

WEEK 3 CONSCIOUSNESS

STEP 3.3 WHAT CONSCIOUSNESS IS FOR

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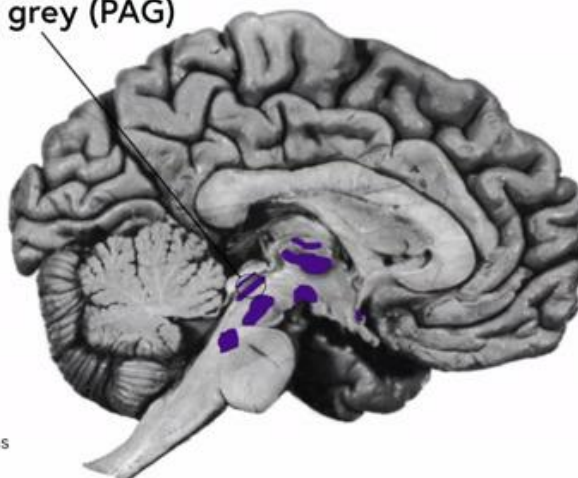
Identifying the parts of the brain that's necessary for consciousness is really powerful knowledge. By studying that part of the brain physiologically and anatomically, looking, for example, to what it's connected to, we can ask deeper questions about the mind. We can ask, for example, what is consciousness for? Why do we have consciousness at all?

This is a really basic question about, ultimately, what the mind is for, because I'm arguing that consciousness is one of the two defining properties that I've introduced so far as to what the essential ingredients or constituents or components of a mind are.

If we look at the reticular activating system, which is the part of the brain that's essential for consciousness, we observe something really important about it. One of the many structures which make up the reticular activating system is called the **periaqueductal grey**. This is the smallest part of the brain, which, **when damaged, leads to a loss of consciousness**. It is, in a way, the most condensed consciousness generating piece of anatomy that there is.



Periaqueductal grey (PAG)

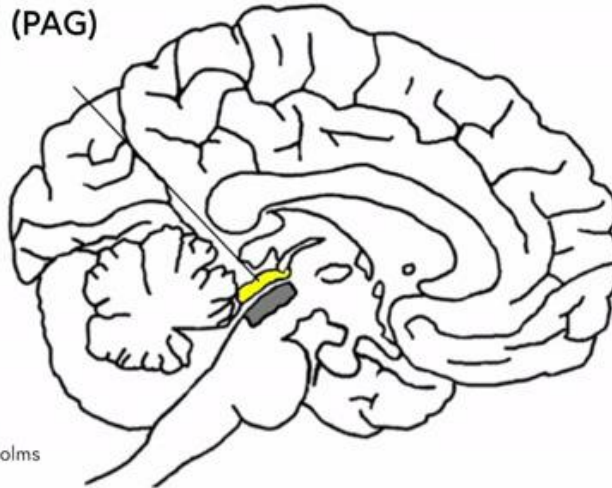


 Mark Solms

Remember, all vertebrates have a periaqueductal grey. This is a structure which is about 525 million years old. This, in humans, is about the size of a jelly bean. Think of it. You damage this part of your brain-- yours or mine-- the size of a jelly bean-- and you are gone. All consciousness is obliterated.



Dorsal (PAG)

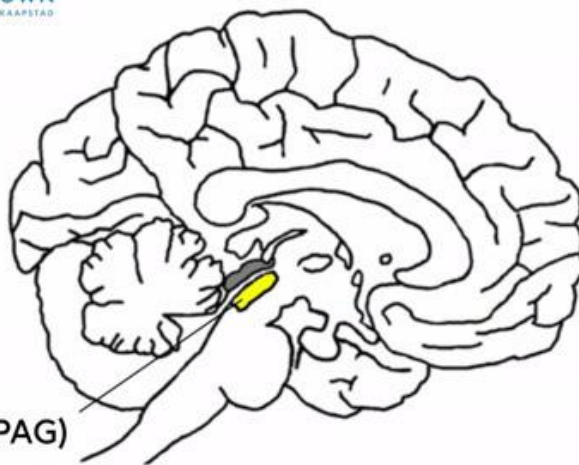


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Let me tell you some of the things we've learned about the periaqueductal grey. The most important thing is that if you stimulate the dorsal columns-- the back part of the periaqueductal grey-- it generates not just consciousness, but very unpleasant consciousness, pain, distress. The person in whom this part of the brain is being stimulated or any other animal wants nothing more than for you to stop the stimulation, and they want to get away from you.



