied about for God knows how many years in the west. Ever since Blavatsky, I guess. But nobody really knows what it is. And nobody is making a serious attempt to discover what it is.

Gopi Krishna introduced a bias at the very start by excluding psychedelics. He conceded that it might be a biochemical event but excluded psychedelics as something false. So right off the bat, he excluded the one thing that, I believe, is going to lead to the discovery of what kundalini is. I never paid any attention to what he had to say or pursued his organization because I knew that I could find it just as fast as they could.

Reality Hackers: So there's been no study of this in connection with psychedelic drugs except for what you've done yourself?

L.E.: Well, it's been noticed by plenty of people. I'm not the only one. Walter Pankhe noticed it in his early work. Stanislav Grof knows about it and has reported instances of it. Obvious instances appeared in the early scientific literature about human LSD studies, although it wasn't recognized as kundalini because the researchers had no idea of its existence. However, once you've had these experiences you can re-read the literature and recognize that these are kundalini phenomena. But, as far as anybody else saying "there's obviously something going on here. Let's investigate," I don't believe anybody else is doing it. I'm doing it because these things happened to me personally. It's not just an academic question. It's a quest to find out what, exactly, this phenomenon is that I've experienced for the last 20 years.

The Indian model for the kundalini is that there is an ascending series of 7 centers?

L.E.: Yes. Their model is based on what they experienced physically. The symbolism may have been presented to them in dreams, trance or hallucinatory states They perceived these centers as lotuses located along the spine. Kundalini *is* felt in the body, so one could easily surmise that these centers were, in fact, located in the spine. There has been a great lore for years where the Indians maintain that these things cannot be located in the gross body. But then they go ahead and locate it in the spine and evolve an elaborate physiology. Over the years, various Western authorities have tried to equate these centers to various nerve plexuses or to various anatomical areas of the spine - the sacral, lumbar and cervical areas and so on.

It became obvious to me, from the...*continued on page two*

sirius' soapbox

Welcome to *Reality Hackers,* the newsletter for those concerned with Access. The reality hacker hails the individual-right-to-know ethic and endorses the notion that information should be shared. She uses whatever tools are available to circumvent, break through or transform those programming glitches, bureaucratic obstructions and proprietary voodoo that limit the individual in her quest. The quest can be anything at all which the situation of being an embodied human being might have to offer. Embodiment connotes the reversal of entropy.As such, the reality hacker is in the front lines in the battle against entropy. But don't let it stop there! Legendary Berkeley-based reality hacker Severe Tire Damage is believed to have coined the popular and instructive slogan: "Reversing entropy is everybody's business." Here are the systems we will be accessing:

Hacking the Human BioComputer

Reality hackers are out to access, optimize and maximize the intelligence, energy, pleasure states, health and healing possibilities, visions, play and creativity, longevity, wisdom and humor residing in the brain, the mind, the nervous system, the senses and any other more subtle dimensions of the human biocomputer.

Hacking the Information Grid

This concept actually requires a multilevel approach. There are those who are hacking the information of universe using the extensions of human knowledge we call technique and technology - our frontier scientists, mathematicians and philosophers. We believe that the sum total of all of the bits of information currently being received and processed by highly advanced human operating systems equals a total transmutation of the human condition into a higher level of ecstatic functioning. And we want access. NOW!

While the frontier scientist hacks into the information of universe, the evolutionary media artist hacks the information transfer technology and transmits the information being recieved by the frontier scientist. The unimpeded sharing of information accelerates the rate of human evolution by increasing peoples' intelligence and personal power allowing us to build upon and synergize one other's efforts and saving us from each having to personally reinvent the wheel. Conversly, secrecy keeps people "in the dark", disempowers them, and creates information elites.

At the present time, secrecy, paranoia and proprietary attitudes are pandemic from Washington D.C. to Silicon Valley. In the post-Reagan era, we will see a very rapid and sudden reversal of this trend. Disinformation and information hoarding will be considered sociopathic behavior. Seen from an evolutionary perspective, disinformation and information hoarding are the major crimes against the species. In this context, the reality hacker is an Information Age Robin Hood whose pleasure and duty it is to make certain that the latest breakthroughs and the hottest new information *not* be the exclusive property of authoritarian structures and information elites. Reality hackers promote self-government and self-determination by hacking the information grid and sharing that information with everybody.

Hacking Better Tools To Hack With

Hardware: Brain technologies, vitamins, nutrients and chemicals, computers and other high technologies.
Software: Methods for thinking creatively and with clarity, methods of overcoming destructive psychological programming, books, films, videos, networks, workshops, THE HIGH FRONTIERS MONTHLY FORUM, friendly, loving and compassionate interaction.

We want to hear from you! Add your intelligence to the transmission. Get in on the BIG HACK. The human species is about to get a major upgrade. Don't get left behind! Ω

Publisher: Debra Smith

Editor: R. U. Sirius
Asst. Editor: Queen Mu

Art Despot: Adam Zakin
Illustrators: Karen Duthie, Odani Mahdmani

The Reality Hackers Newsletter is published frequently by Haile Unlikely Communications in association with High Frontiers Magazine. P.O.Box 40271,Berkeley, CA 94704 (415)421-1462 Available by subscription only. Contents copywrite © 1987 by Haile Unlikely Communicatins. All rights reserved. No part of this publication may be reprinted in part or whole without written permission from the publisher. How about those Mets?

Kundalini•continued from page one

little I had read on the subject back in the late 60s, that this was not occuring in the spine at all. It had to be occuring in that area of the brainstem called the reticular activating system. In the back of my book *A Key to the American Psilocybin Mushroom.* I first published the theory that if it occured anywhere, it had to occur there. The theory was very crudely developed at that time but I recognized it even then.

As I schooled myself in learning about the brain, it gradually became clear to me where all of this is taking place. In order to really understand this, one needs at least a basic understanding of these brain structures and of modern neurophysiology, and the functions currently ascribed to them. Kundalini is a very basic level of consciousness. It's connected with those things that keep us alert, keep us awake. It's a background phenomenon - it's not a specific phenomenon - and that's precisely what the reticular formation is.

If you could translate kundalini into modern neurophysiological terms, it would give kundalini much more scientific credence. The brain is so fantastically complex that a case could be made for this phenomenon happening in a number of different areas. In fact, I have other models besides this one. There are three or four different places in the brain where this *could* be happening. But aesthetically, and fitting the current data, it would appear to be occuring as a meta-stable special state of the ascending reticular activating system-not just the reticular formation proper, but what they call the thalamic reticular activating system also.

