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Lucid Dreams And OBES

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I was recently at a conference on vision - real vision that is, not the vision of mystics or lucid dreamers. There, over a few litres of Bulgarian beer, I got talking about lucid dreams and out-of-body experiences (OBEs).

"But why are they interesting?" asked one of the visual scientists. I began muttering about how nice they are; how difficult to induce; how exhilarating if you succeed; about the clarity of consciousness…

The trouble I had answering the question made me realise how unclear is my thinking about lucid dreams and OBEs. So what I would like to do today is to try answer that man's question more effectively. Lucid dream research will be of interest to other scientists only if we can develop better theories, better integration with the rest of psychology and better experiments to test those theories.

So why are lucid dreams and OBEs interesting?

First, since I mention them together, I had better explain the reasons why the two are linked.

a. The same people tend to report both (see Irwin,1988; Blackmore,1988).

b. Some lucid dreams lead directly into an OBE. In other words a person is asleep and dreaming and then, when lucid, dreams of leaving the body and flying around.

c. In both consciousness is reported as specially clear and vivid.

d. In both the world experienced is more like that of imagination than of perception.

e. Flying is common in both.

On the other hand the major differences are that most OBEs occur during waking while lucid dreams, as far as we know, occur during REM sleep. This division is obscured by the fact that some experiences resembling OBEs occur in sleep. Some researchers count these as OBEs while others do not.

Finally OBEs (perhaps only by convention or definition) occur in a setting closely resembling the physical world while lucid dreams can occur in any imagined setting. In other words if I were having an OBE now I would see the tops of all your heads and be able to fly around this room (or what appeared to be this room) but if I had a lucid dream there might be monsters coming out of the curtains or a gigantic hole opening up in the wall.

It is possible that OBEs and lucid dreams are best looked on as two aspects of

the same underlying experience. I prefer to take them as independent, largely because of OBEs occurring during waking activity. But either way I think any account of one must shed light on the other.

So now let me try to answer the question - why are they interesting?

I could think of a few starting replies to offer: either personal ones or general ones.

1. They provide a means of access to ordinary dreaming.

2. They feel wonderful.

3. They are very hard to induce voluntarily.

4. They seem more memorable than ordinary dreams.

5. I feel more "myself" when lucid. (I think this did not go down too well!)

6. They provide insight into the nature of self and its apparent continuity

7. They are relevant to the problem of consciousness.

1. The first of these answers I gave mainly to appease the visual scientists. It is certainly true. The work of Hearne, LaBerge and Gackenbach among others shows that through studying lucid dreaming we can learn important things about all kinds of dreaming (see e.g. Gackenbach and LaBerge, 1988). But I won't say more about that here, partly because others will do so and partly because it does not, for me, address the real question about lucid dreams themselves. Why are they intrinsically interesting?

2.They are nice! Well this answer didn't go down too well. Why are they nice and what does that tell us? It is perhaps the hardest question of all and maybe even the most interesting. So I shall come back to it at the end.

3.They are hard to have. Yes they are. To anyone who has not tried to induce them this may seem far from interesting, but to most people who have, the sheer frustration of not being able to bring an intention to bear upon ones dreams is sufficient to inspire either total rejection, or long fascination with lucid dreams.

So let us address this question. Why are lucid dreams hard to have? I would like to simplify it by assuming that the crux of lucid dreaming is to be able to ask, in the dream, "Am I dreaming?" and to be able to answer affirmatively "Yes I am dreaming."

The following hypotheses suggest themselves.

(a) It is actually no more difficult to ask this question when asleep than when

awake. However, it is hard to answer affirmatively whether awake or asleep.

(b) There is something about the dream state which makes it especially hard to ask the question or to answer it. (e.g. low arousal, no opportunity for testing against sensory input).

(c) It is a problem of State Specific Memory - that is getting the intention across from one state to another.

It would be very useful to know this both for developing methods of lucid dream induction and for understanding the nature of the state.

