

Plane Talk Columns

In October of 1995 I was invited to write a series of articles for Charles Goodin's Astral Projection Library on the World Wide Web (the library's address was: <http://www.lava.net/~goodin/library.html>). These articles were, in effect, the supplements to DO_OBE. Four articles were written and I am including them here.

Oct 1995

Introductions and Update

This is the first in a series of columns I'll be writing for Charles Goodin's Astral Projection Home Page. What I'd like to do for this first column is introduce myself to those of you who don't know me, and provide an update of things for those of you who do know me, as well as give a sense of what I'll be doing in these columns.

First off, I'd like to thank Charles for inviting me to write these columns for his page. I've gotten to know Charles over the past year. He and I are in the midst of conspiring to make as much information as possible about OBEs and altered states freely available over the Internet and throughout cyberspace. We encourage those of you out there who also have insights to contribute to do so.

There is no question that there has been a continued growth of information about OBEs and other altered states multiplying like weeds out here on the Net. This is both good and bad. It's good because cyberspace provides a world-wide forum for us to all share our experience and express our ideas - in other words, many of us are discovering through cyberspace that we are not alone in our quest to explore altered states of consciousness. It's good because a beginner or someone with interest in altered states can get a lot of information easily via cyberspace. It's bad because the quantity of information that is accumulating is simply massive. Just look at Charles' Astral Projection Home Page or René K. Müller's Spirit Pages to see how much information there is. This quick and easy access to information lends itself to a particular abuse: absorbing too much without digesting it. When I got into all this stuff, I had to read books; one at a time, the old fashioned way! This gave me time to think about what I was reading before I moved on to the next book. With all the info out here on the Net, it's easy to skim over lots of it without really integrating any of it into your thinking. This is a pitfall to avoid, no matter how tempting it is to try to absorb large quantities of ideas quickly as the Net tempts us to do.

Another potential problem with the ever-multiplying info on altered states out here on the Net is simply the variety of viewpoints you'll encounter. Actually, this too is good and bad. It's good because diversity is good in its own right. It's good because this diversity simply reflects psychological reality. No one viewpoint is correct (a theme I will continually dwell on). On the other hand, spiritual matters, altered states, occultism and such topics are highly personal and highly dependant on where any one of us is at in terms of our psychological growth and maturity. When it comes to spirituality and exploring altered states, what is good for one person may be totally unhealthy for another and completely irrelevant to another person. Thus, in the plethora of information of spirituality and related topics available here on the Net, each of us has to use caution and discrimination when evaluating if a particular idea is relevant to our present needs. In other words, what I am saying is don't unthinkingly accept everything you see and hear out here on the Net. The variety that exists out here reflects the variety of needs that all of us are experiencing when the information is posted.

Thus, any piece of info simply may or may not be relevant. Based on my experience, most people out here do indeed know how to discriminate this kind of stuff, but its worth saying and reminding everybody.

So, having made my introductory remarks, let me say a bit about myself and this column. My name, as you can see from the author credits, is Don DeGracia. Those of you who know me know I'm the author of the free e-book DO_OBE, which is a "how-to" book about astral projections/OBEs/lucid dreams. For those of you who haven't read DO_OBE, I've been exploring astral projection since 1987 and have had quite a few of these experiences, well over 150 of them by now, though I've given up counting them to be honest. I've extensively studied these experiences, both in terms of reading about them (though there is still plenty more I have to read!) and in terms of actually having them. I've also studied occult ideas extensively. As well, I'm a scientist. I make my living doing biochemistry in a university. In a few months I should be getting my PhD in the field of physiology (but please don't call me "Doctor!"). I am very interested in all of science from physics to sociology, but I am especially interested in brain science. I'll have a lot to say in this column about brain science and its relation to the altered states we can achieve. In general, I take pretty much a scientific attitude towards altered states, but I respect and am open to occult theories of altered states (unlike many scientists, unfortunately). And most of all, I really try to stress a practical approach to altered states. Talk and ideas are one thing - being able to do something for yourself is another. So, more than any particular theoretical framework, I stress practical ideas and direct experience.

For those of you who do know me, let me update you on things. Its been over a year since DO_OBE was released into cyberspace. Over this year I have received email from literally hundreds of people around the world who've read the book and took me up on my offer to drop me email. People have written and given me many nice compliments on the book, they've written with lots of questions, and they have shared many of their direct experiences with me. And I have to say, its been an incredible education experience for me! All this feedback has had a substantial impact on my ideas.

For one thing, hearing from so many people has allowed me to see many similarities in our projection experiences. This only reinforces my contention that projecting is a natural ability that most of us can achieve with some effort. I am also now more convinced than ever that projecting (or whatever you want to call it) is a completely objective experience. There are far too many similarities in people's experiences to think that these experiences are somehow merely "subjective". Something very real and valid is going on here. As time goes on, more and more people, layman and scientists alike, are coming to appreciate this.

But probably most importantly, talking to so many people about OBEs, about spirituality and about life in general has really driven home something to me: our similarities really outweigh our differences. Its been an amazing experience for me to interface with so many people involved in pursuit of spiritual paths, and to see just how much we all really have in common. All this has only served to humble me even further and help to dissolve pretensions hidden in my ideas and my personality. In DO_OBE, I stated, that practicing OBEs had a strong element of therapy in it, but I never imagined it could manifest like this - by simply communicating and sharing ideas and experiences with so many people!

In terms of my ideas about OBEs, my thinking has continued to grow and mature since DO_OBE was written. After the book was written and released into cyberspace, I ended up taking a graduate class in neurophysiology (brain science). What I learned in this class had a major impact on my thinking. Most importantly, this class opened me up to the vast and complex field of neurophysiology, When I wrote DO_OBE, I only had a scant familiarity of this field. Since taking this class and basically learning the language of brain science, I've beg un to read and investigate the scientific literature on sleep, dreams, OBEs and other altered states. What I have learned in the past year is that the scientific study of sleep, dreams, OBEs, and altered states is more sophisticated than I had ever thought and definitely more sophisticated than the simple minded impression of scientific approaches to altered states I presented in DO_OBE. For example, and this may be surprising to many of you, at the time of writing DO_OBE, I was unfamiliar with Dr. Stephen LaBerge's work and research on lucid dreaming at The Lucidity Institute. When I read his book *Lucid Dreaming* (Ballantine, 1985) I was amazed at how sophisticated his viewpoint

was. Likewise, I have discovered many other very good ideas in the scientific literature that have expanded my views about what OBEs/lucid dreams/astral projections could be.

Given all the new ideas I have learned, both from talking to people through the email and from all the material I've been reading, its pretty clear to me now that the ideas I present in DO_OBE are not as balanced as they are in my mind now. I leaned heavily on occult ideas in DO_OBE and missed out completely on many important scientific ideas. One example is in DO_OBE I describe something called an "etheric projection". During an "etheric projection" one is essentially paralyzed and cannot move. Well, as many of you know, the idea of sleep paralysis is a common one, and what I call an "etheric projection" in DO_OBE is actually referring to this phenomena of sleep paralysis. And as many of you probably know, sleep paralysis occurs during REM (rapid eye movement) sleep, when all of the muscles of the body are paralyzed except the muscles in our chest that control breathing and the muscles in our eyes that lead to REM.

So, in some respects, I've been playing "catch-up" through this last year, trying to get better informed about scientific ideas relating to sleep, dreams and OBE/lucid dreams (and other altered states).

I have a vision. This vision is that scientific and occult ideas about Nature and Humanity can and should be mixed. Science is a method for testing the validity of our ideas by using experiments. Occultism is a study of the inner facets of our psychology and spirituality. There is massive overlap between these two sets of teachings. Some scientists, such as Carl Jung, can be considered to be either a scientist or occultist, or both.