Over these last ten to twenty years, as neurophysiology, neuropharmacology and anatomical techniques have gotten much more specific and refined, it has become increasingly apparent that this chakra system could indeed be located in an aesthetic, satisfying way on specific areas of the brainstem. *continued on page six*

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LUCID DREAMING INDUCTION DEVICE

Romana Machado

Do the volatile and faint analog signals that our brains continually generate contain significant information about how we function? Can computer-aided signal processing and display technologies help us to extract this information? Through understanding the nature of the patterns of brain activity, can we find new ways to create the conditions that encourage optimal brain function?

Recent brain research is accelerating towards the answer to these questions. Previous approaches to the study of the brain usually started with the medical or psychiatric model, which focuses its attention on disease. As a result, much more is known about malfunction than optimal function. For example, a fellow researcher complains that "it's difficult to get funding for the study of lucid dreaming because it's not a sleep disorder. This is ridiculous - it's like refusing to fund the study of intelligent thought because 95% of thought is stupid." Because of their expense, investigative technologies are often limited to clinical or medical use for many years after their introduction. Their use in other types of basic research can only begin long after clinical acceptance. Happily, our frustrating situation is ripe for change. Answering the interesting questions is rapidly becoming less expensive as the speed and power of computers increase. The idea guiding my work is to create tools for brain research that will be affordable for almost everyone.

At Lucidity Research Inc., a device is currently being developed that could be used by everyone to enhance brain function: a lucid dream induction device. Lucid dreams are dreams in which the dreamer is fully aware and therefore has the freedom to explore this commonly confused and unconscious fantastic state with complete clarity. Lucid dreaming has been proven by Stanford reasearchers to be a learnable skill, although it currently requires considerable attention, time, and patience to learn. Our new device will help the ordinary dreamer to become lucid by providing a cue that will remind the dreamer of his or her intention to become lucid. Essentially, the device is a mask that covers the eyes. Sensors detect the eye movements characteristic of REM or dreaming sleep. When the triggering pattern of movements is detected, lights within the mask flash. Typically, these flashes of light are incorporated in the dream.

It really works: I had my first lucid dream while a subject in an experiment testing the device - on the very first night! In my dream, the lights became the brightly-lit face of the alarm clock near my bed, which I had just turned over to look at, assuming that I was awake. Suddenly, I noticed that I hadn't taken the mask off before looking at the clock. My hands flew to my face. No mask. I still wasn't sure that I was dreaming and I thought, "well, if this is a dream, then I ought to be able to do something ordinarily impossible like leaving my body..." Success! I was floating around the ceiling somersaulting in the air, cavorting with delight.

Some of our other recent projects have applications to the study of the "megabrain" devices that were described in a recent issue of *High Frontiers*. For instance, we're working on an inexpensive device that generates a multicolored topographical map of cortical activity, so we can more readily visualize whether and how these devices influence the movement of energy in the brain. Currently, the fully dedicated computer system capable of doing this costs from $60,000 to $100,000. It appears to be possible to create a system on a personal computer with similar capabilities at a tenth of this cost.

At the Stanford Psychophysiology Lab, I designed a program that graphs the changes in the power of the EEG frequencies - also good for seeing if the "megabrain" devices really do cause the brain to function differently (i.e. do the brain frequencies really become entrained to alpha or theta as claimed?)

The computerized study of the human brain has just begun. Comprehending its delicate complexity may be our most challenging frontier. Ω

MegaBrain Update - Some New Mind Machines

Michael Hutchison as told to Reality Hackers

The Multi-Channel Brain-Wave Synchronizer

One new machine, which I'm taking around to my workshops, is built by Dr. Fehmi. This is a multi-channel brain-wave synchronizer. It's kind of a real sophisticated EEG that gives feedback only when the whole brain is in a state of synchronization, vibrating at the same frequency and in the same phasic relationship. This is somewhat of an oversimplification but the synchronized phasic relationship basically means that all over the brain, cells are firing and releasing and relaxing at the same time. They found that synchronization is the characteristic of high coherence brain states. This device is a very rapid teaching device to teach you how to enter these high coherence brain wave states frequently and at will.

The Brain Tuner

I have a recent model of a device put together by Dr. Bob Beck called the brain tuner. This is an electrical brain stimulator that has a very complex wave form composed of 256 different frequencies which stimulate the brain cells. We've found that individual brain cells seem to secrete neuropeptides and neurochemicals in response to specific frequencies. 10 seems to be related to endorphins, 4 to enkephalins and so on. This device is being used very successfully to replace the natural chemicals that have been depleted by drug addiction.

This is a step forward from Dr. Meg Patterson's famous black box. That delivers frequencies on fewer levels. This takes it a whole step higher. We're dealing in much more complex wave forms.

2000 Different Brain Chemicals

The relationship of individuals to brain chemicals is very hard to plot out. There are over 2000 different brain chemicals. At this point, it's all too complex. *cont. on next page*

There's a lot we don't know about.

We *can* talk about individual neurotransmitters and neuropeptides... serotonin, tryptophan, beta-endorphins, enkephalins etc. and even there, you'll find that their release in one area has one effect, in another area has another effect, and when combined still others. So it's hard to know what these 256 different frequencies might do. What we *can* say is that there are a few frequencies that are known to be beneficial and have been determined.

Electro-Magnetic Pacer

Another device has become available through Dr. Beck. This one is called the electro-magnetic pacer. It's a pulse electromagnetic field. You put it on your desk or wherever and it pulses this field of 7.83 Hertz which has been determined to be the resonance frequency of the earth. Beck thinks that this is a universally beneficial frequency that is conducive to higher states of consciousness. He's done research with shamans, healers and gurus of all sorts and one thing that seems to unite higher brain states is that they activate at this 7.83 frequency. He claims that this device has a tendency to make the body cells vibrate at that same frequency. It also blocks out ambient electronic "smog" from various sources of ELF; microwaves, radio waves, household current, etcetera. There's all kinds of electrical current, electromagnetic fields, affecting us continuously. This pacer is like having a shield around you at all times to counteract electronic pollution.