Let us try to test the first hypothesis. One approach is to use Tholey's method of induction by asking the question, during waking, "Am I dreaming?"
Tholey suggests asking this question about fifteen times a day. Now it is possible that if you do this, and do it at the same rate during dreaming sleep, the chances of having a lucid dream are still quite low. Let us assume that the average night includes at most two hours of REM sleep. If you ask yourself the question fifteen times during the day that is only averaging once an hour. And of course the estimate of two available hours for lucid dreaming is likely to be far too high. So it is possible that the problem is no worse by night than by day. To test this one could train people to ask Tholey's question either five times, fifteen times, or hundreds of times a day and plot the incidence of lucid dreams and compare the presumed rate of questioning in waking and dreaming.

The high rate of questioning case is particularly interesting. Asking this question so often, indeed eventually making it a continuous questioning attitude, seems similar to the practices of mindfulness or self-remembering. I once practiced mindfulness consistently for seven weeks and unexpectedly found that I started having lucid dreams. They were still only few but I had lots of near-lucid and high dreams. My impression was that the dreaming and waking states were coming closer together.

This proposed experiment might tell us whether the question is harder to ask in waking or sleeping but is complicated by what answer is given.

In waking life you are likely to give the answer "No, I'm awake." Indeed the tests you might perform, trying to read or to fly etc, are all designed to lead to this conclusion. This habit might carry over into dreaming when in fact you want to answer "Yes". So perhaps practice is needed in answering "Yes, I'm dreaming."

If this sounds daft consider the statement from the Tibetan Yoga of dreams "All things are of the substance of dreams" or the notion of the world of illusion. Indeed we know that the perceived world is a kind of mental construction so perhaps in asking the question we need practice in answering "Yes, it is all a dream". This could also be tested by training two groups to give themselves the different answers. The effects of this can of course be deeper than inducing lucid dreams but I shall not pursue that one for the moment.

My guess (since I haven't done the experiments) is that the hypothesis will be rejected. It will prove harder to ask the question in a dream than when awake. But why?

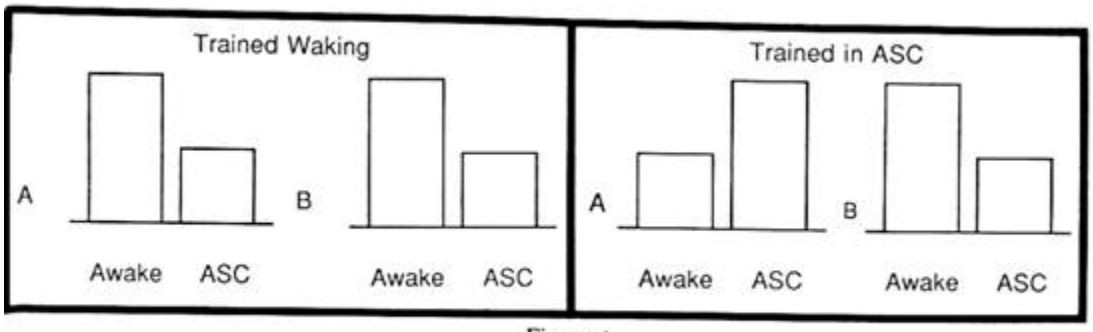

Figure 1

One possibility is that of state specific memory. The intention to remember ones dreams comes from waking and has to be got across to the dreaming state. An ideal test would be to initiate an intention in dreaming, to be carried out in waking, but this looks impossible to me. As a next best what if one tried to get such a question across into other states, for example by using hypnosis, or with some kind of intoxication. The subject could try to ask Tholey's question (or for that matter some other question) in normal waking, and then in the other state. It would presumably (and I have some personal experience to confirm this!) be harder to remember to ask the question in the other state. This could either be because of state specific memory or something to do with the state itself. Now the intention has to be started from the other state and transferred to waking to test which is the case. Two possible outcomes are shown in Figure 1. If the effect is due to state specific memory we should expect outcome A. and if recall is intrinsically better in the waking state, outcome B. Of course what is so for drunkenness might not be the case for dreaming but it would be a start.

4. My fourth question was that lucid dreams are more memorable than ordinary dreams. Certainly they seem to be so but has this been tested?

It could be tested by training people differentially in dream recall and in lucid dreaming (say by asking Tholey's question). One could start with three groups of subjects all of whom had low dream recall and very occasional lucid dreams - a typical starting point for some 30-40% of people.

