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Session 3: Transpersonal Implications of Lucid Dreaming

The Physics of Dream Consciousness: Is the Lucid Dream a Parallel Universe?

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I realize that we have only about twenty minutes to be together so I'm not going to overwhelm you with the number of years of research that I've been doing on the nature of consciousness itself and in particular the connection between physics and consciousness. I want to give you the bottom line first so you know where I'm coming from. I would like to suggest that all cognitive experience can be related to a model which has currently been circulating in psychological research called the Holographic Model, and I would like to strongly suggest that the mental hologram referred to is constructed in the brain and nervous system via a mechanism of quantum wave interference.

If you're interested in this hypothesis, I would suggest my book *Starwave*. Its subtitle is *Mind Consciousness and Quantum Physics*. Anyone doing research into consciousness should look at *Starwave*. Most of what I'm going to talk about today can be found there.

There are a number of things from *Starwave* that I want to discuss. First of all, you probably want to know why the parallel universe in the title and what that has to do with the holographic model. The parallel universe idea enters because there is interference of wave patterns from different universes and it's this interference of patterns that constructs what we call ordinary reality. Now I know I can't explain that to you in the short time we have together. So I will just give you some highlights and indicate to you why I think this model is important and how I think it relates to a number of questions that you might have. First of all the real hint for this came about from some work that was done by Karl Pribrum. Maybe many of you know about his work. To quote Pribrum:

Clinical neurological experience tells us that the localizing of a perceptual image is not a simple process. The paradoxical phenomenon of a phantom limb after amputation, for example, makes it unlikely that our experience of receptor stimulation resides where we are apt to localize it. Even though it appears that we, for example, feel with our fingers or toes, the evidence seems now overwhelming that the location of those feelings is not taking place there. In a similar manner we see light impinging on our retinas from different places and we create the 'out there' reality from what we see in here.

There is a double process going on. There is a process of input information from the "out there" and there is a process of "in here" information that we generate ourselves projecting it all onto some screen. There is an interference that takes place and

that's what we call ordinary reality. So called distorted realities, mental illness, aberrations, have really more to do with the projection mechanism than they have with the actual input of data. So we project and receive experience, in the holographic model from and to our brains and nervous systems.

Let me present more data about this from the work of physiologist and Nobel Laureate, George Van Bekesey. He has done some remarkable research concerning the sense of touch. When I tell you about this I think you will see immediately the connection to lucid dream experience. After describing some preliminary experiments using vibrators to
simultaneously stimulate two fingertips, thereby generating a feeling of vibration between the fingers, not at the fingertips, but in the space between, Van Bekesey wrote:

even more dramatic than this experiment is the one in which two vibrators are placed on the [touching] thighs, one above each knee. By training, a subject can be made to perceive a sensation that moves continuously from one knee to the other. If the subject now spreads the knees apart, he will get an experience of at first a jumping of the sensation from one knee to the other. In time, however, [and this is the interesting part], the subject will become convinced that the vibratory sensation can become localized in the free space between the knees.

Now think about that for a moment. He's creating an experience of something in space, where essentially the stimulation is coming from two separate places. That this strongly suggests that what's happening is a wave interference phenomena.

Now as you might be able to guess, I am also a lucid dreamer. I've had a number of lucid dreams. They are all transpersonal. They are all spiritual. They are all symbolic. In other words, I fit into several of the categories you named. But I sometimes have trouble differentiating this reality from that dream.

What is the physical mechanism of a lucid dream? As we go through life, we experience a certain amount of data and that data is recorded, I believe, in wave patterns. They're not necessarily recorded in certain localizations in the brain. As you can tell from Von Bekesey's research and the research that I mentioned to you that Pribram has been doing, you can see that localization is a phenomena which can be created by wave interference patterning. In other words, two waves interfere with each other and they create the experience that something is solid and out there. I would like to suggest that the same thing is happening here and now in this room. This so-called tangible, physical, hard reality, is also created in a similar way.

The hologram is a remarkable model for dream research. In order to understand it we need to look at how a hologram is generated. The simplest thing I can tell you again

is that it is always generated from two waves interfering. One wave contains information and the other wave containing a drone or a reference wave. The reference wave, which is a very simple vibrational pattern and the information wave interfere with each other and construct an interference pattern which is registered in a medium possibly the glial cells of the brain. Now what's very significant is that once a record has been made and a reference wave is played back through the recording medium you reproduce the information wave.

You all may know that, right? Well, what you probably haven't been taught, is that really a multitude of images gets reproduced, not just one. You don't just reproduce the information wave but you really reproduce a number of parallel possibilities. If you actually look at the mathematics carefully you'll see there's an infinite number of images. It is like looking at your reflection in an infinite hall of mirrors. You get a number of localization points where there is information. There are two major points or foci. The one that we normally see when we look at a hologram is something that we call the virtual image. It's the image that we project in our minds as being out there. Now the interference between information coming from the outside world and the projection mechanism from our inside world gives us everyday experiences so we don't go around getting hit by cars, most of the time, or don't walk through red lights. That provides our sense of survival.