The study of OBEs/lucid dreams/astral projecting sits smack in the middle of science and occultism. Originally, this experience was the purview of occultism and called an "astral projection". During the first three quarters of this century, parapsychologists brought the study of projecting into the realm of science by conceptualizing it as an OBE. In the last decade and a half, psychologists have brought the study of this experience even deeper into the realm of science by seeing it as a lucid dream and bringing to bear the tools and understanding of psychology and neurology.

Today, many scientists eschew the occult views of the projection experience and dismiss occult ideas as the mythologies of a less scientific and more naive age. Even the idea of the "out of body experience" appears to have fallen out of favor. LaBerge argues that seeing lucid dreams even as OBEs is also a primitive attempt to explain what these experiences are. I basically agree with LaBerge's ideas about the parapsychological approach. In DO_OBE I made no bones about criticizing the parapsychological idea of the OBE. However, I am less ready to dismiss occult ideas about the planes of nature. Too much is still unknown in brain science and in physics for me to conclude that the planes don't exist or that the occult idea that we have transcendental aspects (such as a soul) is hogwash. However, my ideas now are more tempered and more refined because I have a better understanding of the state of current scientific ideas about sleep and dreams and about the operation of the brain in general.

So, in a nutshell: Since DO_OBE was released a year ago I've learned more and continued to grow in my ideas about what projections are and what they mean to us as individuals. I've studied more of the scientific angle and have integrated this into my thinking, leading to a more balanced point of view between scientific and occult conceptions of the projection experience. And I've communicated with a lot of people, hearing a lot more about people's personal experiences projecting than I ever dreamed I would. This has really given me a lot to think about and I hope to use upcoming columns to share with you all some of the new insights I've gained. As well, all the new things I have learned over the past year have also affected my own projection experiences, and I hope to talk about these in future columns. So, stay tuned, there's more psycho-babble to come!

Jan 1996

Astral Projection or Lucid Dreaming?

Hi. Welcome to my second column of Plane Talk. As I stated in the previous column, throughout this past year I have really become much more familiar with scientific views of the projection experience. What I want to do in this column is discuss some of the stuff I've learned and ask the question: which is the better viewpoint: astral projection or lucid dreaming?

You'll notice I'm not even considering the idea of out-of-body experience (OBE). Let's review a bit and put this in perspective. In DO_OBE, I drew a broad distinction between the three terms most commonly applied to this experience: 1. astral projections, 2. out-of-body experiences, and 3. lucid dreams. I discussed how the term "astral projecting" defines an occult view of this experience. Which is to say that when we have this experience

we have left the physical plane and entered the astral (or one of the other planes). "OBE" is a term from parapsychology and for the most part implies that some invisible part of ourselves leaves the body and is free to travel around in the physical world. The term "lucid dreaming" is the psychologist's view of this phenomena and this term doesn't even consider the issue of whether anything "leaves the body" or not, but states that what is happening is that we are aware that we are dreaming while we are within the dream.

In my previous column, I put these three terms in a historical perspective. The oldest term is astral projecting. The occultists were the first group to take this phenomena seriously and try to give it an explanation. Because it is very obvious once you learn to project that you are not in the physical world of waking life, the occultists concocted the view that, naturally enough, you are no longer in the physical world. They naturally enough thought that, since you are obviously somewhere doing something, that you must be in an altogether different world. This, I believe is the basis for the idea of the astral plane and the occult idea of the planes in general. Historically, this idea crystallized firmly in 1895 with Charles Leadbeater's book *The Astral Plane*. Other contributors to this view were Oliver Fox's *Astral Projection* and Muldoon and Carington's *The Projection of the Astral Body*.

However, as we progressed from the 19th to the 20th century, non-occult folks got interested in the phenomena of projecting. This effort began with the British Society for Psychical Research (SPR), which was a group of scientists interested in investigating claims of paranormal and occult phenomena. The "science" of parapsychology grew here in the United States out of the approach of the SPR. The parapsychologists here in the United States, lead by J.B. Rhine, took a mostly statistical approach to things, and their paradigms were never very well defined. It was the parapsychologists who created the term "OBE", rejecting the older term "astral projection". The parapsychologists abandoned the occult idea of the nonphysical planes and instead viewed the OBE as somehow the person's consciousness could leave the body and travel to distant locations in the physical world. The one advance the parapsychologists had over the occultists is that they tried to test their ideas experimentally. However, the view of the OBE as occurring in the physical world never worked out. Experiments in which subjects were supposed to have an OBE and acquire

information from the next room or down the hall never produced any clear cut results. The problem with the parapsychological view of the OBE is that it rejected the occult view of astral projection, and thus cut itself off from important sources of information about the nature of this experience. Had parapsychologists read occult treatises about astral projection, they never would have looked for the OBE in the physical world. On the other hand, as I said, at least parapsychologist tried to experimentally test their ideas. Occultists never really did experiments. The old astral projection authors would learn to project and their books mostly describe what they experienced in this state - but they never devised ways to test their ideas.

So, parapsychology as a whole, which got its start in the 1930s, chugged along at low steam and never really got off the ground or went anywhere. By the late 1970s, parapsychology died. Thus, the idea of the OBE never went anywhere. It was a stage in our understanding of the projection experience, and it is a stage that has been outgrown for the most part. Stephen LaBerge has written extensively about how OBEs are actually lucid dreams. If you want to see his arguments, which are very reasonable and good, then please check out his books.

Meanwhile, as we entered the 20th century, there was a new science on the block and they called themselves "psychologists" and it was their goal to study the human mind. Psychology has passed through a number of phases of growth over the past hundred years. It began as an offshoot of physiology but began to acquire its own identity early in this century. There have been many schools of psychological thought. At the turn of the century were the psychoanalysts such as Freud and Jung. In the 1920s Gestalt psychology was born. Then a little later came behaviorism; then transpersonal psychology. And all along, physiological psychology - which is a view of the human mind as a product of brain physiology - progressed and evolved. And in the 1970s a new type of psychology - cognitive psychology - evolved, and is today the main approach to academic psychology. Cognitive psychology studies how our minds work. And most importantly cognitive psychology has dovetailed with neurology (which is the study of brain function), and together these sciences (which are quickly becoming one science) are painting a magnificent picture of how the brain creates the mind. All of these branches of psychology represent

different views of the human mind. Each has a validity in its own right and each is worth considering. The fact that there are so many approaches to psychology indicates that the human mind is a complex thing. No one view of what we are can suffice. There are too many aspects to being human and each of these approaches to psychology highlights one or another of the facets of humanness.

Now, what is very important to appreciate is that all these differing views of psychology have one thing in common: an adherence to the scientific method. The scientific method is quite simple actually. It simply is a philosophy that says not to believe any idea unless you can find a way to test it. This is a simple idea. It doesn't take a rocket scientist to appreciate the meaning of applying the scientific method to things. If we want to figure out the nature of things, we make up an idea of what things are. But we just don't believe the idea; making up the idea is only the first step. The next step, which is the crucial step, is trying to devise some way to test if the idea is true or false. These tests are called "experiments". And by testing an idea with an experiment, we can determine if our idea has value in describing the nature of things around us, or if the idea is just so much hot air. And remember, the goal of science is to understand the nature of things. So, in this quest, as we devise ideas and then devise ways to test them, some ideas are found to be right, and others are found to be wrong. It doesn't matter if an idea is right or wrong - it matters that the idea has been tested. A scientist who tests an idea and finds it wrong is no less a scientist than one who tests an idea and finds it to be right. Both are scientists, and both are doing their job correctly. So what I want all you readers out there to appreciate is this simple fact: using the scientific method simply means that you are trying in some fashion or another (i.e. by doing experiments) to determine if your ideas are correct or not.