COMING UP SOON: MEGABRAIN WORKSHOPS

Saturday, April 4 at the Tranquility Place, 445 Washington St., Santa Clara, California and Sunday, April 5 at the Oakwood Conference Room 515 John Muir Drive, San Francisco. Both are from 10 a.m. - 6 p.m. To register call the Tranquility Place at 408-243-7200 The registration is $75 in advance and $90 at the door. We're going to limit each group to 20 so that every person has a chance to fully experience at least 10 of these devices. I've been finding that there are very powerful group dynamics in these workshops with people experiencing these states together. Ω

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Starring those you know and love, you travel with the Pioneers of the New World from the relative safety of your living room as they explore the inner and outer realms of:

PLANETARY MYSTERIES
✓Power spots in your neighborhood
✓Mojave Magic at Midnight
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✓A peek at the Pinnacle Star Gate

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THE NETWORK PULSE

There will be no shortage of interesting data as we receive reports from the Networkers of the Aquarian Age. Known by some as the Neurons of the New World, there are many such communicators, each with their own unique blend and flavour on the events of N:OW.

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We welcome input from our viewers. Use those video cameras to send us your questions, comments, etc. We will include the best video letters in our next tape!

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Our special in-depth report on beings you will soon be meeting. Introducing our out-of-timing characters WEEKSLATER and LagTime as they ask you the question, "Wouldn't you like to know who is reading this newsletter at the same time you are?" Stay tuned and stay BEYOND THE FOCUS.

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MONITORING THE INFORMATION GRID WITH DURK & SANDY

Durk Pearson and Sandy Shaw are two individuals who consistantly monitor the information grid for ways of increasing the effective use of our operating systems. We'll be tuning in for a few infobits in each issue of Reality Hackers, but for a more complete transmission you'll definitely want to subscribe to their newsletter which will be coming out soon and should be somewhere around $30 for about 100 pages per year. You can write to them at Box 92996, Los Angeles, Ca. 90009. They also have especially formulated nutrient supplements available via mail order. Specify whether you're interested in information about the newsletter or the nutrient supplement products.

THA: A Good Safe Intelligence Increase Drug

Durk Pearson: In the area of intelligence increase, the new thing happening right now is the use of THA (tetra hydro-amino-acryidne) in Alzheimer's disease. I may well be responsible for getting that work going. Back in 1980, I talked to some scientists from UCLA about using THA for Alzheimer's because I was aware of its use by the military as an antidote to a war gas called BZ. BZ isn't a nerve gas. It's a psychotogen. It produces something very similar to Alzheimer's and for the same reason; the cholnergic nervous system of the brain is knocked out and your memory simply departs. You have an attention span of less than 3 words. So THA was recently tested on Alzheimer's patients. The initial results show 15 out of 17 Alzheimer's patients dramatically improving.

THA is definitely a real comer. I've used it myself and it's a good safe intelligence increase drug. In combination with arecoline, THA has been found to be remarkably effective as a memory improver. (The tests were conducted by Dr. Arthur Sherkin at the Wadsworth V.A. Hospital, Sepulveda, CA.) Combined they are effective at dosage levels that are far too low to have any measurable effect on their own. It's the synergistic action that produces really good memory enhancement at the 1 to 2 mg. each range. It's important though that the dose be individualized - too much and it will actually impair memory and produce sweating, excesssive muscle tone, and mouthwatering. Start with a quarter of that every 2 to 4 hours and work up - if you get those side effects, back off. This should not have any noticable systemic physiological effect at the amounts that are active mentally. Arecoline is the active ingrediant in betel nuts. The great British scientist, J. B. S. Haldane, when asked why he chewed betel nuts, just rolled his eyes towards heaven and smiled!

Why Traditional Medicine is So Slow

Reality Hackers: Why is traditional medicine so slow in using some of these vitamins and nutrients in conjunction with other treatments?

Durk: If a hospital has received any kind of federal funding at all, they have to get permission from a Federal Ethics Committee in order to do anything like giving a patient more than the RDA of a given vitamin. If you're a doctor at a federally funded hospital and you go ahead in spite of this and give a patient the vitamins, or whatever, and you get caught, the hospital has two choices. It can either lose every cent of federal funding forever or it can fire you and have your license revoked.

So the moral of that story is that if, for instance, you're an AIDS patient, you'd better get yourself into a hospital that doesn't receive one cent of federal funding if you want decent care. If a doctor wants to give you isoprinosine and you're in a private hospital that has received no federal funds, it's o.k., even though the isoprinosine most likely had to been smuggled into the country.

Advice For Cocaine Withdrawal

Durk: Simple! Give the people a good tryptophan supplement! It's been shown in rat clinical trials that tryptophan supplements reduce the desire for cocaine.

Sandy: The guy who did this work with the rats told the National Institute of Drug Abuse about these results and they weren't interested in funding a human study. Can you imagine!?!

Durk: They *want* to have drug problems. If there were no drug problems they wouldn't have billions of dollars going into the agency!

Sandy: This doctor also worked with amphetamines and found that by supplementing the rat's diet with tyrosine, the drop in norepinephrin that usually takes place in the brain after a period of using amphetamines didn't occur.

A More Potent Body-Building Supplement Than Anabolic Steroids With None Of The Side Effects!

We have a GH-releasing preparation and the results have been quite astounding. One woman was working for two and a half years towards the 1988 Summer Olympics. She weighed 123 pounds and could clean and jerk 110. After 5 months on our products, she can clean and jerk 160 pounds, a phenomenal increase in strength. A guy who was 132 lbs. and could clean and jerk 160 pounds went up to 265 after 4 months on the buffered argenine cocktail and the RPM citrus quencher.

This is a more potent body-building supplement than anabolic steroids(!) with none of the side effects. Anabolic steroids really fuck you up. At effective dosage levels, they are all too likely to cause permanent testicular degeneration, feelings of grandeur or depression and violent moods. Also, the orally active ones (with a methyl 1 group in the 17th position) are really bad for the liver. Ω

Kundalini•continued from page two

For a long time I was puzzled by the thalamic and the upper brainstem in terms of the location of the sixth, or highest, chakra. The Indians call this the ajna or chakra of awakening. The contest in my mind was between the mesencephalic reticular formation or the thalamic reticular formation. I now have enough data to confidently place the ajna chakra in the thalamus. We can look upon the ajna chakra as being the nonspecific thalamic portion of the ascending reticular system. The other chakras are then spaced out according to the major nuclear groups of the reticular formation until the medulla is reached. This is where the muladhara is located. The Indians placed the muladhara at the lower end of the spinal cord in the perineal area, probably because when the kundalini is first awakened you sometimes feel pain in the perineal area.

We know, neurophysiologically, that the activation of any center of the body occurs by descending activation. It comes from the brainstem. It doesn't originate in that area of the body. All the information descends from the supraspinal area. Neurophysiologically, there isn't any case whatsoever for the chakras being located in the spine. All the purists, of course, are going to scream about this but that's just the way it is.