One group are trained only in dream recall, by keeping a dream journal etc. The second group is given the same training but also have to ask Tholey's question fifteen times a day. The third group only ask themselves the question. Of course there will be interference, by the increased motivation, attention to dreams and so on, but the trend should still be clear. If lucid dreams are recalled only as well as ordinary dreams then groups one and two should have equal increase in lucid dreams and group three less. On the other hand if they are recalled perfectly (or at least much better than ordinary dreams) then groups two and three will have far more and not group 1. These possible outcomes

are shown in Figure 2.

5. Finally we come to the reasons which make lucid dreams seem very special to those who have them. Perhaps the most impressive thing to lucid dreamers is that in some sense we seem to be more "ourselves" than in an ordinary dream, perhaps even than in waking life. The lucid dreams seems to have more continuity with waking life than an ordinary dream does. Something similar is true for the OBE (or out-of-the-body experience) which is one of the reasons I have long been interested in it. It is also true of certain states induced during meditation and perhaps, prototypically so of mystical experiences. It is these experiences which bring people to say things like "Now I know who I really am (or am not!)" or "Now I know why I am here." Often afterwards they can only remember that they though it and cannot reconstruct why. The training of the mystic is perhaps one of being able to integrate these insights into everyday life. It may also involve creating greater continuity instead of the fragmentary awareness that most of us have.

From all of this it is tempting to imagine that there may be some hierarchy, or other structured progression, of experiences varying in what we might call "realness of self" or the "continuity with self". Add this to the fact that in mystical traditions "there is no self" and you have a fine starting muddle! However, I think, with the aid of a little cognitive psychology and a few thought experiments we may be able to penetrate this muddle a little bit.

What makes anything seem real? This is a question well worth asking. By trying to answer it (in many different states of consciousness) I developed a general approach to altered states which casts some light on lucid dreams and OBEs. I think a lot of the work of seeing things this way had to be done in ASCs. This may make it sound like State Specific Science (SSS) but in fact Tart's (1972) idea of SSS was that everything had to be communicated to other scientists in the altered state. Unless you (and I) are all lucid dreaming now, then I cannot do this. So it is something else, and something I think we shall see more of, that is work which comes out of a knowledge and facility with altered states.

So why does anything seem real? I suggest the following.

Let us take the reasonable assumption that most of the brain's task is modelling. That is, it constructs models or representations of the world around and the self within it. These models are closely based on perceptual input and information from memory. Indeed the work of much of artificial intelligence, and of cognitive science is to understand the ways in which perceptual systems construct representations of the world. This is what the visual scientists at that conference wanted to understand. During a lifetime the cognitive system learns to produce ever better models.

Of course we have to ask what we mean by better, and generally that means better at predicting. The models of the world constructed by the cognitive systems are very efficient at predicting what will happen next and bringing about actions consistent with those predictions. That is part of the business of living, procreating and surviving.

Now what about the self. Who is that? Is it a little something (a spirit, soul or homunculus) looking at those models? Clearly not, for that would then raise the familiar

problem of the necessity for a second perceptual system to perceive the models and so on to an infinite regress.

No, the self cannot be outside of the system. So what is it? I shall make some suggestions?

First it might be the whole system. Now this is important to talk about because we do refer to self and others that way. "This is where I live. Yesterday I met my friend Suzi. She is the one with green hair. We went on holiday last year." In these statements we refer to the whole system. However, this is clearly not what we mean when we talk about who has pains or emotions.