And there is one more aspect of science we must discuss before getting back to the issue of lucid dreaming or astral projecting. This is the nature of logical reasoning. Logic itself is simple too. The idea of logic is that ideas are related to each other in a meaningful fashion. Logic is simply a way of thinking clearly. There are two main approaches to using logic: one is called inductive, the other deductive. The difference between these is as follows. When you are inductive, you begin your reasoning with particulars, and from these try to draw generalizations. Deduction is

the opposite: you start with a general viewpoint, and from this try to predict what the particulars will be. These are opposite ways to use logic..

Now, most science is, in general, inductive. What this means is you start with a bunch of particular observations, and from these try to draw a "big picture" or conclusion. The reason most science is inductive is because you test individual ideas by doing experiments. Each experimental result gives you one particular piece of information. As you piece together more and more particulars, a picture emerges, just like when you put a jigsaw puzzle together.

On the other hand, deduction works the opposite way. You start with some very broad generalization and from this try to "deduce" what the particulars will be. So, with deduction you start with the "big picture" and you logic your way to the details. Mathematics is mostly deductive, but most science is not. The only science that is mostly deductive is physics, and this is because physics is mostly mathematics. Physicists and mathematicians will sit and concoct "big pictures" and from these try to deduce details. Einstein's Theory of Relativity is an example of deduction. Einstein made up a set of ideas about the "big picture", and, by working through a bunch of math, came to conclusions about particular details. Then, experimentalists could set up experiments and test these details.

Now, the point of defining what induction and deduction are is to make this statement: the two scientific views of the projection experience - the view of OBEs and the view of lucid dreams - are inductive viewpoints. The occult viewpoint of astral projection is a deductive viewpoint. In the case of parapsychology, it made up a bunch of particular ideas and tested them using experiments. These ideas proved, for the most part, to be wrong. Thus, this is one reason why I am not going to even consider the parapsychological view of the OBE as a serious contender to explain the nature of the projection experience.

Now, lets get back to psychology. Psychology, like most sciences, is inductive. Some of the approaches above were deductive because they started with a big picture - such as Freudian or Jungian psychoanalytic theory. But for the most part, psychology has been an inductive science. It begins by coming up with ideas

about particular details, testing them, and, as time goes on, begins to construct a big picture about how the human mind works. For the sake of our discussion, we need to focus on two of the areas of inquiry of psychology. One is the area of sleep research, the other is the area of dream research.

We all know sleep and dreams go hand in hand. However, the scientific views of sleep and dreams have at times been together and at times separated. This is because sleep is something that happens to our whole body but dreams are something that are in our mind. In the Freudian theory of dreams, there is minimal emphasis on the role of the body and dreams are seen as purely psychological things. Early in this century, sleep research too was separated from dream research. Sleep researchers were physiologists working with rats and cats, trying to understand what goes on in the body when the body falls asleep.

It was during the 1950s when these two aspects came together. In the 1950s, it was discovered that our brains cycle through regular patterns of electrical behavior when we sleep at night. These patterns of electrical behavior are called brain waves, and names of these brain waves are pretty much common knowledge. There are alpha (slow waves), beta (fast waves) and delta (real slow waves) waves emitted by the brain. Now, during sleep, it was discovered that the brain cycles through 5 phases of brain wave patterns, and then repeats the cycle. The 5 phases of brain waves are called:

- Stage 1
- Stage 2
- Stage 3
- Stage 4
- REM sleep

During sleep stages 1-4 the brain waves transform from alpha waves to delta waves. That is, the brain waves get slower and slower and also become much more rhythmical. However, during REM sleep, the brain waves all of a sudden become very fast and

nonrhythmical and they look very much like the brain wave patterns of a waking person. Thus, REM sleep has also been called "paradoxical sleep" because, even though the person is asleep, their brain waves look as if they are awake. And most importantly, things happen to our muscles during REM sleep. All our muscles become paralyzed. People say that this is so we don't hurt ourselves when acting out our dreams by actually moving our sleeping body. However, not all our muscles become paralyzed - two sets do not: those that move our eyes and those that move our lungs. Moving our lungs is pretty obvious - we sure don't want to quit breathing while we sleep! However, why our eyes do not get paralyzed is less clear. But the fact that our eyes are not paralyzed during REM sleep is where the stage of REM sleep gets its name. Because our eyes are not paralyzed during REM sleep, they move around. This motion is called "rapid eye movement". Thus, REM sleep derives its name from the eye movements that occur during the stage of sleep when we dream most and when the brain wave patterns look as though we are awake.

This whole sleep cycle takes about 90 minutes to happen. And, as the night progresses, the Stages 1-4 take up less time in the cycle and REM takes up more time. So, when you first fall asleep, REM may only last for 15 minutes of the 90 minute cycle. But by the end of the night, REM may last for perhaps 60 minutes out of the 90 minute cycle.

Now, and this is probably no news to many of you, the study of dreams and of sleep came together shortly after the sleep cycle was discovered when it was next discovered that dreams tend to occur most often during the REM stage of sleep. Now, as it turns out, our minds are active during the whole sleep cycle. But the things we normally think of as dreams occur mostly during REM. REM dreams are the ones where we are somewhere doing something - which is what we normally think of as dreams. During the nonREM stages, our mind is active, but it is usually just thinking things, but it is not somewhere doing something.

We need to do one more digression before we tie all this together. In 1913, a psychologist named van Eeden coined a term: lucid dreams. van Eeden described these lucid dreams as dreams in which he knew he was dreaming and where he could very consciously interact with the things going on in his dream. However, back in 1913, which was the heyday of Freud's theories,

and the earliest beginnings of behaviorism, nobody really took van Eeden's observations and studies of his own lucid dreams very seriously. As a matter of fact, some people tried to explain away van Eeden's idea of lucid dreams by claiming that there was no such thing as a lucid dream and that van Eeden must have woken up during the middle of the night and had very vivid memories of his dreams.

And the study of lucid dreams went pretty much ignored by sleep and dream researchers until the late 1970s when two groups of researchers put two and two together. Both groups reasoned as follows: First, during a lucid dream, one is conscious and can do things voluntarily during the dream just like when awake, and 2. during REM sleep, the eyes are not paralyzed. Therefore, if lucid dreams occur during REM sleep (which makes sense because - like ordinary dreams, one is somewhere doing something), maybe one can voluntarily control the movement of their eyes during a lucid dream. Now, the beauty of this idea is that it could be experimentally tested. You can tape electrodes to your eyes when you are asleep and measure the movement of your eyes. You can also measure your brain waves as well to determine what stage of sleep you are in. The two groups that tested this idea were Keith Hearne in London and Stephen LaBerge here in the United States. For a full account of the history of this research, I highly recommend Stephen LaBerge's book *Lucid Dreaming* (Ballantine Books, 1985).

To make a long story short, both of these laboratories discovered that yes indeed, the lucid dreaming person can control their eye movements from within the dream during REM sleep. This was a gigantic step forward in the study of dreams and sleep, and the impact of this research has not fully hit the general scientific community, even now, 16 years later. What this means is that the person experiencing the lucid dream can COMMUNICATE with people who are awake here in the physical world. They can do this by setting up a predefined code for eye-movements, and the eye movements are measured by electrodes that people awake can read.

Ok, then so what is the big deal? The big deal is this: the idea of lucid dreaming and the idea of astral projection are two different ways to explain this phenomena of projecting, or lucid dreaming, or whatever you want to call it. All of a sudden, with the

work of LaBerge and Hearnese, we now have an experimental tool to explore this state. I cannot begin to overstate what a big deal this is. If you want to think of this experience as an astral projection, then you can think of what LaBerge and Hearnese have done is give us a way to communicate with people in the astral plane. If you want to think of the experience as a lucid dream, then you can think of this tool as a way to communicate with people who are lucid in their dreams. What this really means is that - for the first time ever - we have a tool to let us test our ideas about the nature of this state.

