Radical Challenges of Neurolaw (with transcript)

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University of Pennsylvania Law School  
Case in Point:  *Radical challenges of neurolaw*  

July 14, 2015

Stephen Morse explores the state of play between law and neuroscience, where neurolaw is headed and what it means for personal responsibility.

**EXPERTS**

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**HOST**

**Steven Barnes**  
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**Steven Barnes:** Welcome to Case In Point produced by the University of Pennsylvania Law School. I am your host, Steve Barnes. In this episode, we will be looking at the state of play in, and any challenges neuroscience presents to the fields of law and criminal justice. Whatever public perception may be based on TV crime in courtroom dramas, in this episode we’ll be looking at how in actual fact the burgeoning field of neurolaw is evolving in our justice system. We're fortunate to have with us to examine this topic one of the country's leading experts in this field, Stephen Morse.

Stephen Morse is a Professor of Law, and a Professor of Psychology and Law in Psychiatry here at Penn, and he’s also the Associate Director of Penn Center for Neuroscience and Society. In addition to being an attorney, Professor Morse is also a board certified forensic psychologist. Thank you so much professor Morse for joining us.

**Stephen Morse:** Thanks very much for having me Steve.

**Steven Barnes:** Let's get right into it. If you will could you please describe for us what the actual state of play is, what the actual role neuroscience is playing in criminal justice today?
Stephen Morse: For the most part we don't know the answer to that question because no one has yet collected systematic data about what is happening at the trial level. We do have some decent preliminary data about appeals from criminal justice decisions that have involved neuroscience. So far, there haven't been that many cases. There is good … Data suggests that capital punishment proceedings is becoming much more common. And, these, of course, there are not that many of these, but it’s becoming much more common to use neuroscience evidence in mitigation.

Steven Barnes: It's interesting. What kinds of neuro evidence are there? I mean we see things in TV courtroom and crime dramas involving neuroscience and science, but what is actually used in trials today?

Stephen Morse: What is basically being used are either structural scans, which look at the anatomy of the brain, or physiological scans which look at the physiology of the brain, in an attempt to show that there is some abnormality typically that allegedly bears on whether a legal criterion is met, such as is the defendant competent to stand trial, did the defendant have the mental state required by the definition of the crime, was the defendant legally sane or not.

Now, what appears to be developing in these appellate decisions is that when trial courts reject the evidence, not because it's not good scientific evidence, but typically because the trial court believes it's not relevant to the legal question, by and large these decisions are being upheld.

What the advocates for the use of neuroscience have as their task before them is to show how this new science, fueled by noninvasive scanning imagery, is really relevant to legal questions, because virtually none of the studies is based on answering a legal question.

Now, in some cases there's what I wouldn't call the new neuroscience, I just call it the old well-characterized medical science, something like any EEG to show that somebody has epilepsy, which may bear on, for instance, whether when the person acted they were seizing or not seizing, and there these well-characterized medical conditions can be relevant. But that's not what typically is meant by the use of the new neuroscience and neurolaw.
What people are typically talking about is the newer kinds of scanning techniques such as functional magnetic resonance imaging, which uses a scan to determine where there is heightened neural activity in the brain that is associated with a particular task or a particular condition or something of the sort. Again, most of these studies based on that kind of scanning are not meant to answer legally relevant questions.

**Steven Barnes:** Could you give us for instance in terms of a case that might use an MRI? What comes to mind is maybe someone who has or has acted in a violent way and uses that kind of reasoning, organic brain malfunctions or maladies as a defense?

**Stephen Morse:** The first thing to be said about that is that there will be people who have enormous, easily seen abnormalities that show no behavioral abnormalities. From the law’s point of view, the question is always acts and mental states, the criteria in law are never brain states; they’re acts and mental states. Brain states are simply going to be relevant if they bear on the presence or absence of a mental state.