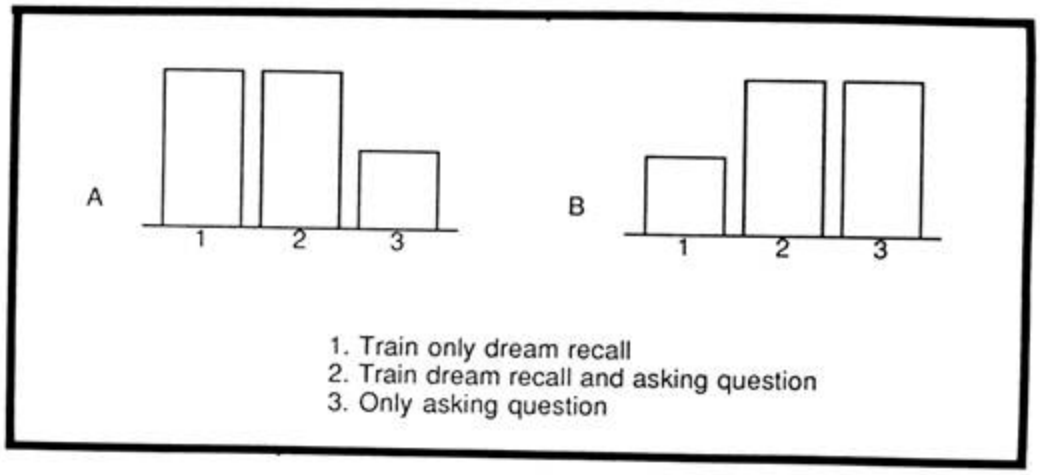

Figure 2

Second we might say the self was just one of the many models. In a sense this is so. From social psychology we know about the socially constructed nature of the self. We represent self as having lots of attributes. We have a self-image and a body image. Yes the self is a model. But again there is a problem. We must assume that the information for constructing that model is always there in memory. And yet "I" am not really "myself" in deep sleep and sometimes (perhaps in meditation or other ASCs) I seem to be perfectly myself without any of the attributes of a self image and body image. So there seems to be an experiencer which is not identical with the self-model. Again we cannot use a homunculus or spirit or soul to solve this one.

Finally there seems to be a self who takes decisions and initiates actions. Can a model initiate actions? Is the whole system really responsible for "my" deciding to stop work and go out into the garden? Is the experiencer the same as the actor? Clearly not for many recent experiments show that actions are initiated unconsciously.

There seems to be a paradox here, but I think it is only apparent. The paradox is caused by assuming that there is only one self. Rather I think we should listen to those who say "there is no (one) self". There are, rather, lots of things we mean by self. In the rest of this talk I shall be specific about them. In particular I want to distinguish:

1. I - the whole system

2. I - the self model

3. I - the experiencer.

Now before I go any further I must emphasize that none of these are separate entities. They are all aspects of, or ways of describing, the whole cognitive system and its interactions with the world. I am not talking about three or more things inside a person.

Now imagine the whole system - a brain constructing models. There are lots of them, from the retina up through visual processing in the cortex, in the midbrain or cerebellum, in other parts of the cortex, there are lots and lots of different representations. The funny thing is that "I" am aware of some of these models and not others. For example I am aware of the model concerning what I shall do at dinner tonight, or how I shall answer the questions which follow this talk. I am not aware of the representation of orientations of lines in visual cortex. Why not?

Again we cannot have recourse to any homunculus who sits in some parts of the brain and not others. We have to try to understand consciousness in terms of this whole modelling system.

Note that I have raised the problem of consciousness. This, I think, is ultimately what it's all about for lucid dreams. The thing which makes them interesting to people who have them is the feeling of being "more conscious" - whatever that means! So we need to tackle this problem too!

I resolve the problem this way (though some of you may not think it resolved when I have told you!).

In a famous paper the American philosopher Thomas Nagel (1974) said "an organism has conscious mental states if and only if there is something that it is like to **be** that organism (p. 43)". I do not think we need to restrict the statement on organisms. One might say instead – A thing is conscious if there is something it is like to **be** that thing.

Nagel went on to ask his well-known question "What is it like to be a bat?" I would ask what it is like to be all manner of things, just to get us going.

What is it like to be a piece of mud in a field? I should say not much. There is nothing which makes that piece of mud even separable from other pieces of mud except that some person might look at it and interpret it as so. Unless one believes in natural kinds this is so of any thing you may choose - like this acetate sheet or this table. It takes someone to think of it as a separate thing before you can even ask the question of it.

Now this gives us a clue. For perhaps it is the very act of representing something which brings about its status as a thing. It is in a representation that qualities and similarities and differences are expressed. And it is similarity and difference which differentiate the world. So I shall ask Nagel's question again. This time in the form "What is it like to be a mental model?"