The only really serious effort to equate kundalini with nervous system phenomena was a guy named Rele who wrote a book published in India called *The Mysterious Kundalini*. He said that the kundalini was the vagus nerve - which does in fact enter the brainstem in the area of the medulla. Rele said things which now in hindsight look pretty close to the truth. He stated that in India there's some dispute over whether the muladhara really does exist at the base of the spine, what they call the khanda, or whether it exists where the central canal empties into the fourth ventricle, a place they call Brahmarandhra. The Indians, the tantrists particularly, conceive of this khanda as the place where kundalini resides coiled around something, as a triangular area covered by a soft white cloth. Khanda means bulb which is precisely the old-time name for the medulla. It's the bulb of the spinal cord. And the area where the central canal empties into the fourth ventricle at the bottom end of the medulla is a triangular shaped area which is covered over with a thin membane containing the cerebro-spinal fluid.

Directly below that area is what I believe to be the muladhara chakra. This is at the oral end of the first nuclear group in the reticular formation proper, which is the nucleus reticularis through the oblongatae centralis. Above that, begins the nucleus gigantocellularis,with the largest cells in the reticular formation.

Current REM dream research locates the ventral half of this nucleus (some call it the nucleus reticularis magnocellularis) as the major inhibitory transmission area for atonia during REM sleep. This also happens to coincide with the oral end of centralis. And the beginning of this magnocellularis area is also the area that Horace Magoun, one of the first to describe the reticular formation, discovered to be a major massive inhibitory area. It's composed of two nuclei. It's also the major area for input from the spinal cord. It's the first brainstem spinal cord relay and has direct input-output primarily with the spinal cord.

Now above that, dorsal to the magnocellularis, is the gigantocellularis proper. That extends even more anteriorly towards the brain. The two groups together, i.e. the centralis and magnocellularis together make up an inhibitory area that I believe to be the muladhara chakra: the first major inhibitory area in the reticular formation. Now, the Indians described the six chakras as being in three separate groups of two chakras each. And they say that one of the chakras in each of these groups is the main focus of the influence of that group. They call these dominant chakras "granthi", which meant knots. They call the first one brahma-granthi, the second one vishnu-granthi and the last one rudra-granthi. I would take these three knots to be inhibitory areas.

So let's look at this first area, made up of these two nuclei, which really run one right into the other, there are really no set boundaries between these things. The second one, gigantocellularis proper, is the chakra called svadhisthana. These two together are in the medulla.

Now we move up to the third chakra, manipura. This would correspond to the nucleus reticularis pontis caudalis known as the mighty pearl. This is the last main way station in the body for the startle reflex. The startle reflex bears much importance for the shaktipat phenomenon.

The fourth chakra, the anahata, is the nucleus reticularis pontis oralis. Again, we have another chakra pair. It's one field with a caudal and an oral nuclear grouping. The pontis oralis, along with the nearby locus ceruleus, is responsible for atonia while dreaming - that mechanism that paralyzes the body so that one doesn't get up and move around. The pontis oralis inputs into the magnocellularis, or the muladhara chakra, so these first two knots are connected in a chain.

The fifth chakra, the visuddha, I place in the mesencephlic reticular formation, at the nucleus cuneiformis. We've moved into a new grouping now, the ajna chakra, which is the rudra granthi or knot. This last pair, I would say, based on the latest retrograde tracing techniques lies in the nucleus centralis medianis of the thalamus.

Isodendritic core group	Inhibitory center	Nucleus
Thalamic Reticular Formation	Controls motor output through striatum; pain signals via acupuncture.	N. centromedianus N. parafascicularis
Midbrain Reticular Formation		N. cuneiformis N. subcuneiformis
Pontine Reticular Formation	Main source of REM atonia, PGO waves & hippocampal theta rhythm.	N. reticularis pontis oralis
		N. reticularis pontis caudalis
Medullary Reticular Formation		N. gigantocellularis, pars dorsalis
	Medullary inhibitory area of Magoun.	N. reticularis magnocellularis N. medullae oblongata centralis, pars oralis

There are definite reasons why I've chosen the centralis medianis besides the fact that it's conveniently above the pontis oralis. The Indians claim that the muladhara and ajna chakras are in direct communication with one another. Correspondingly, there is direct, two-way communication between these two inhibitory areas - the giganto-cellularis and magnocellularis communicating with the centromedian nucleus.

The Russians some years ago did some depth electrode stimulation of Parkinsonian patients. They stimulated the centromedian nucleus and reported effects that appeared to be kundalini-like phenomena. Waves of heat rising in the body. Expanded consciousness effects. Etcetera. And that immediately alerted me because I knew that the centomedian was connected with various places in the reticular formation.

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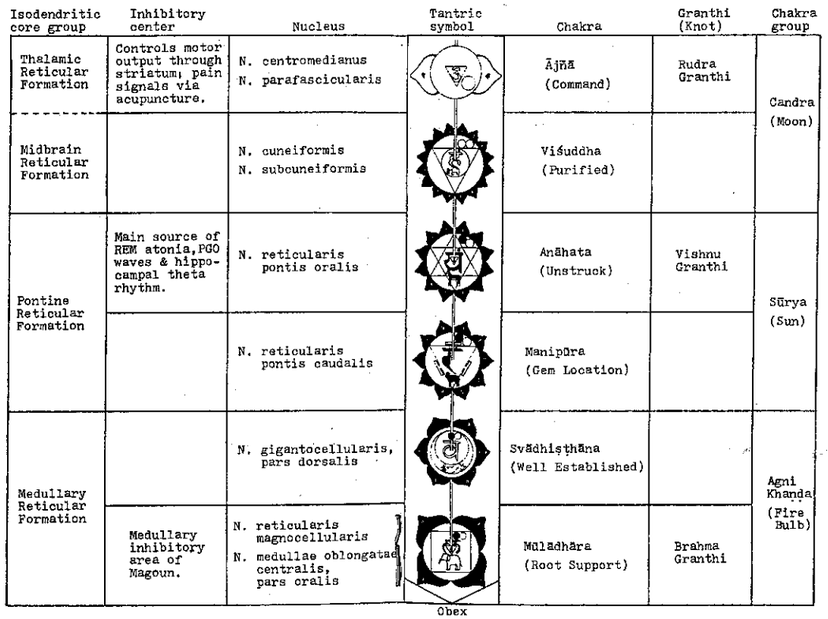

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What we're talking about with kundaini are very basic neurophysiological mechanisms. That's all that's involved here. It's just the way they operate at certain times. The thalamic areas in concert with the upper mesencephalic reticular formation and with some of the striatum - these are definitely involved in producing consciousness. When these areas are damaged, there is no longer any consciousness. Partway down the brainstem, there can be damage and consciousness will not be lost. You can tear away huge areas of the cortex and consciousness is not lost. Cut off the temporal lobes and you're gone out of it. Everybody in neuroscience pretty much agrees that this is the area where things come into consciousness. A German named Hassler has studied the centromedian. His principle thing is to stimulate areas in the thalamus and in the striatum to produce full animation in people who are in what they called a "vigil coma." The vigil coma is when the person can breathe and open her eyes, but other than that there isn't any response. And by stimulating these areas, he could fully animate such a person and bring her temporarily back to normal.