Let’s assume you have a criminal who acted in a particularly violent way, and now comes to sentencing, whether capital sentencing or non-capital sentencing. Suppose the money is found to do the scan, and what you see is damage to certain areas of the frontal cortex, which is thought to be that region of the brain most closely associated with exerting what's called executive control; the ability to guide your behavior, the ability to act for good reason, to control impulses and the like. If you see abnormalities in those regions, it may be consistent with some kind of dyscontrol problem. But ultimately that dyscontrol problem has to be evaluated behaviorally because the law’s criteria are behavioral.

As I’m fond of saying, if someone is behaving psychotically, but their brain looks fine, they're psychotic. If someone is behaving absolutely normally, but their brain looks broken for legal purposes, they’re normal, holding aside questions of malingering.
Steven Barnes: Just to step back a bit, so what you're saying is that typically when neuroscience or neural evidence is used it's usually used in the appeals process, meaning the court has typically found them I would assume guilty or?

Stephen Morse: No, no.

Steven Barnes: Or if you could just walk us through that.

Stephen Morse: No. The way it's always going to come up is at the trial level or at the sentencing level someone is going to seek to introduce neuroscience evidence. Typically it's going to be in a civil suit it'll be the plaintiff, and in a criminal suit it's going to be the defendant. Now this an expensive technology, and prisons don't have scanners. So, to get the defendant to a scanner and get the court order to pay for it, it’s expensive, this is not going to happen all that often, at least not yet. As scanning technology gets to be more efficient and cheaper, then we might see more of it, but for now not.

Typically you're going to have either a plaintiff in a civil suit or a defendant in a criminal suit try to introduce evidence of neuroscience that bears on the legal question in front of them. The judge has then got to make a decision, “Am I going to admit the evidence because I think it's scientifically valid and legally relevant, or am I not going to admit the evidence?” Often there might be a preliminary hearing on precisely that question.

Okay. Let's assume the judge decides to exclude it, and now the party who sought to introduce it loses. They now have a ground for appeal. The judge made a mistake in excluding this evidence, and so it goes to an appeal court. The appeal court has to decide using the rules of scientific and clinical evidence, which is a specific set of rules in the criminal justice and legal system generally, whether the judge made the appropriate decision or not. Now typically there is a lot of deference to trial court decisions on these issues, so you're not going to get those kinds of decisions overturned very frequently.
**Steven Barnes:** Examining how our justice system has evolved incorporating mental health into it; you've coined the term desert/disease jurisprudence. What does that mean?

**Stephen Morse:** First let me say that the new neuroscience and new neurolaw is much broader than mental health. But the same sorts of considerations apply across the board in what I call desert/disease jurisprudence. What I'm looking for is how the state justifies incarcerating somebody. What I've argued is we have two general justifications for incarcerating somebody in our system. The first is you've committed a crime, you're a responsible agent, and you deserve to be punished. Okay, so that's desert jurisprudence.

Then, we sometimes incarcerate people who may be a danger to others, not because they've committed a crime and deserve it, but because we think they are dangerous, and they are not responsible agents. Typically the reason they're not responsible is because they have some sort of mental abnormality. For instance, involuntary civil commitment is a form of disease jurisprudence.

Now the problem is it leaves a gap in social safety in the following way. Suppose you have somebody who's done their time for the crime and you now have to release them from prison because they've done their time, and they haven't yet committed a new crime, but you really think they are very, very dangerous. What can we do to control them? The answer is nothing constitutionally. As a way of dealing with what I call the gap between desert and disease jurisprudence, what do you do with responsible dangerous agents who haven't yet done a new crime for which we could clutch them? What do you do?

Well, you can either expand the desert jurisprudence, for example, by three strikes and you're out types of laws, or you can expand the disease jurisprudence by finding in large groups of people we are willing to say are not responsible for themselves. The most substantial form of that recently are so-called mentally abnormal sexually violent predator commitments which can be imposed on someone who's been convicted of a crime and done their time for a sex offense but at the end of having done their time they can now be civilly committed.
The Supreme Court in two cases in 1997 and 2002 approved such commitments and said, “Well, they're really not responsible for themselves,” which strikes me as quite paradoxical. We’ve just punished the heck out of them because they were responsible, and now we're saying once they've done their time you're not responsible, so we get to lock you up because you're not responsible. It strikes me as paradoxical.