And researchers have indeed utilized this tool to test the nature of this state. And what has been discovered? A lot actually. There is no way I can summarize all the results here. Those of you interested in this work can dig up references, and also check out Dr. LaBerge's web site . The important finding though is that this idea of lucid dreaming works very well at explaining the nature of this experience. The evidence to date indicates pretty clearly that lucid dreams are ordinary dreams in which the sleeping person is "lucid" within the dream. This ties in directly with how I defined astral projecting in DO_OBE. There I said this:

"ASTRAL PROJECTION IS A CONTINUITY OF MEMORY BETWEEN YOUR WAKING AND DREAM PERSONALITIES....

AN ASTRAL PROJECTION IS A DREAM IN WHICH YOU ARE FULLY AWARE OF YOUR WAKING LIFE."

In other words, an astral projection **IS** a lucid dream.

Now, for all of you with the stamina to read this far, we have finally built up the case to delve into the main question I asked at the beginning of this column: which is the better viewpoint: astral projection or lucid dreaming?

Again, we are dealing with two very different viewpoints here. The occult view is a deductive view. It begins by defining a "big picture" which is that the physical world is not the only world there is, but that there are other, nonphysical worlds, and that we humans have the ability to visit these nonphysical world. On the other hand, the lucid dreaming view is an inductive view built up from many pieces of a very large and complex puzzle. For not only does sleep and dream research come to bare on the lucid dream viewpoint, but all of the inductive evidence about the brain and body are relevant to this discussion.

I am about 4 months away from acquiring my Ph.D. in physiology. I can assure you that the study of the human brain and body, and how these pertain to sleep, dreams and lucid dreams, is extremely complex. There is literally a mountain of evidence to support scientific views of the nature of the brain and how the mind works, and the nature of sleep and dreams. In comparison, the evidence that supports the occult viewpoint of astral projection is a mere mole hill.

However, a mole hill is more than nothing; anything is bigger than zero. What kind of evidence is there that supports the occult viewpoint nowadays? Well, occultists have done almost nothing to test their ideas about the planes and the theory of astral projection. That means that occultists have literally produced practically no evidence whatsoever to support their contentions. Nothing has changed in occultism since the original books were written almost 100 years ago.

Now, what is extremely surprising is that the little bit of evidence in favor of an occult view that does exist comes from science itself. There are two types of evidence: positive evidence and negative evidence. The negative evidence is the fact that scientists have done nothing to rule out the existence of the planes or occult theories. In fact, this is lame evidence because the scientific theories of the brain, the mind and how these relate to sleep, dreams and lucid dreams has NO NEED to postulate occult ideas to explain all the phenomena that have been observed. Believe me, the brain is more than complex enough of an organ that we can explain dreams and lucid dreams solely on the basis of the action of the brain.

Those of you who have read DO_OBE will recognize that I have done a complete "about face" in regards to what I wrote there. In DO_OBE, I argued that scientific views cannot explain our consciousness. Well, the fact is, I didn't know what I was talking about. That is the thing when you are ignorant: you just don't know what you are missing. Luckily, ignorance is not a permanent condition, and, as I've stated, I've spent the past year doing nothing but studying the brain and how it works - not only with regard to sleep and dreams, but just in general, how the brain works while we are awake and in a variety of pathological situations. So, I'm not apologizing for switching to a view opposite what I expressed in DO_OBE. Hopefully it will stand as a lesson of other things I say

in DO_OBE, particularly what I say about being open minded and never stop learning about things related to projection. I practice what I preach.

Now, my shift in viewpoint is not that extreme however. I have not come to the point where I reject occult ideas and I have not become as staunch materialist who thinks that the brain creates our consciousness. I know too much about occult views and I know too much about what science doesn't know to fall into the trap of rejecting occult ideas at the expense of scientific one. Truthfully, I have not deviated one iota from my stated goal of mixing scientific and occult views. However, I have vastly opened my mind to the evidence of science and found it extremely pertinent and useful. And this has forced me to be less naive about occult views and much more critical of them. However, I still believe they are worth learning, so I have no regrets whatsoever about the material in DO_OBE. It is a necessary learning stage and I am glad I have made this information available to people.

Now, I said, the negative evidence that supports the occult view is science's general ignorance about aspects of nature we currently don't understand. And again, this is a lame line of thought. Science is very robust and this kind of logic in defense of occultism is nothing more than whining and ignorance.

Now, what is really surprising is the positive evidence that supports the occult world view. As I said, occultists did NOT create this evidence. The surprise is that the evidence that suggests there may be some truth in occult viewpoints stems from modern physics. To explain this, I need to tangent off once again.

As I have sat in these graduate level Ph.D. classed in physiology, I have been amazed by how little scientists from different fields influence each other's ideas. By no means though is this a general statement. Its more a historical statement than anything else. The process of diffusion of ideas from one scientific field to the next is always a process in progress. New ideas in physics are not immediately applied outside of physics. It takes time for ideas to spread. And also, there is a critical factor of generational differences. The people who taught me physiology are 50 years old. They learned physiology 20 or 30 years ago, before many of the ideas in physics that exist today even existed! So, its the "you can't teach an old dog new tricks" idea. These old folks are

just not up on the latest - the majority of them at least. Some are, however, and these folks are brilliant and are creating a new type of science by mixing physiology and physics.

So, this said, here are the observations from physics that have direct bearing on brain physiology and therefore on the nature of lucid dreams, and how the mind works in general:

1. Our brain is a chemical system. The cells in our brain (called neurons) are made of molecules (such as DNA, RNA, protein, sugars, fats, etc.). These molecules are made of atoms. Atoms are defined by quantum mechanics. Quantum mechanics is really weird and has more in common with traditional occult views than most people suspect.

Now, it is increasingly being recognized that quantum mechanical considerations have a direct affect on brain activity. People used to think that because cells are so big compared to atoms that quantum mechanics plays no role in cell function at all. It turns out that this is not true. It seems that to be able to explain the behavior of the protein molecules embedded in nerve cell membrane that allow neurons to conduct electricity requires quantum mechanics. These proteins are called "ion channels" and experiments have clearly shown that they are little quantum mechanical devices.

What this broadly implies is that quantum mechanical effects will affect the behavior of cells. Depending on how far you want to take this conclusion, we can end up with Alice in Wonderland. What this kind of evidence suggests is that reality as we understand it is a lot more complex and weirder than traditional, kind of cozy ideas of molecules and cells would have us believe. However, this kind of thinking has to be balanced by the realization that there absolutely has to be a predictable consistency to large scale biological structures such as brains and human beings. Otherwise, they wouldn't work at all. However, within a certain degree of predictability, there is a lot of leeway for unpredictability. This is emerging as a general principle of biological system. Hence, one cannot draw on older scientific ideas to banish occult ideas per se.

The other level physics plays a role is with all these "Grand Unified Field Theories" that these physicists are concocting. These GUFTS, as they are called, are very strange and paint a picture of

the nature of things much closer to the old occult views than the old scientific views. The "old" scientific views, including Einstein's view of space and time, define space and time as pretty much what our sense deliver: three dimensions of space and one dimension of time. However, these GUF^TS are multidimensional models. One of them, a particular variation of super-string theory, sees nature as being 26 dimensional. It doesn't take a brain surgeon to come to the notion that these extra dimensions in the GUF^T models could actually be the planes that occultists described.

However, this line of thought is PURE SPECULATION. Mainly because these GUF^TS are pure speculation. However, as physics progresses, one of the GUF^TS is going to turn out to have a more accurate correspondence with experiments than any of the other ones. If the winning GUF^T is only 4 dimensional, then this will kill occult ideas. If the winning GUF^T is one of these multi dimensional models, then it will probably be reasonable to say that physicists have finally discovered the occult planes. Only time will be able to decide this one.

What I am doing here is trying to paint a picture for you readers to illustrate that the occult view of astral projecting does not need to be seen as contradictory to the scientific view of lucid dreaming. Given what is both known and not known today, it seems likely that these two viewpoints are going to converge into one unified viewpoint. And this unified viewpoint will probably be much different from either the standard occult view or the standard view of lucid dreams.