I also believe that kundalini energy may be connected somehow with the immune system because of my own personal experience. Physical ailments that had persisted for a number of years prior to Kundalini awakening disappeared almost immediately after the event happened and never came back again. I had dandruff that had lasted for years as well as an acid stomach. I was on Rolaids all the time. Those things disappeared immediately. They were gone the next day and never came back.

Physiologically, kundalini exercises effect the medulla, the area of the muladhara chakra. They change the CO_2 tension. By holding your breath, you excite the reticular formation. The effects of Yogic exercises can generally be explained as occuring directly in the medulla area, or in the forebrain. The brainstem is being controlled by the forebrain area. It's not autonomous. The limbic system, the striatum and the frontal cortex are controlling the whole thing.

Two of the hottest new areas in brain research, the claustrum and the nucleus accumbens, are functionally tied in to both the striatum and the limbic system. The claustrum has the highest density of Serotonin 5-HT2 receptors in the brain according to Sandoz researchers. (See their three articles in *Brain Research.*) The nucleus accumbens, part of the caudate nucleus, is *really* intriguing. A few years ago there wasn't anything on the nucleus acumbens at all, just a few anatomical studies. Then suddenly somebody discovered that the nucleus acumbens may well be one of the main places in the brain where drug discrimination takes place. It appears that it is connected with the discrimination in animals of the rewarding properties of just about all psychoactive drugs. That's everything from PCP to cocaine to psychedelics and whatnot. It's part of what Robert Heath at Tulane University defined years ago as the septal area. This is an area which can cause intense pleasure in humans when stimulated by depth electrode probe. It was discovered that injecting just one microgram of LSD into the nucleus acumbens would cause a rat who had been trained to discriminate LSD from saline by pressing a lever for food pellets, to respond fully in this one area. Then they found that acupuncture can alter enkephalin levels in the nucleus acumbens. And it's just been a steady accumulation of these articles implicating the nucleus occumbens as one of the main controllers of motor phenomena by drugs and by other mea - by emotional input. The nucleus accumbens is connected with areas which have been associated with psychedelics for a long time.

So, now that you've identified the brain centers involved in kundalini, what exactly is going on neurochemically or neuroelectrically? Have you got that all mapped out yet?

LE: Here's where it gets really sticky. Actually, I am currently looking at nearly a dozen different models of how kundalini might operate..... and it might be a mistake to try to reduce kundalini to just one of them.

Briefly, I'll run through them:

1: A constellation of events giving rise to a specialized behavioral state of the R.F. in conjunction with other brain structures in a manner analagous to how REM is produced.

2: A timing phenomenon. By this I mean a particular temporal pattern involving the phase timing of reverberating intrareticular and extra- reticular loops. Ronald Melzak's theory on phantom limb pain may be applicable here.

3: An anomolous excitation of each of the centers resulting in a meta-stable, coherent state that is not epileptic. The hyperneuron theory of E. Roy John may fit in here. See also the idea of Prof. Mukhyo Padhyaya at the bottom of page 307 of Woodroffe.

4: An unknown quantum mechanical phenomenon. The theories of Herbert Frohlich and Evan Walker may shed some light on this as well as the previous idea.

5: A temporal pattern arising out of the switching of functional interconnections between the centers and their forebrain projections. The Russians published a paper on this years ago.

6: Atonic, quasi-epileptic state similar to what strychnine does. Dilantin has been used to suppress kundalini "flashbacks" resulting from LSD.

7: A massive release of an undiscovered peptide or peptide fragment. Apamin, a centrally active peptide isolated from bee venom, can block a small subpopulation of high affinity LSD-binding sights. If there *is* an endogenous psychedelic, it may be a peptide. I'd like to think it was DMT, but the evidence is against it.

8: Increased analog current flow via an electrotonic process. Frank Barr has some theories on this.

9: Kundalini can be activated instantly. One second it's not there, and a second later it's full on. This may involve some sort of phase change phenomenon. This idea is also applicable to some of those previously mentioned. Arnold Mandell is using his MacArthur Grant to look at things like this.

10: A process involving the kindling effect. See Marilyn Ferguson in White's anthology. I prefer using it as a model for shaktipat initiation. Ω

TERRA NOVA

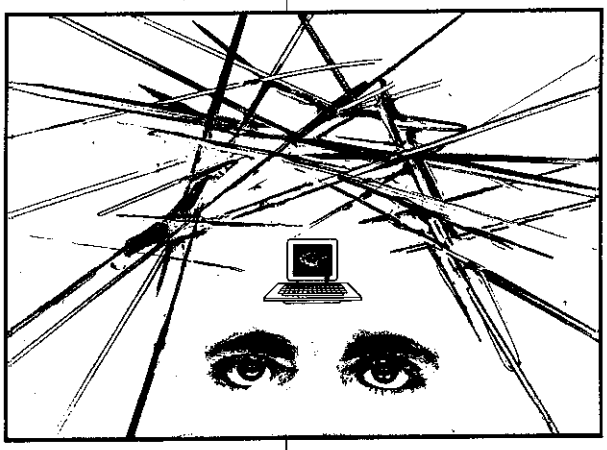
Takes Computer Networking One Step Higher

High Frontiers/Reality Hackers To Go On Line

Decentralization Cuts Costs To Users

The Terra Nova Network (which currently operates the very popular Steward 2, out of Boulder Creek, California) is preparing an operating system which will be different from previously existing networks in a number of ways. Steward 3 will run on a very fast, very high capacity microcomputer, a 68020 microprocessor. It will have 2 megabytes of main memory and more than 16 telephone ports.