Steven Barnes: That raises a whole host of questions, but let's step back a little bit and say you addressed this in part. What does it mean according to the letter of the law to be criminally responsible versus incompetent or unfit at the trial level? And get into those criteria both for the law and in neuroscience, and if I may as a follow-on to be responsible for oneself after the fact, perhaps outside of the realm of sexual predation?

Stephen Morse: First of all criminal responsibility is typically a retrospective evaluation. We're trying to figure out the person's mental state at the time of the crime. Various competencies or fitness are present mental state evaluations, what is the person's mental state now. Let's do criminal responsibility first. Prima facie criminal liability depends on the prosecution proving beyond a reasonable doubt what are the definitional what are called elements of the crime.

Let's just take a very simple example. What is murder? Murder includes an intentional act that is a killing conduct done with the purpose of causing death, and you actually do cause the death. Prosecution proves that beyond reasonable doubt you're prima facie guilty. However, what we have in the United States are what are called affirmative defenses, meaning even if the prosecution can prove the definitional elements of the crime there may be some other reason why you should not be held responsible.

One example, our class of defense is called justifications. What this means is under the circumstances what you did was right even though was otherwise wrongful. For example, if I intentionally kill you because you are about to wrongfully kill me I'm acting in justifiable self-defense. It’s typically wrong intentionally to kill people but under the circumstances when I’m a victim of wrongful deadly threat I'm justified in doing it. If I am, I'm not guilty.
Then there are a class of affirmative defenses called excuses in which we say the person did the wrong thing, but they're not a morally responsible agent to begin with. For example, suppose I kill my victim in the delusional belief that the victim is a Bulgarian agent about to kill me. I kill them intentionally. There's no question about that, so I’m prima facie guilty. But if I’m believed I really don't know right from wrong because I am mentally ill, so I would be excused. It was the wrong thing to do to kill my victim, but I would be excused.

All right. When we come to competences like competence to stand trial or competence to be sentenced or competence to be executed, these are present state functional, let me call them rationality criteria. We ask for a process to be fair and to be just what must the person being evaluated be able to do? To be competent to stand trial, you must be able to understand the nature of the proceedings, to understand the charges, and to be able rationally to assist counsel for example. That's very functional.

Now the knock-on question if I recall correctly because I’ve had to give you a long-winded background to get where we're going is what does neuroscience have to contribute to the mental state or act questions for criminal responsibility, whether you have a mental disorder for purposes of the insanity defense and how can it help with current competence evaluations.

**Steven Barnes:** Also, are there any conflicts, or are they in pretty decent harmony in terms of the criteria in law and in neuroscience?

**Stephen Morse:** They’re completely different. Law is an enterprise about how human beings live together. Neuroscience is a purely mechanical science. Neurons don't have mental states, the connectome doesn't have a sense of past, present, and future, neural networks don't have aspirations, they don't care about anything. These are properties of people. The law is a very folk psychological enterprise, meaning it crucially depends on a view of the person as having mental states that are causally implicated in our behavior. It's not just mental causation, but mental state causation is crucial. That what's always been evaluated, acts and mental states in law.
Neuroscience is just a mechanical science. So, what you always have in thinking about the relation between neuroscience and any legal criterion whatsoever is how do you do the translation from a purely mechanical science to a purely folk psychological enterprise of acting human beings. By the way, when I say folk psychological that is not meant to be a pejorative term. It's a technical term in philosophy of mind and actually in psychology that refers to explaining human behavior in part by mental states such as desires, beliefs, intentions, willings, plans. There’s dispute about what the mental furniture is, but mental furniture is crucial.

Now it's interesting to compare neuroscience to psychology and psychiatry because psychology and psychiatry sometimes treat us as a hunk of meat. When you go to your pill doc, he or she is treating you like a hunk of meat. He's trying to alter your neurophysiology. But often they're treating you as a human being with a life story. So even the most chemically oriented, organically oriented psychiatrist or psychologist is going to ask you and then come in the office not just have you been taking your meds and are you having any side effects. They’re going to ask, how's it going in life, how are things at work, how are things at home, how are things whatever brought you here in the first place.