But the fact is, this picture needs to be created. And it will be created by people testing their ideas by doing experiments, not by people who sit around and parrot ideas that are 100 years old. What I am spelling out here is a NEW OCCULTISM. Its time to transcend the old ideas, and transcend the old limitations of our thinking, its time to transcend the black and whites that have prevented us from seeing new associations in things. It's time to be creative, be open minded, and most of all - be well informed - of the evidence that exists out there right now. And to put this evidence to work to devise new way of looking at this stuff and of trying to find new ways to test these ideas. Believe me, this story is not finished. It is only just now beginning.

So, let me wrap this up. And let me be blunt about it. The idea of the OBE is dead. This idea killed itself, which is fine. The idea of lucid dreaming is very, very strong. It deserves our attention and our careful consideration, and it deserves refinement and continued experimentation. The old occult ideas of astral projection are just obsolete in some respects. There is still value in learning the old occult ideas, but learning these ideas can no longer be viewed as an end in itself. Learning these ideas has to be viewed as a stage to open our mind to broader endeavors and thinking. The old occult ideas are like a type of intellectual training wheels. They will serve to open your mind, but once it is open, you have to strive to look beyond these ideas, to not be afraid to see their limitations, and not be afraid to criticize them and experiment them out of existence if need be. Any and all ideas are expendable in the search for the truth. Ideas can blind us from truth or they can be our road to the truth.

If you review the evidence that exists, it is clear that the idea of lucid dreaming is the most accurate and worthwhile viewpoint to adopt currently as you experiment with this phenomena and learn how to do it. But again, the occult ideas deserve consideration, particularly because science itself is transforming at a dizzying pace and, before long, science as we know it may well resemble the occultism of yesteryear. The bottom line is the message I preach in DO_OBE: stay open minded and stay informed.

March 1996

More About The Trance State

Hi everybody. Welcome to the 3rd installment of Plane Talk. This time around I'm gonna leave theory behind and focus on more practical matters. As I said in my first column, I receive a lot of questions from readers of DO_OBE and the vast bulk of these questions revolve around the practical matter of going into trance. In DO_OBE, I described what I call the Trance Method as a way to achieve an OBE or projection. What I want to do in this column is address some of the more general questions I receive about going into trance and hopefully clarify a few points about this practice. Also, I'd like to mention a couple new insights I've gotten for making your practices more efficient.

To start, let me briefly review the idea of the trance method. Again, this is a method for astral projecting, inducing an OBE, or going into a lucid dream (as all you readers know by now, I believe these three terms refer to the same experience). The idea of the trance method is to go directly from the waking state to the projection state. In a nutshell, what this method entails is letting your body fall asleep while, at the same time, you keep your mind awake and alert . This method is practically identical to the method

taught by Dr. Stephen LaBerge called WILD (waking induced lucid dream). In DO_OBE, I described the stages involved in going into trance. You lay down with the intent to project and allow yourself to relax deeper and deeper. As your relaxation deepens you can expect to experience a number of changes in bodily sensations and in your perceptions. These include feeling sensations of getting heavy, sinking or floating, and perhaps the onset of hypnagogic images and sounds. After a certain point, your trance becomes deep enough and you feel yourself 'separate' at which point you are 'out' of your body. You may or may not experience a momentary break in your consciousness. And when you finally get out, you will either be somewhere in the projection/dream realm, or in a place I call 'the void', but you will be in full consciousness. At this point, your projection/OBE/lucid dream will have begun.

For readers unfamiliar with the Trance method, I strongly recommend you read up on it in DO_OBE, give the exercises a try, and then come back and read this column. This column is meant to be a supplement to what is described in DO_OBE, and is NOT intended as a stand-alone introduction to going into trance.

One of the most frequent questions I receive has to do with feeling vibrations as you go into trance. Quite often, after you have been laying there for a while (perhaps for 10-15 minutes depending on how tired you are), you may feel a tingling sensation on your skin, or in your arms and legs. When you feel it on your skin, it feels almost like light chills, as if you are slightly cold. I have found when I get these sensations in my arms or legs that they are somewhat uncomfortable.

Now, the point is, it is inevitable at some point in your practicing of the trance method that you will feel these kinds of sensations. Many people write me and ask me what these vibrations mean, and, if by feeling these vibrations, does this indicate they are getting close to projecting. These are, of course, very valid questions. And here is the answer I tend to give.

Remember that when you go into trance, you are trying to let your body fall asleep, yet keep your mind awake. What this means is that you want to lose the perception of your bodily sensations. This means you do NOT want to feel your body. These vibrations are sensations coming directly from your body. By focusing on them in your consciousness, this only serves to keep

your body awake. Therefore, feeling vibrations actually PREVENTS you from projecting.

Now, this may go against things you have read elsewhere. Robert Monroe (author of *Journeys Out of Body*, *Far Journeys* and *Ultimate Journeys*), for example, wrote about the vibrations that often accompanied his OBEs. But he is referring to something different here. In DO_OBE, I spoke about kinesthetic sensations that occurred as you went deeper into trance. Again, this included feelings that your body was getting heavier, that you are sinking into the bed, that your body is floating, tipping or other such sensations. These kinesthetic sensations seem like true bodily sensations, but they are not. I perhaps may not have described these sensations, and what they mean, as well as I could have in DO_OBE, and since they are so related to this idea of vibrations, let me elaborate a bit about kinesthetic sensations.

The term "kinesthetic sensations" normally means "feelings of your body moving". However, in DO_OBE, I used it in a different sense. What I was talking about are bodily sensations that you feel after your body has in fact fallen asleep. What I now think these trance-associated kinesthetic sensations are are hallucinations created by your brain after your body has indeed fallen asleep. See, what I didn't know when DO_OBE was written is that, when we fall asleep, our bodies become paralyzed, particularly during the REM phase of sleep, which is the sleep stage in which both ordinary dreams and projections/lucid dreams occur. That is, during REM sleep, sensations coming into our brains from our senses, including our senses of touch and bodily sensation, are inhibited. In other words, if someone were to touch you while you slept, that sensation does not get to your brain as easily as it would if you were awake. Its almost as if there is a volume control on our senses, and the volume gets turned down when we sleep, particularly in the REM stage of sleep.

So, what all this means is that, as you are getting deeper and deeper in trance, at a certain point, your body literally falls asleep, although your mind has stayed awake. At this point, your mind has literally been cut off (for the most part) from sensations of touch and movement coming in from your body. However, and this is very important, you still continue to feel a body and still continue to feel as if this body is moving. It is these sensations of a body that occur after you have fallen asleep that I was calling

"kinesthetic sensations" in DO_OBE. In fact, a more realistic term to refer to these sensations is "kinesthetic hallucinations" for these are not true input from the nerves in your body. These are sensations created by your brain when the real input from the body is being inhibited. In other words, these are hallucinations of bodily sensations. And these are what you want to learn to recognize as an indicator of how deep you are in trance.

Again, for most of the people that write me, when they describe "feeling vibrations", they are referring to actually input from their body, and the fact that they are feeling their body indicates that they are still wide awake. And concentrating on these vibrations will only reinforce keeping you awake. So, the bottom line is, if you feel these vibrations, it is probably an indication that your body is not tired enough to go into trance. And if you continue focusing on these vibrations, it will only keep you awake and prevent you from projecting.

So, I hope these ideas about kinesthetic sensations (or actually from here on out I'll refer to these as "kinesthetic hallucinations") and feeling vibrations are a little clearer to you readers. Hopefully people won't get as hung up on this.