One of the more important things which will make Steward 3 different from previous computer networks is that it will be decentralized, in the actual physical sense. This system will be designed so that the user will be talking to a local machine which is a local phone call away, rather than talking to a centralized computer, which might be located anywhere in the United States. The system's capacity will be adjusted so that as soon as a system in the network starts to get overloaded, Steward 3 is signalled that it's time to get another system into that area. Thus, this system is solving one of the biggest problems associated with all currently existing major networks. They all tend to be subject to operational difficulties when there are a lot of people using them at once. Terra Nova President, Nick Turner: "The response time on some of the larger computer systems is abysmal. You may type a character and have to wait several seconds for the character to echo back on your terminal. That's ridiculous."



Decentralization will make networking far less expensive to the user, since one of the biggest charges that people pay to access the large nationwide networks is the line charges on the connecting networks. The packet switching networks, TELENET and TIMENET, cost over a dollar an hour. The Steward 3 system will not have those monthly charges. Users will pay a monthly membership fee, which is anticipated to be less than $20, and that membership fee will get the member virtually unlimited access, with a few rare exceptions.

Fostering Intelligent Communications

The most important aspect of Steward 3, according to Turner, is that it is being designed to foster intelligent communications. "It's not going to be a cheap thrill system. It's going to be for intelligent people, who are interested in the future of humanity, to communicate in a very powerful way."

In order to achieve this, each one of the systems in the Steward 3 network will have somebody in the system called the system operator. This person will be paid by Terra Nova to maintain the quality of the interaction on that particular system. Part of the system operators' responsibility will be to go through the system once a day and look at all of the public areas. And the system operator will be charged with the responsibility of immediately deleting anything which has no real pertinence to the conversations that are taking place. The private areas will remain unedited and non-hierarchical. But those who participate in the public areas get certain advantages from voluntarily participating in this hierarchical structure. In addition to maintaining the relevance of an existing conversation, the system operator's responsibility will include locating and isolating messages which are intended as part of an existing conversation which might not pertain to the conversation at hand, but which might be nice "seeds" for new conversations. The operator will move them to a new section of the data base which will be set up for starting new conversations. Turner believes that this conscious fostering of new conversation is very important to the operation of a "popular and interesting data base."

Steward 3 system operators will need to be extremely literate, able to detect errors in logic, spelling, and grammar, and able to correct the errors. They also need to be able to "follow the course of an existing conversation and detect when things are getting off of the desired directions and very, very gently and carefully guide things back on course... The result is that you get a lively discussion. You get to interact and partake of a very stimulating and lively interchange with the rest of the members of the system."

Steward 3 is going to be multi-user.We're planning some very creative and interesting games which people will be able to play together, at the same time, over their modems." Terra Nova is currently designing a hardware base which will function as the beginning system for Steward 3.

Steward 1 and 2 - Primitive Beginnings

Terra Nova Network got started in 1985 with Steward 1, a computer bulletin board written in basic on an Apple 2. Although primitive, it generated some interesting comments from the people who used it. So Turner proceeded to write Steward 1 into machine language on the Apple 2, and the transition to Steward 2 was made. "It started out as a hobby. But the system grew and we began to get some very interesting interactions. This was largely due to the fact that I ruthlessly eliminated messages that had little content, messages of no interest to intelligent people. As a result, the quality of the data base began to go up. We began getting messages about all sorts of interesting things... quite different from the ordinary run-of-the-mill bulletin board system." *continued on page eleven*

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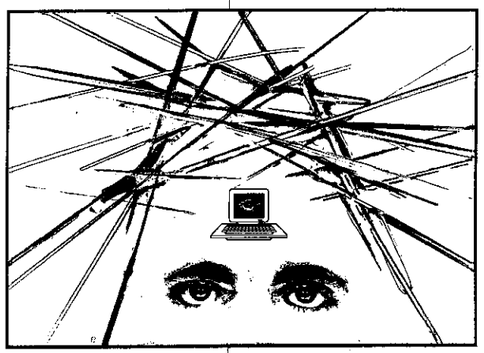

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AMGGOD

LEATY Systems Inc. of Berkeley is pleased to announce an exciting new product on the leading edge of interactive software; Archetype Manipulation: God/Goddess Organizing Device (AMGGOD 1.0). With this software, the user can analyze, cross-correlate and create his/her own gods and goddesses. An important and unique feature of the program is the ability to map aspects and descriptions of various gods and goddesses to the users personality traits and visa versa.

Sophisticated clusterpoint analysis aand mathematical taxonomy modules identfy conflicts and personality gaps as well as reconstruct meta ancestral chreodes based on the historical portrayals of gods and goddesses. Of course, confidence level calculations and personality histograms are automatically produced.

Utilizing state of the art heuristic programming techniques, the product can create new gods and goddesses tailored to the user's own personal and cultural needs

We realize that all users will not have the personal psychological insights required to fully utilize this advanced product. Therefore a natural language interface and personality profile generating package (CARL 1.0) is also available. By responding to simple statements such as "tell me about yourself" and "do go on" a fully structured archetypical decomposition of the user's personality is produced utilizing standard Jungian concepts. This file is then automatically loaded into AMGGOD forming the user's personality database.

Planned enhancements include a combined graphics and CAD/CAM package (tentatively called ICON) which will produce appropriate images of your dieties as well as an expert system (called MAGUS) which, via a simple question and answer format, will create rituals ideally suited simultaneously to both the user and the deity.

The hardware requirements for AMGGOD are a UNIX system with 16 meg of main memory (for adequate response time a 5 MIPS machine or greater is recommended). 24 Gigabytes of disk (the pantheon is quite large) is also required. Both ICON and CARL require a dedicated UNIX supermini linked to the main AMGGOD system via standard Ethernet protocols. While ICON will interface to industry standard Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) packages, we strongly recommend the full size 3D monitor currently under development by Advanced General Products of Mountain View as a cost effective peripheral to eliminate expensive manufacturing defects. Although we hope that the Run-Time system for MAGUS can be ported to a standard UNIX machine, the first releases will require a special purpose PROLOG machine.

In order to prevent misuse of the superhuman powers that could be unleashed by this product, source code will most emphatically *not* be available. Furthermore all prospective users must submit to an extensive background check. Prices are sliding scale and all enquiries should be directed to:

AMGGOD c/o High Frontiers,
Venture capital for AMGGOD
was provided by GZ Partners I Ω

"ANIMATED PEYOTE CREATURES FROM THE HUICHOL INDIANS ARE GOING TO BE JUMPING OUT OF T.V. SETS ALL OVER AMERICA VERY SOON!"