It's folk psychological, it’s telling stories the way the law is. The translation is a lot easier. Neuroscience it’s pure mechanism. It's a really hard translation problem, and that's where you have the problem with legal relevance. The way I’m fond of putting it is this, you need to be able to show the chain of inference from a neuroscientific finding to the legal criterion that isn’t just made up stuff. Now--

**Steven Barnes:** For example.

**Stephen Morse:** For example suppose you have … Let's use a sentencing proceeding. Suppose you have somebody who has an enormously broken looking brain. There are cases on record just like this. But there's absolutely no evidence of any behavioral dysfunction whatsoever, except maybe they committed a crime, and all crime is not a behavioral dysfunction. It's maybe a moral dysfunction, but it's not always a behavioral dysfunction. You've got someone who's got a really broken looking brain but no behavioral problem.
To use the broken brain evidence in that case is an example of what I call rhetorical relevance, not real relevance, the argument being, “Gee, look, he's got a hole in his head, he must be less responsible.” But it just simply doesn't follow, because unless that hole in his head produced something that is actually a mitigating or excusing condition in law it's not really relevant.

I recently reviewed with an eminent neuroscientist for a chapter in a book all the legal doctrines in criminal law that have to do with guilt and sentencing. What we did is we went through the available today neuroscience evidence to see what neuroscience could help us with in terms of all the criteria questions that the law raises ranging from did the person act as opposed to was it a neuromuscular spasm, did they have the intent required by the definition of the crime, were they mentally ill, do they have a behavioral problem such that it ought to be taken into account at sentencing.

We went through every single doctrine. What we concluded is that at present, and I want to stress at present, there's almost no new neuroscience, again, independent of well-characterized medical conditions that could bear on these questions, there is almost no new neuroscience evidence that can answer these questions.

For instance, except for certain well-characterized medical conditions that may show us that the person's bodily movements were not actions at all, I gave the example of seizures before, we really can't tell you whether a person acted or not, especially we can’t do it with the retrospective evaluation because most criminals are not wearing a scanner, a portable scanner when they commit crimes. And, in the months that will go on before they get scanned the brain could have changed in ways that might not allow us to make an inference to what their brain looked like four months earlier, for example.

Mental states are crucial to the criminal law. Did you do what you did with the purpose of causing the harm? Did you know you’d cause the harm? Were you consciously aware of the risk you were causing the harm? Were you not aware of it but you should’ve been aware of it? Those are simple common sense distinctions that criminal law makes and they can be crucial. If
you do something on purpose, we typically think it's more indifferent to the rights and interests of other people than if you're not aware of a risk you’ve created, but you should’ve been. Neither is good but doing it on purpose is worse, because it really shows extreme indifference to the interests and rights of other people.

Lots of criminal law guilt questions involve distinguishing those mental states. How do we do it now? We do it by inference from the actions of the person, common sense inferences from those actions, words they may have spoken. Wouldn't it be nice if we had a really good objective biological marker? The answer is, we don't, and it's not on the horizon. We can’t even use scanning technology these days to diagnose even severe mental disorder. It's simply not diagnostically sensitive enough yet, which was admitted by the American Psychiatric Association in its recent publication of the newest DSM-5 Diagnostic and Statistical Manual of Mental Disorders. We'd love to have some objective markers, but we don't.

When it comes to did the defendant, let's say for purposes of the insane defense, know right from wrong, we don't have a clue how to look at that question with neuroscience. The same thing goes for competence evaluations. You're much better off just doing a straightforward behavioral functional evaluation.

Now much of what I've been saying sounds quite critical of the neuroscience but it should not be misunderstood that way. Much of the science is good science. My problem is the inferences from the science to the law which are often over claimed these days. There's a separate point as well. Most of the enthusiasm for neurolaw has been spurned by a technology I talked about before, functional magnetic resonance imaging, which looks at brain activity without being invasive.