Now, to wrap up this discussing of kinesthetic hallucinations, again, these are important indicators of how deep your trance is. And what I have been telling people is that the best way to learn about these kinesthetic hallucinations is to pay careful attention to what it feels like when you fall asleep at night. This is actually a very simple exercise and is not something I mentioned in DO_OBE. When you go to bed at night, simply pay attention to what it feels like as you fall asleep. Don't try to project or anything. Just pay attention to what it feels like as you drift off to sleep. And indeed that is what you will feel: as if you are drifting, or sinking, or getting heavy. You want to learn what these sensations are and how they feel because you will feel these kinds of things every time you try to project by going into trance.

So, I hope that is clearer now!

Next topic: hypnagogic images. I get a lot of letters from people about the hypnagogic images. To remind the reader, hypnagogia is the state of consciousness that lies in-between waking and sleeping. When you are in the hypnagogic state, you may see hypnagogic images. Hypnagogic images are crystal clear visual

perceptions. You may see faces, or trees, or landscapes, or abstract images that are hard to describe with words.

Now, as you practice the trance method, and your trance gets deeper and deeper, you may or may not see hypnagogic images. People write me and are concerned when they try to go into trance and they do not see any hypnagogic images. They wonder if they are doing something wrong when they don't see these images. Again, I simply want to make this crystal clear: you may or may not see these images. Seeing hypnagogic images is not a requirement for projecting by trance. As I said in DO_OBE, if you do see them, then this indicates that you are getting deeper into trance (as a matter of fact, for you physiologically inclined readers, I have read that the hypnagogic state tends to occur during stages 1 and 2 of nonREM sleep). But if you do not see these images, it doesn't mean you are doing something wrong. Its ok not to see hypnagogic images as you go deeper into trance on your way to projecting.

Again, I hope that this clarifies this point.

Finally, there is one last thing I want to discuss, and this is: when is it a good time to practice going into trance? Now, this is not something I discussed in DO_OBE. This is not something I knew when I wrote DO_OBE. But as I have studied more about all this, particularly about the physiology of sleep, its become very clear when its the best time to try to go into trance. And here it is:

The best time to try to project using the trance method is in the early morning, preferably 15-30 minutes before you would normally wake up.

The worst time to try to project using the trance method is in the night when you are going to bed.

Let me explain why this is.

Again, remember what we are talking about here: An astral projection/OBE/lucid dream involves taking your waking consciousness into the dream world. To do this via trance, you are trying to keep your mind awake while, at the same time, letting your body fall asleep. So, the key thing about the trance method is keeping your mind awake and carrying it across the border, so to speak, into the dream world.

Well, the simple fact is, when you go to bed at night, you are tired from your day's activities. And you are also tired because

your brain is intrinsically programmed to fall asleep in a rhythmical fashion. So, if you try to project via trance at night, you are, in effect, trying to swim upstream, or fighting an uphill battle. Your body wants to fall asleep at night, and so does your mind. Its an inherent rhythm built into your body. You need sleep and you need rest. And, for God only knows what reason, true sleep and rest require you to loose your lucidity. Everything in your body and brain is conspiring against your intentions to keep your lucidity intact when you go to bed at night. For all these reasons, trying to project, via the trance method, when you fall asleep at night is a BAD idea.

On the other hand, as I said above, what you can do when you fall asleep at night is pay attention to what it feels like as you fall off to sleep. Do not try to maintain your lucidity. Just simply pay attention and try to remember the sensations you are feeling as you fall asleep. This is one constructive use of falling asleep at night.

Conversely, there are reasons why trying to project via trance in the morning is much more efficient. First, your body, brain and mind are rested by morning. Therefore, if you try to go into trance in the A.M., you are not fighting against the needs of your body. A second factor is that, when you first wake up, you are still drowsy. This is a fact all of us know first hand. And this can be used to your advantage when trying to project via trance. From the point of view of getting up out of bed and starting your day, being drowsy is a bad thing. But from the point of view of trying to project, being drowsy is a head start on going into trance. When you are drowsy you are already deeply relaxed and your body will fall asleep quite easily. All you need to do then to go into trance after waking in the morning is to keep your mind focused and alert (i.e. lucid) as you drift back off to sleep.

Interestingly enough, this is something I have quite instinctively done all along. The fact is, the vast bulk of my projections, including most everyone in DO_OBE, occurred in the morning shortly after waking from my nights sleep.

The procedure is simple. Set your alarm to wake up a little early, maybe 15-30 minutes early (of course, this presupposes you have time in the morning to project, and don't have to worry about such things as going off to work). Then, when you wake, go and go

to the bathroom, because this is something you'll have to do (as if none of us don't know that!). Then, you may want to occupy yourself in some light mental activity for about 10-15 minutes, usually reading. I used to get up, go to the bathroom, then read books about projecting for 10 minutes, then lay back down and try to project.

Now, in fairness, although this is the way I have done things since 1987, I never really appreciated the significance of approaching projecting this way. The light bulb clicked on in my head when I had read an article by Stephen LaBerge which describes this exact approach to projecting/lucid dreaming. So, credit needs to be put where credit is due. And again, the things I am describing are practically identical to Dr. LaBerge's method called WILD.

Finally, there is one more important reason I am aware of why trying to project in the A.M. is more efficient. This has to do with the nature of the sleep cycle we go through several times each night. As I mentioned in the last column, and as many of you may know, there are 5 phases to the sleep cycle, and the entire cycle itself lasts about 90 minutes. The 5 phases are called: stage 1, stage 2, stage 3, stage 4 and REM. It turns out that early in the night, after just going to bed, the bulk of the first 90 minute sleep cycle is taken up by stages 1-4, and the REM stage is very short in duration (maybe 10 minutes out of 90). But as the night progresses, stages 1-4 shorten, and REM lengthens in duration. So, by the early morning, after 4 or 5 sleep cycles, REM accounts for maybe 45 minutes of the entire sleep cycles. And again, the key link here is that it is during REM that dreams and lucid dreams (or OBEs/astral projections) occur. So, what this all amounts to is that, for reasons still unknown to brain scientists, your brain can get into the REM stage much easier in the early morning than in the night, and this will greatly facilitate you having a trance induced projection (or WILD - which ever term you prefer).

Ok, so now I'm done for now talking about practical stuff related to the trance method of achieving OBEs/projections/lucid dreams. I'd like to conclude, still on the note of practicality - but not the practicality of going into trance, but the practicality of which ideas you use to conceptualize the projection/OBE/lucid dream experience - by making the following observation.

Since I've started writing these columns, I've clearly been espousing a more scientific view that sees this experience as a lucid dream and not dwelling on the occult view of astral projection. This shift in viewpoint has real practical consequences, which is why I have shifted in the first place. None of this is philosophical speculation (i.e. read "hot air"). We are discussing something very real and repeatable. The scientific view that sees this experience as a lucid dream has very practical consequences, many of which were outlined above. For example, sleep researchers revealed that the sleep cycle exists. Dr. LaBerge's work has revealed that projections/lucid dreams occur during the REM phase of the sleep cycle. These scientific observations allow for the practical advice that attempting to project in the morning, upon waking, will be more effective than trying to project at night when falling asleep. There is nothing in the occult view of astral projection that would allow us to come to this practical conclusion. This is only one example of the strength of the scientific view over the occult world view.

And this also illustrates how what we believe and know affects how we act. Since the theme of this column revolves around practicality, I want to just conclude with the thought that what ideas we do or do not accept have practical consequences, and that some ideas are more practical than other ideas. The truth is, the main reason I have shifted away from occult views and towards scientific views is because the scientific views are more practical. The scientific ideas allow us to act more efficiently and to get things done. And as well, there are mountains of evidence that support the scientific ideas. In contrast, the occult ideas are cute fairy tales - still of value I believe, for reasons I will go into in a future column, but not as of such direct value as the scientific views of this altered state we are discussing.