Ventral (PAG)



 Mark Solms

Conversely, the front part, the ventral columns of the periaqueductal grey, when that part is stimulated, exquisitely, delicious, delightful, orgasmic sensations of consciousness are generated. When you stimulate this part of the animal, it really likes you and wants you to carry on.

These are the sorts of predictions that one makes. In humans, we know that it does this. It causes feelings of pleasure in the front and feelings of unpleasure in the back. So we predict that if we stimulate the front part in other vertebrates, they're going to want us to carry on. And conversely, the back part, they're going to want to get away from us. That prediction is confirmed so we provisionally hold to the conclusion that the periaqueductal grey does in those creatures the same thing that it does in us.

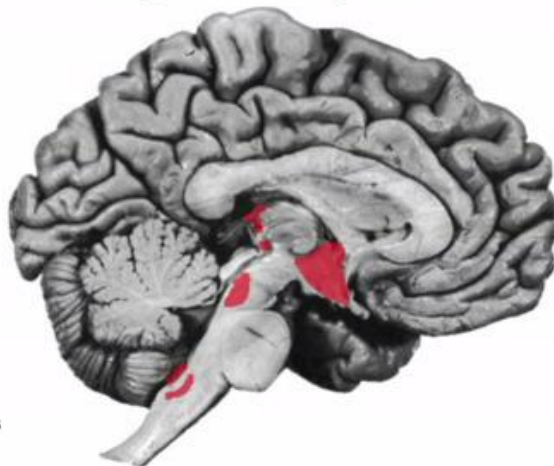
The important point that I'm wanting to make is that this condensed, most central consciousness generating structure in the brain doesn't just switch on the lights. It's not just a quantitative turning up the volume of consciousness. It doesn't just make you awake. Being awake feels like something. There's an emotional tone to it. There always is. Pleasurable or unpleasurable states accompany all of consciousness. In fact, this is the conclusion that we've reached in recent years on the basis of research on this part of the brain, principally by Antonio Damasio and Jaak Panksepp.

We've reached the conclusion that the essential characteristic of consciousness is feeling, emotion. Emotion doesn't come from our eyes, and our ears, and our noses. It comes from within us. Feelings, the core of consciousness are about us. They're subjective.

Now we can go further. The periaqueductal grey and the whole of the reticular activating system-- all of which has this feeling tone attached to it-- just the periaqueductal grey that's the sort of most intense version of that truth about the reticular activating system. It, in turn, is activated by other nuclei in the brainstem, which you're looking at now.



Body monitoring nuclei



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These nuclei have one thing in common. They all monitor the state of the body, the internal milieu of the body, how you're doing in terms of heartbeat, breathing rate, sugar levels, salt levels, core body temperature, and so on. It's absolutely crucial for your survival that these parameters stay within a very narrow range. And those brain structures are busy monitoring and making sure that you are staying within that range.

The summation of what they're finding out is broadcast to the reticular activating system as feelings. That seems to be what feelings are for. Feelings tell you how you're doing within this biological scale of values. If you feel good, that means carry on doing this, because this is good for your survival, and as it happens, your reproductive success. If it feels bad, stop doing it, because it's bad for your chances of surviving and reproducing.

So when we say that there was a dawn of consciousness 525 million years ago, this is what consciousness added to what the rest of the body was capable of doing. It enables the creature to-- us included-- to know how we're doing biologically speaking. And please note, it's connected to the interior of my body, which is an explanation for why consciousness is subjective. It's about to me. It's about how I'm doing.

After that, the consciousness is broadcast upwards to the rest of the brain. That's the second order of consciousness. I feel like this about that. These are the sorts of things that we're learning about consciousness. By identifying the brain mechanisms related to it, these are the things that we're learning about what the mind is all about and what the mind is for.

It also explains something about qualia. It explains why your qualia are subjective-- why I can't see yours. It's because your **endogenous consciousness activates your perceptual apparatus**. So it's something from inside of you that sampling the perceptions. They have to be subjective.



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