**Steven Barnes:** MRIs.

**Stephen Morse:** MRIs, except this is looking at blood flow in certain ways to get a proxy for neural activity in particular regions of the brain. FMRI was only discovered; the technique was only discovered in the early nineteen-nineties.
Steven Barnes: I didn’t realize that.

Stephen Morse: Yeah. MRI has been around for a long time, structural MRI, the sort of thing you go to find out how your back looks or something of the sort. We've had scanning techniques for brain physiology for quite some time, but they all involved invasive kinds of techniques. FMRI is completely non-invasive.

To start to do the studies on normal populations you have to have a scanner. Scanners are so expensive that they only became routinely available for research universities outside the clinical arena starting in around 2000. Now the kind of neuroscience that’s most relevant to law, because law is about behaving human beings, are what are known as cognitive, affective, and social neuroscience. These studies have been around let's call it now 14 years, 15 years. They typically have small numbers of subjects because they are very, very expensive to do. What you're working on is one of the hardest problems, and many people think is the hardest problem in all science. How does this two and a half-pound hunk of white and grey organic jelly produce consciousness, intentionality, the kinds of creatures we think we are? How the brain enables the mind and action is, and I say this without fear of contradiction from any neuroscientist, completely unknown at present. We know the brain does enable the mind in action. If your brain is dead, you're dead, and you're not doing much of interest at all.

It's a really hard problem. We’ve been working on it for 14 years using what's still, despite the astonishing advances, a relatively crude technology. It's no surprise we haven't made huge advances yet. Now I expect there will be further huge advances in the future, but just not yet. These are really hard problems.

Steven Barnes: At present what are the typical cases where neurolaw comes into play in a case? Are they primarily violent crimes or are they cases where someone is running a Ponzi scheme and uses a defense like I'm a sociopath? What are the kinds of cases where neurolaw comes into play?
Stephen Morse: Again, we don't have the data. What we do know is that except in the case of capital punishment proceedings where the defense will typically have much greater resources than they would at trial; it's mostly people who have the resources or have the backing of some sort of organization that will actually pay for the scan and gin this all up.

In the civil justice system, it's used, obviously, to show medical injuries and the like in tort claims. By the way, one of the things I think is optimistic about neurolaw is pain and suffering is a crucial aspect of tort damages. As we all know when you go the doctor and you say, “I'm in pain,” the doctor says, “How much on a scale of zero to 10,” 10 the most, zero the least, “How much is it,” that's very subjective.

Steven Barnes: For tort, by tort you mean criminal—

Stephen Morse: Civil wrong.

Steven Barnes: Civil wrong, liability, injury, that kind of thing.

Stephen Morse: Yeah, civil injuries. Wouldn't it be nice if we could have an objective measure of how much pain a person was really in? There are now laboratories working on this problem in both the United States and Europe, and I think they're making real progress. Is it ready for primetime yet? No, but they are making progress.

In the criminal justice system, again, except for capital punishment proceedings, you don't see it very much. My guess is you see it more in serious felony cases, obviously, because more is at stake. Why are people going to gin up this expensive technology for some not such a serious criminal offense? But again, we don't know what's going on at the trial level, which is what we really like to know, because as we all know in the federal criminal justice system 98-percent of defendants plead guilty, in the state criminal justice systems, it’s probably about 93-94-percent of cases plead guilty. There aren't that many appeals, so we don't know what things look like at the trial level.
**Steven Barnes:** Are any kind of data collection efforts statewide nationally under way at the moment?

**Stephen Morse:** Yes, a couple of scholars have started to try to collect these data. They’ve also been collected on behavioral genetics, how often does behavioral genetics come in. By the way, behavioral genetics is in precisely the same state as far as I’m concerned as neuroscience. When people cracked the genome in the early aughts everyone said it's going to transform law, it didn't, not at all, but people tried to use behavioral genetics evidence in just the same way. Show that there's some kind of gene by environment abnormal interaction and people expect there to be legal ramifications. But once again it’s only if it helps us answer the law’s act and mental state questions. The answer is not yet, but that technology, of course, is getting a lot cheaper. You might see more of it because it is so much cheaper.