Jan. 1997

About The World Of Dreams

Hi folks! Its been a while since I've written a Plane-Talk column. What I'd like to do this time around is focus on the question: what is the dream world? For afterall, in our dreams and our lucid dreams (or OBEs or astral projections, or whatever we wish to call them) we really appear to be somewhere. In our dreams we are in places; we move through landscapes - sometimes of a mundane character, sometimes of a bizarre and surrealistic character. Whatever the forms they may take, what is clear is that when we dream we are somewhere. What I'd like to discuss is some of the ideas I've been kicking around about just what this somewhere really is when we talk about being in our dreams.

In DO_OBE., I put forth the idea that the world of our dreams are the planes of nature described by occultists, particularly of the Theosophical variety such as Annie Besant and C.W. Leadbeater. In fact, by the end of this article, I hope to illustrate how naive of a viewpoint this is. As you readers of this column know, I have been focusing more and more on scientific explanations of the phenomena of lucid dreaming/OBEs/astral projection, and this way of thinking sees these experiences as being products of our brain. As I have allowed my mind to open up to this scientific, and biological, viewpoint - and the body of evidence

that supports such a viewpoint - the question has occurred to me: if indeed our dreams and lucid dreams are products of our brains, then how is it our brains can create the realistic, complex and detailed worlds we move through in our dreams and lucid dreams?

In pursuit of an answer to this question, I have surveyed a fairly large amount of literature about how our brains work. Initially, I was very skeptical that one could explain the environments, landscapes and places of our dreams in terms of how the brain operates. However, after much reading and learning, my initial skepticism has been replaced with some inkling of an understanding of how the brain indeed can create within itself whole worlds through which we, as personalities, move, live and have our being, not only in our dreams, but while we are awake as well.

As with most questions we ask, there is a huge philosophical component to this issue of the nature of the dream world. The philosophical questions revolve around this: we take our waking experience as our point of departure when we talk about our experiences in the dream world. And in our waking experience we move through this physical world, a world which is revealed to our conscious awareness through the agency of our senses. Our senses include seeing, hearing, touching, smelling, and tasting, which are the five commonly known senses. But we have other senses in our body too: we can sense temperature, pain, up and down (i.e. gravity), the motion of our bodies and limbs, we can feel vibrations, and pressure and there are many unconscious senses constantly monitoring the internal organs of our bodies. It is through all of these sensory modalities that we know of the world we inhabit while we are awake. And the most important point is that we take all of this very for granted. We simply assume that the world that is revealed to us through our senses exists as an objective world that exists outside of us, and we assume that we perceive this world truly as it is.

Now these really are important philosophical questions that have plagued philosophers throughout the centuries. Philosophers like Kant and Descartes, and many others, have worried about the reliability of our senses for revealing to our minds about the nature of the world, and they have worried about the seeming objectivity of the ideas we create to describe the world in which we find ourselves. What I find of great interest is that asking the question

"what is the world of dreams?" has an awful lot to do with these philosophical questions.

Again, we assume the world of waking is real, solid and objective. And we move through this world as we live our lives in time, never giving any thought at all (unless of course you are a brain scientist!) to the marvelous bio-machine in our heads - our brains - that make life as we know it possible. But the fact is, it is because of the properties of our brain that we can perceive the world of our waking experience. It is because of the properties of our brain that there is continuity in time to our waking experience. Even though every day of being awake is interrupted by a night of sleep and of dreams, we wake in the morning and continue on with our waking life, continue the events of yesterday, looking forward to the events of tomorrow. The continuity in time of our waking lives is due to the fact that our brain stores memories of the things it experiences. If our brains did not store memories, then we would not remember what happened to us, nor would we remember the things we were planning on doing and the things we strive to achieve and for which we hope.

In fact, there are types of brain damage that people can suffer where their brain loses the ability to form memories. Such people live constantly in the present. They do not remember yesterday, nor do they remember to plan for tomorrow.

Likewise, as we take our memories for granted to a large extent in our day to day lives, so too do we take our brains ability to perceive the world of our waking experience for granted. Don't you ever wonder just how it is that you can open your eyes and see the world? Seeing happens quite automatically. You don't have to do anything, it just happens. Nor did you have to learn to see. The ability to see is built into your body; built into your eyes and the nerve connections between your eyes and your brain. You were born with the ability to see - it is a gift that God has given you. Although the how of seeing never enters into our minds as we go about our day-to-day business (again, unless you are a brain scientist who studies vision!), the fact is, there is a very complex set of processes that underlie our ability to see. What I want to do now is explain a little bit about the hidden and unseen (one could even call them "occult") processes that are happening every time we look at the world.

First off, what allows us to see is light. Light exists in the world of our waking experience, and it exists as waves of infinitesimally small particles called photons. These photons/light waves move around through space at massive speeds - the speed of light is the fastest speed of anything we know of - and these photons/light waves bounce off of things that are made of matter. They either bounce off of material things, or they go right through them depending on the frequency of the light waves and the nature of the matter they encounter.

Now, as these light waves bounce off of things, some of the light waves enter our eyes. And inside of our eyeballs, the whole back wall of our eye ball is made of cells that respond to the light waves. These cells make up a region of the eye called the retina. And the cells of the retina that detect light waves are called rods and cones. The rods and cones do not respond to all light waves, but only to a very narrow range of light waves that we call visible light. This range of light waves is visible because we see them, and we see them because the rods and cones can detect them.

To make a very long and complex story short, when visible light enters the retina, the retina sends nerve impulses to the brain. These nerve impulses are not pictures in any sense at all; they are patterns of electricity. So, our retinas convert light waves which have bounced off of, or were emitted from objects around us, to patterns of electricity inside our brains.

So, if the eye sends patterns of electricity into our brains, then how is it we can see? Or what is seeing? Well, frankly, if I could answer this question, I'd be famous. The fact is, no one is quite sure of how the patterns of electricity that leave the eye and enter the brain get converted into this subjective mental phenomena we call "seeing". However, some of the more clever scientists who grapple with these issues have taken an interesting tact to the problem. Instead of wondering how patterns of electricity get converted to the things we actually are seeing in our consciousness, these scientists have dealt with the issue by stating that what we call "seeing" is actually patterns of electricity coursing through our brains, and actually, only through very specific parts of our brains.

And the fact is, there is good evidence to support this viewpoint. You can imagine that if a person's eyes got damaged, then that person would become blind, and indeed this is the case. However, it turns out that people can become blind by having the parts of their brain that are involved with seeing become damaged, even in their eyes are perfectly intact. In this case, the person has brain damage, not eye damage, but they become blind nonetheless. Clearly then, this supports the notion that what we call "seeing" involves patterns of electricity moving through specific parts of the brain; if those parts of the brain get damaged, the person can no longer see - they are blind.

Now, everyone reading this is using a computer. Many of you know that the computer screen you are looking at is composed of small dots of light called "pixels". By combining many pixels together on the surface of the TV tube of your computer monitor, it creates a picture. It turns out that our brain does a similar thing with vision. Our retina is made up of many millions of cells - the rods and cones - and each of these is like a pixel. Now, each pixel on your computer screen has its place on the surface of the computer screen. The pixels form a two-dimensional grid and the location of each pixel is defined by stating its place on this 2-D grid. Likewise, the retina is also a 2-D grid of cells and each cell has a definite place on this grid. And when a particular cell senses light, it - by quite indirect means - sends a little nerve impulse out of the eye. The impulses go to very specific regions of the brain - to a part of the brain called the visual cortex - in such a way that each region of the visual cortex corresponds to a specific location on the retina. Or stated another way, there is a region (actually several of them) in the visual cortex of our brain which is organized the same way the retina of the eye is. What this means is that when a particular region of the retina senses light, this causes patterns of electricity to enter very specific regions of the visual cortex. Therefore, when you see something in the upper left corner of your visual field, this image activates cells in a very specific region of your retina, and in turn, these retinal cells activate very specific regions of your visual cortex which correspond to the upper left part of the space at which you are looking.

