Cornea Lecture November 12th 1984

Thank you all for coming to help me with criticising these ideas.

I began with the problem of trying to account for OBEs. I had one myself and couldn't understand it.

Features which need explaining are circumstances (very varied - drugs, tirdness, near-death, no reason etc), people (very varied - no fixed type), tunnels, noises, perspective above body, thought responsive OB world, coming back, "realness", "special" quality and effects)

Explanations range from the dismissive "It's all imagination" to the occult "it's all what it seems". 1 is unacceptable because it is not JUST imagination and doesn't explain features - especially viewpoint and realism. 2. Doesn't make sense and doesn't fit evidence.
Interesting that the two appear quite different but in their own ways are both reductionistic.

The same is true of work on ASCs in general. It is either waffly or physiological, personality changes etc. None of this gets at the essense of an ASC. It doesn't answer the question
What is altered in an ASC?

So what is altered in an ASC ?

It doesn't help to say that consciousness is because we have no meaningful theories of consciousness.
It doesn't help to say that state of consciousness is because we don't know what we mean by that either. It may be true that the EEG pattern, or breathing or heart rates are altered but that is no answer to help anyone understand what happened to them. No one who has had an OBE, been near death or even tripped on acid is happy with that answer. In other words psychology can provide no answer to this question.

I suggest that we need to look for a higher level of explanation than we have been doing so far. It is certainly valuable to have explanations of phenomena at many levels. Dennet has even argued that higher level explanations have been more productive in psychology. So where do we look.

I shall simply make a suggestion.
That we answer the question "what is altered in an ASC" by saying that a person's model of reality is altered. The rest of my talk will be an explanation of this answer.

I shall use the terms model and representation more or less interchangeably but by model of reality I mean something more specific.

To explain this let us go back to the OBE. One of the persisting features is the claimed "reality" and I know exactly what people mean by this experientially. I had kept on asking "what makes the OBE seem so real" but finally gave up and asked instead "what makes anything seem real?"

Because it is real is not a helpful answer. It only leads to the question "how does the cognitive system know it's real?"

You might argue that input is labelled as such. But this is problematic because as information progresses through the perceptual system it is chunked in different ways. And none is obviously best or most appropriate for labelling. Any labelling of one kind of chunking would be lost in another. e.g. labelling in the retina, or labelling at the level of objects such as chairs etc. Into what level of detail do you break down the objects?

However there is a higher level at which models become rather clearly distinct. At the moment you probably have 3 or 4 models (give e.g.s). Even if you attend very little to the chairs and blackboard in this room you do not doubt that this is real, or that the others are products of thinking, imagining or whatever.

I suggest that it is at this level of processing that the brain can make the decisions about external reality. I suggest that at any given time the brain chooses one and only one of its models to represent external reality. That model then seems real.

On what basis does it do this? Most of the time the choice is very easy. One model is complex, coherent and stable, while the others are ephemeral and ever changing. On many possible criteria the input-driven model must win and become "reality". I shall come back to the question of the criterion used soon, but for the moment let me just call it stability.

Most of the time the input driven model is far and away the most stable, but what if it begins to break down. This may happen when taking certain drugs, under severe stress, near death or in sensory isolation or meditation. In these situations models generated at higher levels of the system may become unable to relate to or predict the models generated from the bottom up during perceptual processing.

If the input model becomes unstable then some other model may - according to the theory - take over as reality and we shall be deceived and hallucinating. Obviously this is undesirable and the system will strive to get back to input control.

How does it do this? I suggest that one solution (and this may be happening quite a lot of the time) is to try to build a new model from the top down based on imagery and memory. If this is good enough to mesh again with the input then all will be well. But it may not be. Models built from memory and imagination are not like perceptual models. In Marr's terms they are less viewer centred. There is also

evidence that they may involve an "observer" perspective - looking down from above. If such a model is constructed in imagination it may be quite stable. It may even be partially stabilised by auditory input. If it is more stable than the degenerating input model then it will become real and an OBE has occurred.

I think this approach accounts for most of the features of the OBE including the nature of the OB world and why it seems so real. It also provides a number of testable predictions about the OBE.

I hope it also illustrates what I mean by a change in the model of reality. In this case a model other than the input-driven one, has taken over.

I suggest that the same thing happens in other altered states. An important example is dreams. As we fall asleep arousal and processing and memory access fall, the inputdriven model becomes less stable, but also do all the others (brief appearance of hypnagogic iamges possible). After a period of little modelling arousal increases, but the muscles are relaxed and sensory input barely processed. Complex models are built. According to the theory whichever model is most stable at the time will seem real. This is surely what it feels like to have a dream, changing ephermeral thought-created models assume reality status. Of course when you wake up and a new input model is built the previous ones seem unreal.

Lucid dreams are especially interesting because they occur in periods of high arousal. Assuming that access to memory depends on arousal (a fair assumption?) the person can build a model which is more stable and bears a closer relationship to his normal everyday self. This is why, I suggest, the lucid dream seems more real than other dreams. Indeed this all illustrates a rather more fundamental process which is the creation of an illusion of a persistent self by the continuity of a model of self. Dreams seem unreal on waking up because the model of self is so poor. Lucid dreams are better in this respect, and OBEs better still. The waking state creates an extremely convincing illusion.

I will not discuss any other ASCs now but only point out that the same kinds of arguments can be applied to near death experiences, certain meditational states and so on.

Earlier on I deliberately left open the question of the criterion for choosing the reality model. I simply said it was stability - for no good reason. I have been pondering this for a long time and coming up with no reason why it should be stability, but not being able to think of a better alternative. Then Richard came to dinner. he suggested that surely it must be prediction. The best model is the one which best predicts the input. This led me to a complete rethink which took me full circle and, I believe, brought me back to the concept of stability.

Imagine a model which successfully predicts coming input. What does that mean? it surely cannot mean that the model includes another

little model of the state to be predicted next - and another one predicting the next second and the one after that. What would the time units be and why? Wouldn't there be an infinite number of models of models of models? No - the only way to make sense of the idea is to suggest that a model is a good predictor of future input if it has descriptive features which are invariant over time. In other words it has described the input in such a way that the description does not change much as the input changes. e.g. a description like "a chair moving to the left" etc. In making such descriptions enormous amounts of learning about the world are, of course, needed. Now this, it seems to me, is exactly what we mean by stability. It does not change much as the input changes. I believe this is the criterion upon which the cognitive system can make its decisions about the external world.

Whichever model is most stable in this respect is taken to represent reality. If a model other than the input-driven model is most stable then the person is in an ASC.

Obviously this makes it clear what situations will be conducive to ASCs. Either the destabilising of the nput model or the stabilising of an alternative model. Many techniques ofmeditation, trance, chanting and so do one or other or both. By training onecan learn to throw off the normal model of reality and replace it with alternatives. For most of us the occasions when this happens are rare or treated as "just dreams".

Finally, I took the liberty of including the word consciousness in the title. This is because I would like to try out another idea. What if we assume that consciousness is a feature of models not of information processing systems nor of people but of the models they create. I suggest, just as an idea to play with, that to the extent to which a model of the world is stable, so that model is conscious. And to the extent to which it models the system which built it, it is self-conscious. We are systems capable of building highly stable models of ourselves in the world. For that reason we are conscious and because we can build many different kinds of models we can enter ASCs. What is altered in an ASC is the model of reality.