This is the whole crux of my argument. For I believe that it is meaningless to ask "what it is like to be stone?" because a stone, of itself, has no qualities, attributes, or

(therefore) changes. On the other hand it *is* meaningful to ask "what is it like to be someone's model of a stone?" For the very act of modelling something is one which creates or constructs features, attributes, changes and so on. And so I say - it is the fact that human systems build representations which makes it possible to ask "what is it like to be a person?"

Now we can go back and see that it cannot be the whole system which is conscious. Rather it is each of the many representations constructed by that system which can be. But why should some seem to be conscious and not others.

I suggest this too is an illusion. All the models in the whole system are conscious (you can ask what it is like to be them). What makes "me" aware of any of them at any time is only one thing - whether or not they are a part of the model which includes my self-model or self image. Thus we can imagine a system creating multiple models only some of which make sense to, or are part of, the self model. "I" am conscious of those parts and not the rest. Alternatively you could say that they were not conscious of me. For "I" am only another model. So when we talk about a conscious self I suggest we are referring to just one model in the system. I shall call this "I".

I began with the question "What makes anything seem real?" This is not the same question as what makes things be "in consciousness". At any time "I" may be aware of all sorts of things, both imagined and "real". I suggest there is a pragmatic process going on in the system. It needs to know which of its models refer to the external world and which to imagined or constructed things. A safe bet (and a useful constraint for the system) is that there is only one external world. So, I suggest, it takes the best model it has got at any given time and calls that "reality". Normally the best model will be the most stable, coherent and predictable. It will be that based on sensory input. All other models in awareness will be labelled, by contrast, as "thinking" or "imagination". So the system always has a good "model of reality".

Where does this get us with ASCs, and in particular OBEs and lucid dreams? First it provides a theory of the OBE.

In ordinary waking life the input-based model is the one that is real. But what if input is disturbed, or the system is damaged in such a way that a good input model cannot be constructed. What if it is very tired and not up to doing good predictions. In other words what would happen in just those circumstances which tend to favour the OBE? I suggest that the system will lose input control. Then, if it is determined to survive, it will try to reconstruct a decent model of reality on the basis of what information it has available. Since (we have hypothesized) there is not much input, it will have to use information from memory - doing the equivalent of thinking "where am I? Who am I?" etc. One thing we do know about memory models is that often (though far from always) they are constructed in a bird's eye view. It is a convenient way of representing complex information. If this sort of model is constructed and is the best the system has got at the time then it will, according to my theory, come to seem real. Hence an OBE has occurred. The person is aware and in a world which seems real, but that world is a bird's eye view from memory.

In the OBE nothing much has changed except for the apparent viewing position.

Instead of looking out from the eyes "I" am looking down from the ceiling, but I may seem to be the same self because there has been no great change in self-image. The OBE seems real not only at the time, but when looking back, for a similar self (model of self) looks back on it as the one being used at the time. So the OBE seems more or less continuous with ordinary waking life…

What now of the lucid dream, or for that matter of ordinary dreams?

Sleep is the archetypal situation in which input is cut off. But there is more than that. In most of sleep arousal is extremely low. The system cannot support complex models and there is therefore no good model of self of which to ask "What it is like to be that model?" In other words there is no, or very rudimentary, consciousness.

In REM sleep things change. Arousal is much higher, the system can support some quite complex modelling. One can ask "what is it like to be those models?" and the answer tells us what it is like to be dreaming. Things happen, people come and go, events turn into other events. The models, free of input control, shift about and transmute one into the other. At the time they seem perfectly real - they are the best model the system has going at the time. However, afterwards they don't seem so real anymore. When you wake up a new model of self is reconstructed. It is similar to the one from yesterday. It allows access to recall of yesterday's events. There seems to be continuity between now and yesterday, but not between now and the dream. It was a different self (model) who experienced the two times.

But there are other possibilities in dreaming. Let us suppose that arousal is temporarily increased during dreaming and more complex models are built. In this case a model of self may be constructed which is rather similar to the usual waking ones. This model might include things like the person's name, the day of the week and so on. With this information available the contents of the dream may seem bizarre. The obvious differences from normal life will be more obvious. In other words the question is more likely to arise "What is going on? Is this a dream?" In this same state things will seem real. They might also seem more complex and interesting than in an ordinary dream. But the real difference is afterwards. Because the model of self is similar to the waking model the lucid dream will seem more continuous with waking life. In other words it will feel more like "me". "I" will remember it as being part of "my" experience.