When we go into a dream state, we may enter one of two types of dream states. There are the ordinary types of dream states that are usually totally confusing-and the major reason that they are confusing is that the reference wave being played back is incoherent. In the second type or lucid dream state the reference wave being played back is a coherent wave. As a result, what happens is, if the reference wave were the same reference wave you use for ordinary 'out there' experience, you would experience a virtual image and see it out there. But the reference wave being played back can be a wave reversed in time and space. This is called the starwave. This may sound a little far out right now, but again, you can read *Starwave* to see where I'm coming from. In a lucid dream state, where you are not receiving input from the outside, the Starwave reference wave is played back in a reverse sense. So what it does is that it recreates instead of the series of virtual images in the mind, it recreates real images in the brain!! These are real images so you have the experience in the dream of being in those images.

If you've ever seen a magician do a trick, it's very similar to an optical illusion. You know this trick where there is a mirror and you reach up and there is a rose floating in space and you try to reach out and touch it and it's not there? That's a real image. You can make one with a lens or any kind of reflecting mirror. A hologram does the same thing. A hologram will make both real and virtual images. It all depends on which direction the reference wave shines through. So what I'm suggesting is that the reference wave is a time space, reversed wave in the brain when the mind is in a lucid dream state. At that moment, what is recreated is information which has been stored and also time-reversed.

That's why lucid dreams have an unusual character to them. That's why things seem out of time sequence, often, and often you will find information coming in that

wasn't necessarily coming from the outside world. It could be deep seated information. It could be information that has nothing to do with your normal space time awareness. It could be something having to do with awareness of things that you aren't aware of in this outside world. I call it parallel universe awareness because I believe that parallel universes arise as other images in the hologram.

Well, that's a very quick run through. I think I've got about another five minutes and I'd rather answer your questions than tell you more about the model. I'm currently working on a number of papers extending the model. One is a paper on the quantum physics of the unconscious, which deals with this question of lucid dreaming and normal dreaming and will be published in a journal called *Integrative Psychiatry*. In conclusion I suggest to you that there is now a development in which I think there will be a physics of consciousness in which the dream state can be explained based on a parallel worlds model which is essentially a holographic model. The two hologram and parallel universes model are really the same thing.

Question: What happens in a normal dream?

Let me repeat the question. The questioner wants to know, in a normal dream what is happening. How does that differ from a lucid dream? Why is there any difference? What I'm suggesting is that, you were talking about how a dream playback occurs? In a normal type dream where you're not present in the dream, the reference wave being played back is not a coherent reverence wave. It's incoherent. [In physics the word incoherent means that a number of sources are producing light but the relative phases between the light waves is random. That's called incoherent. Coherent means that the relative phases are in phase.] Now that doesn't mean that you necessarily have a dream that's totally rambling and crazy. You can have an ordinary experience in the normal dream with incoherent starwaves just like you can use a light bulb and make interference patterns from the light from that light bulb. Light bulbs will make incoherent interference patterns but lasers do it much better, coherently. The important distinction is the idea of the real image. The ordinary dream doesn't come to a focus. The real image is where the lucidity comes from. It's the fact that there is a real image forming and you don't have that in your ordinary dream. That's why you're not normally in your ordinary dream.

Question: What is the frequency of the waves making the hologram?

What is the frequency? I have no idea. Yes, it has to have a frequency. I would like to suggest a research technique for this. You put people into a mode where you can use different frequencies, touch, eye and ear, and see which one might be inducing a visualization. Then you'll be able to tune, close to the frequency. I don't think it's the same frequency for everybody. There is also some indication that the frequency could be very high. Did you follow my answer? The frequency may not be the same for every person.

What kind of wave is it? It's a quantum wave vibration, it's not electromagnetic. It has to do with a wave interference in the quantum wave probabilities associated with locations, probably, of neurogate proteins in the neuro wall. For further detail look at my paper on the quantum physics of consciousness published in *Integrative Psychiatry* in 1985, and read *Starwave*. One of the things I want to comment on in reference to you question about frequency is that if you vary the frequency of the reference waves in viewing a hologram, it turns out that you can magnify the size of the image or reduce the size of the image. Let's say you record the image with one reference frequency and then playback with another reference frequency. If the reference frequency you're playing back with is bigger if the wave-length is larger, the image turns out to be magnified. If the wavelength is smaller, the image turns out to be smaller. So there might be a number of reference waves involved depending on the mechanism that we're looking for. For example, the reference wave in DNA encoding might be very different from the reference waves from, say, learning how to walk.

Question: Do you think everything is a hologram?

Well, that gets into too much for right now. I don't disagree with that viewpoint. Physical reality can be explained, although it's difficult to do so, as a hologram. I'm using a very important principle in science which is that you can compartmentalize something and apply techniques to study it and say, "Well, how does that behave?" So I'm going to say let's just look at the brain and nervous system first and see if we can understand as much as we can just from that. This doesn't wipe out any extra, extraordinary experiences at all, but maybe it will help explain what is going on. I'm trying to characterize feeling and thought as quantum vibrations of protein gate molecules in the neuro wall. Now, you may ask, is it really true that that is really where feelings and thoughts lie? I have no idea. But I think that's true. I think that feelings and thoughts may indeed lie in the neuro protein gate molecules. And it's important to at least research it and see if we can test the hypothesis. Now I can't test the hypothesis that the brain is a hologram. I don't know what to do with it. But I certainly might be able to test the hypothesis that changing reference waves through stimulus might cause resonance with quantum reference waves which could stimulate holographic dreaming. So I'm looking for tests. As a physicist, I want to know, how do you test it? We can philosophize all we want to but if we can't test it, what good is it?