One of the better received pieces in High Frontiers #3 was the interview with video artist Stefan (misspelled Stephan in the issue). Stefan called us recently to alert us to a new Santana video which he is working on, which incorporates healing colors, frequency of flash and powerful symbology, "all within the context of animating the Huichol Indian's Peyote Gods depicted in their florescent yarn paintings." This experimental consciousness-altering video will be accompanying most, if not all, of the next Santana album. The first release should be a song called Vera Cruz, so souls who are patient enough to monitor a video program or tune in MTV should have the opportunity to view some of these techniques very soon.

Other erratum: pg. 19 of issue #3 of High Frontiers - that's "a Quantel *Mirage system."*Ω

Leary's Latest: Mind Movie

Mind Movies will be published by ActiVision. It will combine works of some of the best artists, photographers (it will be in black and white), writers and musicians in the form of a mind movie in which the person using it is the director of a film. The user has various options for characters and scripts, and literally creates a movie.

Some of Leary's thoughts on Mind Mirror: "I'm always aware of how much more we could have done. It's a wonderful device, but it's also very primitive. By the time we had gotten half way through we realized... it was like building the Model-T Ford and realising that you could look ahead and see the Model V-8 and see the Thunderbird. So you drive the Model-T and you get the idea of driving and then it's up to you where you go from there." Ω

Rare and OP books on psychedelic experience, the '60s counterculture. and related phenomena.

Catalogs 1 & 2 containing 700 annotated items available in limited numbers. Catalog 3 ("The Sexual Revolution") available summer 1987. *Send $5 per catalog or $10 for all three.*

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Book Reviews

NEUROPHILOSOPHY AND ANGEL TECH/ AN EXOTERIC AND ESOTERIC APPROACH TO CONSCIOUSNESS

Neurophilosophy: Toward A Unified Science Of The Mind-Brain•Patricia Smith-Churchland M.I.T. Press,Cambridge,Mass.

Angel Tech•Antero Alli Falcon Press.Phoenix,Arizona

R. Anton Wilson has often referred to the "Jumping Jesus" phenomenon. That is, the total knowledge of the human race is doubling at an ever increasing rate. Between 1900 and 1950 it has been estimated human knowledge doubled. Similar estimates conclude that since 1950 the knowledge of the human race has doubled six more times or increased by 64 times. It will double again by the end of 1990. Nowhere is this more true than in the area of brain, mind and consciousness, and no area is more dear to designer heads and new age scientists.

Readers of this newsletter would most probably expect to find words like; chakra, tarot, astrology, shaman, dreaming, aura, neural cosmic energy, reality selection, alchemy and yinning out in a recommended book on consciousness. These are precisely the topics and terms which Antero Alli uses to discuss consciousness in his book *AngelTech* (subtitled: *A Modern Shaman's Guide To Reality Selection).*

It is an excellent book and makes the most of Tim Leary's eight circuit framework of consciousness first presented ten years ago in *Neuropolitics* (and elaborated more recently by R. Anton Wilson in *Prometheus Rising*). Alli (a self described "freelance ritualist") embellishes, elaborates and adds so much contemporary material that his book is not a mere rehashing but a fresh prescriptive guide to Reality Selection in the late 80's. We would describe Alli as an empirical idealist and a mystical realist. His contemporary approach demystifies traditional mysticism without robbing it of its grandeur or soul. Furthermore, to keep ahead of the Jumping Jesus Phenomenon, two more volumes are forthcoming. For those who can't wait Alli even offers a correspondance course on Karma Mechanics.

But what of a book titled *Neurophilosophy* which also claims to be about consciousness and which makes no mention of those rubrics that distinguish *AngelTech* ? The terms used in Patricia Smith Churchland's *Neurophilosophy* (subtitled:*toward a unified science of the mind-brain)* are: phase space, visual system, thermodynamics, information theory, artificial intelligence, dendrite, CNS, circuit theory, cognition, synaptic potentials. Yet Ms. Churchland, who is a professor of Philosophy at U.C. San Diego has also produced an excellent contemporary book on the topic of consciousness. Even though she is a self-proclaimed "materialist" who "believes that the mind is the brain", she also states that "at this stage in the neuropsychological study of the so-called higher functions, much is still contentious and precious little concerning the brain's role or higher funtions can really be said to be established."

Starting from these positions, the first third ot the book sketches the history of the science of the nervous system and provides an introduction to neuroanatomy and neuropsychology. The middle third of the book is a concise discussion of recent developments in the philosophy of science as they relate to the mind-body problem. This section also includes a spirited exposition of a thoroughly contemporary reductionist position coupled with critiques of traditional dualistic systems.

The final portion presents recent theoretical developments including significant material coming form computer and artificial intelligence research. The author concludes that we are on the brink of a revolution "of our very way of thinking about ourselves...(and)... this revolution will be at least equal to the Copernican and Darwinian revolutions. In her roughly thousand entry bibliography over one third of the entries were published after 1980 (which is the last doubling period of human knowledge).

Not too surprisingly both books basically ignore the challenges which psychedelic drugs pose for *any* theory of consciousness. But after all, isn't that why you read *High Frontiers*?

Still, notwithstanding this omission, these two radically different and (unnecesarily) opposing approaches to consciousness cover information and bodies of knowledge that should be in the heads and bodies of every reality hacker.

R. Anton Wilson, in his book "*The Illuminati Papers*", accused the lab-coated scientist of using only half of his brain (left) and challenged him to explore intuition, ESP, and hedonic engineering. He then accused the hip new ager of using only half of his brain (right) and challenged him to explore computers, logic and engineering.

Rise to the challenge and make the Jumping Jesus Phenomenon work for you. Become a reality hacker and make both halves of your brain work for you. Read both books and perhaps by the time human knowledge doubles again in the early 90's you will be at the forefront of a new comprehensive revolution in consciousness and in full command of your own reality. Remember: "SPECIALIZATION IS FOR INSECTS!" Ω

AN ANNOTATED BIBLIOGRAPHY OF TIMOTHY LEARY

Michael Horowitz, Karen Walls, and Billy Smith

Thoughout an extremely active and adventurous career spanning forty years, Dr. Leary's literary output has been prodigious. This bibliography covers his earlier work on psychological diagnosis, personality assessment, psychedelic drugs and ecstatic politics through his recent work in exopsychology, intelligence increase, space migration, interactive software and other topics bearing on human evolution. All Leary's books, monographs, scientific papers, magazine articles, interviews, lectures, recordings, films, tapes and videos have been listed by a team of bibliographers who have had access to private collections and archives containing all of Dr. Leary's works - many of them extremely rare and some virtually unknown. Also included is a lengthy section of works about Dr. Leary, both pro and con, and a record of the essential legal briefs and other documents pertaining to his twenty-nine arrests on four continents.

