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Neuroscience, Law and the Brain – ch. 2

Transcription of the interview with David Eagleman[1]

2. Free will

One of the big questions in neuroscience is, do we have free will? We certainly feel like we have free will. You feel like you come into a situation, you're free to make a decision. In fact, the legal system that is in Italy and in America and most of the world, rests on this assumption that we have free will.

In fact, from a neuroscience point of view, it's not clear that we have that, and this is because in the brain you have about 100 billion neurons. These are the main cell types that carry information. Every neuron is driven by other neurons. Everything in the brain is driving other things, and

> **"it's not clear where there's anything extra to get in the puff of breath of the soul or something else"**

This is very challenging for us when we think about what that means for the legal system because essentially what it means is who you are is a function of your genetics and every experience you've ever had. These are intertwined.

> **"you didn't choose your genetics and you didn't choose your experiences, especially your childhood experiences"**

[1] Prof. David Eagleman, adjunct professor in the Department of Psych/Public Mental Health & Population Sciences at Stanford University.

But that's the question, is do we actually have free will, or are we a function of our genes and experience only?

Everything that we are learning from the point of view of neuroscience suggests that free will doesn't exist because everything seems to be sort of part of a machine. It's an extremely sophisticated, biological machine, but it's not clear where free will would come from.

What's clear is that even if we have some, it's a very small player in the grand scheme of how we make decisions. The reason we know that is because of the thousands of medical cases that we see every day happening in hospitals and clinics around us, which is to say somebody gets a brain tumor and that changes their behavior. Somebody gets dementia, it changes their behavior. Somebody has a stroke, it changes who they are.

"What we know for certain is that you are completely dependent on what's happening in your brain. When that changes even a little bit, you change. This is true if you do drugs or alcohol. This is true if you take certain medications. You're changing the chemistry that changes decision-making"

This is what gets to the heart of this issue about blameworthiness, which is when somebody commits a crime, can we say, "You are to be blamed for this," and this is different than the question of culpability. The legal system does and should ask about culpability, which is did you do this crime, are you guilty of the crime? Fine, here's what we do from here.

The question about blame, about saying, "Is this your fault that you did that," might not make sense as a question anymore as we understand more and more about what's happening under the hood

If we do not have free will, I think the reason this challenges the way we think about the legal system is that when we look at that criminal, we all want to punish that person. We feel like that guy has made evil decisions, and he deserves to be really punished. The question is, is that the right sort of approach, as opposed to saying, "All right, look, we may need to get this guy off the streets". I mean that's fine, that is a clear purpose of the legal system, but can we concentrate more on rehabilitation, and what would be required for helping this person, rather than the punishment piece of it?

One of the places this leads us, I think, is this idea of a forward-looking legal system, instead of a backwards-looking one. Backwards-looking is what we currently have where we say, "Look, you committed this crime, that's five years in prison." A forward-looking legal system says, "Look, you committed this crime, here's how we're going to route you through the legal system".

A biological explanation does not equal exculpation. It doesn't mean that people get off the hook. What it gives us is the capacity to do rational sentencing by which I mean looking at the person in front of the bench and saying wow this person is really dangerous, we're gonna put him away for a longer time, this person is really not dangerous, he was drunk, he did something stupid but all the indicators we have are that it's really unlikely he'd do this again, maybe a shorter sentence.

It also gives us the capacity to, on a societal level, set up better incentives and deterrents on a societal level. And it gives us the capacity to do customized rehabilitation as we get better at understanding what's going on in the brain to say look what's going on with you, you've committed this crime, but we see now that you have a brain tumor or you have schizophrenia or you have a drug addiction or whatever it is. It gives us a better way to say look we're trying to solve this

problem rather than simply saying you are an evil person, to say if we wanna get this problem solved, here's what we do with it. That's the idea.

"A biological explanation gives us the capacity to do rational sentencing, it also gives us the capacity to set up better incentives and deterrents on a societal level"

The reason we have a legal system is to make sure that society runs smoothly. And we set down certain rules and say, for example, you can't murder somebody. So if someone murders another person, it doesn't matter if they had free will or not free will in doing it. We as a society need to do the right thing to keep the rest of society safe. So we would put that person away.

"The question is the way in which we do that"

Do we put that person away for life? Sometimes a person is very dangerous and that would be exactly the right thing. In other cases somebody would be less dangerous and we might say wow that was a very odd circumstance. For example, in America we have the notion of crime of passion, there must be some equivalent in Italy, but the idea is he caught his wife in bed with another lover and so he murdered him, but we understand that that's a very unusual circumstance and given this guy's life history, he's not a murderer by disposition. It's very unlikely for that to every happen again. He might get a shorter sentence.

So it's not that the judge acquits everyone and says "oh, it doesn't matter, it's not your fault" because what matters is keeping a good society, keeping a society safe.

I guess what I'm sensing here is there is a difference between what we mean by blameworthy from the legal point of view and from the neuroscience point of view.

From the neuroscience point of view I don't think that there's any meaningful way to say anyone is blameworthy for anything or credit worthy for anything. But from the legal point of view, it's more clear what is meant by that. I mean if you crash your car into a crowd of pedestrians it's different if you were having an epileptic seizure versus you were drunk. If you cuss at people in the street, it's different if you're just being aggressive or you have a disorder like Tourette's Syndrome that's causing you to do that.

That's what the legal system is thinking about in terms of blameworthiness. Now, the reason that you got drunk or were being aggressive to this crowd in the first place fundamentally it may not be that you are blameworthy for that from the neuroscience point of view, but that's what the legal system of course means by it. This thing about distinguishing different levels of what somebody is ... whether they should be able to control their behavior or not.

Is our society ready to cope with a forward-looking legal system?

There is an open question about whether society can handle having a system where we don't punish somebody, because we have a lot of bloodlust that comes from our evolutionary history, it was very useful for us if somebody misbehaves to feel like you really wanna punish them. And this is something we're always stuck with.

An example that I find interesting is exactly 50 years ago, there was a shooter at the University of Texas in Austin who killed a number of people from the tower, he shot people randomly, killed 16 people, wounded 39. And it came out that he had a small tumor in his brain, but people didn't really talk about this at the time, and it's only more recently, it's 45 years later

that I wrote this book *Incognito*[2], where I talked about the fact the Charles Whitman had this tumor.

And I wondered about that, I wondered why, even though it was in the medical reports, at the time no one really took on that topic. And I think it's because it was just too painful, right? Here was a man who murdered a bunch of people randomly, and the idea that he had something going on in his brain made society feel like well is that an excuse? Are we supposed to forgive him, and so on.

"And it's just a really tough tension for any of us to deal with"

I mean just as an example, there was this recent shooting in Las Vegas, here by a guy, Stephen Paddock. I have a suspicion that he probably had something called frontal temporal dementia. And that could be combined with other things too, he could have had a drinking problem, medication problem, a drug problem. It could've been all those things, whatever. But it was so strange that Stephen Paddock did what he did because he's a guy who had no criminal record and had apparently been very nice to his family and so on.

It is almost impossible to talk about this sort of thing because it's so painful to the society and to the victims of that crime, to even hear that somebody is talking about well what went wrong with his brain? Because the first interpretation is that's making an excuse for this guy. And Stephen Paddock, as it turns out, was killed at the event, but had he not been killed, people would wanna punish him and I get that. I would wanna punish him too.

[*to be continued*]

[2] Eagleman, D., *Incognito: the secret lives of the brain*, Canongate Books Ltd, Edinburgh 2011.