I am suggesting here a very general effect of state-specific memory. In altered states of consciousness you can recall things better when learning and recall occur in a similar state. I am suggesting that this depends on the similarity between the models of self in the two states. In other words the apparent continuity of life is only because of the similarity of our day to day models of self. Altered states appear to involve other worlds (the dream world, the trip etc) because different models of self are constructed. Most of them happen by force of accident or drug effects on the nervous system but controlled change is possible. Even integration of the different models is possible. The importance for lucid dreams is that they are more memorable than ordinary dreams only because the model of self which is constructed is more similar to the usual waking one.

Looking at altered states this way I think we can gain insight into the nature of lucid dreams and OBEs. However, more than that is needed. If the theory is to be useful it

must provide testable predictions.

According to this approach, the OBE involves the construction of the world from a different viewpoint. People who have OBEs should be those who are better able to switch viewpoints in their imagery. This I tested by asking people to imagine the room they were in from a variety of different viewpoints and to switch back and forth between them. The OBErs were better at this switching (Blackmore, 1987). I also predicted that OBErs should be those who tend to remember things using a bird's eye view rather than eye-level view. This I confirmed for dream recall but not for recall of waking events (Blackmore, 1987). I also predicted that OBErs should be those who tend to remember things using a bird's eye view rather than eye-level view. This I confirmed for dream recall but not for recall of waking events (Blackmore, 1987). Irwin found the same effect and has argued that it supports his somaesthetic theory of the OBE (Irwin, 1986). So this is providing an interesting point for further testing.

Another approach concerns how the experiences are induced - and this highlights the difference between OBEs and lucid dreams. It is difficult to have an OBE deliberately because you have to get the normal model of self out of the way first. Spontaneous OBEs occur only because an accident, drug or coming close to death, has disrupted that model and made it easy. This leads to the prediction that spontaneous and deliberate OBEs should come about in quite different ways and happen to different people who have different skills. In a survey (Blackmore, 1986) I found that the people who had spontaneous OBEs tended also to have flying dreams and mystical experiences while those who had deliberate OBEs were the ones with good dream control skills; able to stop and start dreams at will, wake themselves up out of dreams or choose dreams.

Having a lucid dream requires something else again. The problem is not to get a solid model of self out of the way but rather to create a good enough one in the first place. Only with a reasonable model of self can you realise that you are asleep and dreaming. This makes clear the greatest difference between the waking OBE and the lucid dream - for all their superficial resemblance. In the OBE the state is constrained by the constant danger of the normal model of self reasserting itself. It will then take over again as "reality" and the world of imagination is lost. In contrast the lucid dream is constrained by the danger of falling back into deeper sleep and losing the tentative model of self which made the lucidity possible.

The potential of the two states is then quite different. The OBEr is really in a deeper illusion. She imagines that the world she sees is the physical world as it would be seen with her eyes open, that is, she is misled into mistaking a memory model for a sensory one. Research which seeks for actual astral bodies or paranormal effects in the OBE is just perpetuating this confusion.

By contrast the lucid dreamer is well aware of the illusory nature of the dream - indeed it is this which defines the lucidity. However the OBEr has the greater potential. If only she can see through the illusion and realize that this is a world of the imagination then anything is possible. Once free of the constraints of the normal self model it is possible to explore everything the mind is capable of from complex scenes to complete openness or emptiness. Meanwhile the lucid dreamer, however lucid, is forever limited

by being asleep. The sleeping brain can achieve only so much without waking up. Perhaps what is needed is greater lucidity throughout life, waking and sleeping. Only then can we see through the pervasive illusion that we are unitary conscious beings inhabiting a solid and real world.

Finally, I put off answering the question "why is it so nice?" but the answer should now be obvious. Of course it is nice to be free of input control; to be a model of a self, free floating and exploring the creations of an information processing system. It is a rare chance to feel perfectly conscious while experiencing the contents of your imagination. If you only have the skills to do so you can experience anything you can imagine as real.

In conclusion I think I can now explain better why OBEs and lucid dreams are so interesting. It is because they tell us so much about ourselves, about consciousness and about the illusions within which we live most of our lives.

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