What this means is that you really do not "see" the thing in the upper left corner of your visual field until the cells in the visual cortex of your brain become active. It is the activation of these

cells in your brain that causes you to "see", not the activation of the cells in the retina.

Again, this all happens totally automatically. It does not matter whether or not we know that all this is going on because it goes on anyway. It has been the cleverness and ingenuity of brain scientists that they have figured out that all this stuff is going on "behind the scenes" when we perform the simple act of looking at something. And there is much more going on as well, but because this is not an essay dedicated to visual processing, I will not go into any more of the details.

The important idea at this point is that there is literally a MAP of visual space inside a particular part of your brain. And when this map of visual space gets activated it creates in us the conscious experience of seeing. What this idea means is that if you could somehow artificially stimulate these parts of the brain with electricity, it would cause the person to see something that is not truly there (which is the definition of a hallucination).

Now, these ideas apply to all of our sensory modalities. Hence, you have an audio map of space in your brain, and when it gets activated, you experience the subjective sensation of hearing. You have a tactile (touch) map of your body in your brain, and when it gets activated, you experience the subjective sensation of touch on the surface of your body. You have maps in your brain of all your sensory modalities, and when these maps get activated, it creates in your conscious awareness, a perception of that sensory modality - be it touch, hearing, balance, temperature, pain, etc. etc.

For you clever readers out there, it should be quite obvious where my argument is going. All that I have discussed above can only mean one thing: the world you perceive to be "out there" is not "out there" at all. It is, in fact inside your brain. The world that is seemingly outside of us is not outside of us at all: it is inside our brains. That the world "out there" seems to be outside of us is an illusion created by our brains. Our brains CREATE the world that we perceive and of which we are aware, and this means that "out there" is actually inside our heads.

And this gets back to the philosophical stuff I mentioned at the start of the article. Months ago, when my curiosity lead me to the question "how does the brain create the world of our dreams?" I was assuming that our brain constructed the world of our

dreams, but did not construct the world of our waking experience. I naively assumed that the waking world was totally objective in some sense independent from the action of the brain. However, what I realized as I learned more and more about how the brain works is that the brain actually **CREATES** the world of our **WAKING** experience. Again, the world we perceive to be outside of our bodies is **NOT** outside of our bodies at all. The outside world of waking is inside our brains. **ALL OF OUR PERCEPTIONS OCCUR IN OUR BRAINS.**

However, these ideas do not imply that the world is a construct of our imaginations as the ancient Greek Sophist philosophers believed. There is an objective world that exists outside of us and within which we live, move and have our being. However, what I am saying is that **ALL WE CAN KNOW OF THIS WORLD IS THE REPRESENTATION OF IT CREATED BY OUR BRAIN.** I'll elaborate on this point ahead.

So, let's get back to the story of how the brain works. The key idea is that the brain creates **REPRESENTATIONS** of the world within itself. That is the function of our brains: to create representations of reality. So, naturally enough, the question arises: how come the representations created by the brain seem to so accurately mirror the reality that is outside of us? Well, the answer is simple: because of our senses. The easiest way to think about it is that our senses are like cookie cutters. Cookie cutters **MOLD** cookie dough into specific shapes. Likewise, our senses - when they are active - **MOLD** our brain's ability to represent reality into specific "shapes". The senses are **MOLDS** or **TEMPLATES** that determine the shape of perceptions that the brain will generate in our awareness.

Now, so far, all I have said applies to the case when we are awake. And again, the irony is that the waking world we know in our awareness is actually patterns of electricity in our brain, which are shaped by our senses.

However, what happens when we sleep?

Again, to make a long and complex story short, when we sleep, the ability of our senses to mold our brain's ability to represent reality within it is turned way down.

If you will recall, there are two main phases to sleep: the nonREM phase and the REM phase. It is now known and well

established that we dream during the REM phase of sleep. Dreams sometimes occur during nonREM sleep but are much less frequent than during REM sleep. So, it would seem that during nonREM sleep, the ability of the brain to generate representations is itself turned down.

What all this leads too is this conclusion: DREAMS ARE THE BRAIN GENERATING REPRESENTATIONS OF REALITY DURING REM SLEEP, WHEN THE ABILITY OF THE SENSES TO "MOLD" THE BRAIN'S REPRESENTATIONAL ACTIVITY IS TURNED DOWN.

In other words, dreams are patterns of electricity being generated by the brain during REM sleep that result in conscious perceptions in exactly the same fashion that occurs during waking.

Now, there are many differences between waking perceptions and dream perceptions. The most important is that our senses are turned on when we are awake, but turned off when we dream and this has important consequences. When the senses are on, they MOLD the representational function of the brain. When the senses are off, as in REM sleep, the brain generates perceptual representations of reality that are NOT molded by sensory input.

Are there other factors in the brain that help mold the representations generated during dreams? Yes, absolutely. The most important is probably our motivational state: our wishes, drives, desires, and other similar emotional factors. Our memories are also important determinants in forming our dreams. And there are probably unconscious factors that help mold what we consciously perceive during dream states. However, right now I am not going to dwell on this topic of what molds the contents of our dreams - this I will save for another column.

The function of our memories is also different between being awake and being in a dream. We all know that we don't remember dreams as well as we remember our waking experiences. These point to a big difference in the function of the brain between waking and dreaming. However, what is the same between waking and dreaming is that the brain is generating representations of reality that enter our consciousness as perceptions of a world "out there".

So, we come back to the main question of this article: what is the dream world? Well, according to all I said above, the dream

world is in fact patterns of electricity within our brain, in those regions of the brain that create our perceptions of sensations. The world of dreams are worlds - actually, perceptions of worlds - generated by the brain in the ABSENCE of the senses molding the brain's ability to generate perceptions.

So, is this all mundane? Does this destroy the old occult views of the planes of nature? What the ideas I've presented above force us to do is not be so naive in our thinking. The idea that dreams are patterns of electricity in the brain does destroy any simplistic and naive notions that the planes of nature exist as objective worlds analogous to an objective physical world. If you understood what I said above, you now appreciate that even the world of our waking experience is NOT objective in any simple sense. The world of our waking experience is a REPRESENTATION inside our brains - one that is MOLDED by the action of the senses. Hence, the whole idea of objectivity becomes hopelessly naive from this point of view. If objectivity exists, it must be a notion that includes the fact that what we perceive is only a REPRESENTATION - a bunch of patterns of electricity - INSIDE THE BRAIN. So, not only are the old occult notions destroyed, but so are many nonoccult notions. What is destroyed is a simplistic and naive assumption that what we perceive can be taken at face value. We now know enough about the hidden and invisible (i.e. occult) process that underlie our ability to perceive that we can no longer take what we perceive at face value.

So what else is there if we cannot take our perceptions at face value? What this all points to is an extremely subtle interplay between our conscious thoughts and the automatic ability of the brain to generate representations of reality. It is, after all, our conscious mind - and the ideas and habit it contains - that gives meaning to the perceptions generated by the brain. Thus, the Sophists (who believed that reality is created by the mind) were half right: our ideas give meaning to the perceptions generated by the brain and so in this very indirect way "create" reality. Just as the brain will generate representations of reality in our conscious awareness in spite of what we think and believe (i.e. culture), contrawise, we will give whatever meaning we give to our perceptions whether it is "intrinsically correct" or not.

So, this all points to something much deeper than the standard fair of traditional science, philosophy or occultism. But its not a depth with no precedence. Again, we are lead back to the mystical insights of the ages that point to transcendence of the mundane and the discovery of a transcended essence behind mere appearances.

Next time, we'll get into this topic some more and look a little more closely at the factors that mold the contents of our dreams, whether they be lucid or not. For now, the take home message is that the world of dreams are patterns of electricity in our brains, but just the same, so is the waking world. In some future column, we'll dwell on the ramifications of these ideas.

Until next time, happy day, everybody!

Don