Beat poet Allen Ginsberg and creativity expert Frank Barron contribute introductions about Dr. Leary's role and importance. Leary himself has written a preface reviewing his entire career.

Michael Horowitz is founder-director of the Fitz Hugh Ludlow Memorial Library, the nation's finest collection of drug-related books, where Karen Walls and Billy Smith are Fellows.
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continued from page nine

High-Tech and High-Touch Talent

Terra Nova also provides other services, which includes finding people employment in the high-tech field. Logically enough, they are also good at filling positions and invite high-tech companies to contact them in this regard. "We offer this as a free service of Terra Nova Communications because the more people we can get interested in using Terra Nova as a market center, the more successful we can be and the more valuable our network can become."

Terra Nova is also looking at the possibility of running some high-tech think-tanks. Turner is experienced at running brainstorming sessions, something which he did with Atari and elsewhere, "We have a tremendous pool of high-tech and high-touch talent available to us. Some very popular and well-known people are on our mailing list and a lot of them would be very interested in high-tech or other types of brainstorming sessions. So, If you have need of high-tech brainstorming, give us a call."

High Frontiers/Reality Hackers On-Line

One aspect of this that should surely be of interest to our readers is Terra Nova's plans to put High Frontiers/Reality Hackers on-line. Turner: " The efforts of High Frontiers/ Reality Hackers blend beautifully with what we're trying to accomplish." The major benefit of running an on-line program is that we will be able to publish on-line before the hard copy publication date. This will allow the people who are on-line to actually respond to the articles and generate dialogue previous to publication. Unlike *Omni*, which also has an on-line service (with CompuServe), we would actually publish some of that dialogue. This would make the hard copy more interactive and would vastly increase the value of the published material to the readers.

Terra Nova Orbiting Space Habitat

Turner: "The basic charter of Terra Nova is to provide services which enhance human communications and which will, whenever possible, further the goals of developing high technology and stimulating personal growth.

The final goal of Terra Nova, as I see it, is to create a structure sufficiently large and powerful to ensure the survival of the species. One likely way to do this is through the construction of an orbiting space habitat in which we preserve as many of the life-forms of the planet as possible. Steward 3 is a first step along that path. Eventually, I hope to establish an offshore floating habitat where people can congregate and begin to earn the experience we need to build an off-planet habitat."

Get Involved!

The currently existing system. Steward 2 is a very popular bulletin board operating out of Boulder Creek, California. (The number is 408-338-9511. Those interested can call it any time, 24 hours a day.. The voice line at Terra Nova is 408-338-9510. Nick Turner can be reached there or over Steward 2. The mailing address is 10 McGrannahan Court, Boulder Creek CA, 95006.

Terra Nova is an existing California company with real stock and is very interested in finding investors. They are also looking for the following:

1) Programmers. Most programmers will be volunteers at first.

2) System Operators. A system operator will be paid 20% of the gross income of the particular system which he or she is responsible for. That would amount to at least $1000 per month for a popular system.

3) Network System Hosts. The host is a person in whose home, office, or building, the actual hardware device is located. The host receives 5% of the gross take of the particular node in the network which she or he is hosting. The host's responsibility includes making sure that the hardware is running properly, that the hard disc doesn't make any strange noises, cleaning the equipment, making sure the phonelines are well connected, etcetera.

4) Authors and Writers. Terra Nova is interested in authors who are willing to set up regular columns, or other contributions, to the Steward 3 data base.

They're also looking for aspiring authors who would like to test-publish their works on line. The system is set up to protect the author's work so that the users have to pay for it. The authors will receive royalties.

5) Game Writers. People who can develop games for the system, both of the interactive and play-by-mail type, are especially valued. Terra Nova expects games to be a major source of revenue for the Steward 3 system. This is, of course, good for the authors of the games, who will receive royalties.

Turner: "The thing right now is to get Steward 3 off the ground. Right now I'm finishing up some personal business. In just a few months, I'll start devoting my energies to Steward 3 and then things should come together pretty quickly.

We'd like to encourage people who have any thoughts whatsoever about where Terra Nova could go and to what sort of use we should put our network of nearly a thousand really intelligent, caring people to communicate with us. We really want to hear from intelligent and creative people." Ω

COMING SOON!

•**Martin Lee,** author of *Acid Dreams: LSD, the CIA and the Rebellion of the Sixties* talks about the parts left out of the book including the "occult connection."
•**Outlaw Tech,** Richard Stallman, known in some circles as "the last of the genuine hackers" and **Captain Crunch,** legendary techno-outlaw (generalist division)
•**From Dionysus to the Grateful Dead:** The Mickey Hart, Joseph Campbell and George Lucas connection is explored.
•**Physics/Consciousness group** gets down at Esalen: coverage of the 10th anniversary reunion of the farthest out thinkers of quantum thought: includes excerpts from presentations by Saul Paul Sirag, Nick Herbert, Charles MacDermed and others.
•**John Lilly and Claudio Narranjo -** two leading consciousness explorers together in conversation.
•**The Age of Light: Hazel Henderson** looks one step beyond the information age.
•**Rudy Rucker** on CyberPunk
•**St. Silicon's C.H.I.P.:** Church of Heuristic Information Processing

PLUS: A technological approach to the AIDS epedemic, coverage of independent space programs, continuing coverage of brain technology, psychoactive software review, entheogenic honey of the ancient Maya, and columns by Nick Herbert, Terence McKenna, Peter Stafford and Bruce Eisner, R.U. Sirius, Steve Follmer, Somerset MauMau and Alison Kennedy

If you haven't subscribed to the *Reality Hackers Newsletter*, you're probably not reading this.But if you did manage to get your greedy little paws on this issue, why not subscribe now and make damn sure that you receive the next five issues as well as the next issue of *High Frontiers Magazine* in your very own mailbox.

If you're already a subscriber, why not send a gift subsription to a friend or relative in the navy or your crazy half-brother in San Quentin?

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❒ **YES... send me *High Frontiers Annual 1987*. *$7ppd.***

❒ **YES... give me the works. Send me the newsletter, the 1987 annual and the next issue at this special low price. *$35ppd.***

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"Did you remember to go to the High Frontiers Monthly Forum?"

The High Frontiers Monthly Forum takes place on the last Thursday of each month. As well as presenting a speaker on the cutting edge of science, technology and consciousness, the forum is an opportunity for inventors, entrepreneurs, artists, writers and other visionaries to get together and share ideas and resources.

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