**Steven Barnes:** Getting back to a point you mentioned before about people who have been convicted of a crime and then go out in society, shifting gears a little bit, and society wanting to prevent against further dangerous crimes being committed. Not quite a related topic but in a similar vein, last November the Connecticut Office of the Child Advocate released a report basically saying that Adam Lanza, the shooter, his mother, educators missed opportunities and warning signs, the report said, leading up to the massive Sandy Hook elementary school shooting. My question is how and to what extent can neuroscience or other kinds of science predict, control, possibly prevent such grave crimes such as mass shootings, mass killings?

**Stephen Morse:** The way to start to answer that question is to understand that mass shootings are despite the horror of them, they are extremely infrequent events, extremely infrequent. What we know statistically is unless you have the most extraordinarily sensitive tool for making the prediction we're not going to be able very accurately to predict extremely infrequent events. If we were to set the sensitivity so high that we picked up most of the people who really would do it, we'd pick up vastly more people who wouldn't do it at the same sensitivity filter.

This is a major problem in prediction technology, whether the prediction technology is behavioral as it primarily is today, or it moves to some other predictive kind of scheme.
Let's just talk about how accurate we are with behavioral evaluations. It turns out clinicians are not very good at this at all if they do it on a clinical basis, based on their own experience and judgment. If you use a more statistical or actuarial tool based on data that has been gathered you're going to get more accurate.

But even for very high-risk people, if it’s low based rate behavior, it's going to be almost impossible to predict accurately without also having lots of what we call false positives, people we say yes, they’ve passed the threshold, but then turns out no, they wouldn't do it. That's going to be the majority.

Just think about the profile of somebody like Adam Lanza. Now I don't know enough about him, so I'm just going to be a little bit hypothetical here. He's a young male. He's got some problems with mental disorder let's assume. He acts a bit oddly, and he likes guns. Now, how many people do you think fit that profile?

Steven Barnes: I don't have the data on that.

Stephen Morse: I don’t have the data either, but let's put it this way, this can be a large number, and it's not going to be a trivial number. How many Lanzas are there? Was it a tragedy that Adam Lanza’s problems were missed? Yes. If they had been addressed, would it necessarily not have happened? No, it might have happened anyhow because the treatments he was offered and may even have accepted might not have worked. We don't know to what extent his behavior was driven by his abnormalities or some parts of his character that were in interaction with his abnormalities.

Can neuroscience help? In 2013 and 2014 two studies appeared that I call proof-of-concept studies, meaning that they used a neural marker to see if you could enhance the accuracy of a prediction of future antisocial conduct beyond what we have now with behavioral evaluation techniques. They both found positive results.
Now there were, what we call in the trade, artifacts in these studies, problems with the methodology that lead you to be cautious about the inferences. Nonetheless, I think it is perfectly plausible that someday we might get, and these are not ready for prime time use yet, but as with the technology gets better and better it may be that scans will give us a biomarker that will help increase the accuracy.

Now then the question is you're always going to do a cost-benefit analysis. How expensive is it to collect that data? How much does it increase our accuracy? You obviously would not spend a lot of money to increase the accuracy of a prediction of a simple assault, but you might, to predict whether someone is going to be a mass murderer. Now this use of biomarkers really scares people because they're afraid of biologising violent crime because that is had a really nasty history in our country. I'm with them on that.

**Steven Barnes:** What do you mean by biologise?

**Stephen Morse:** In other words thinking that violent crime is somehow a biological problem as opposed to a problem of society and opportunity and the like. Because remember, anytime you can focus on the brain as the cause, then it allows you to distract yourself from what might be the social cause. Here’s an example and then I'll come back to the prediction question. In thinking about whether juveniles should be punished less harshly than adults, something the Supreme Court has addressed three times in the last nine years, a lot of advocates wanted to focus on the fact that the juvenile brain is not yet fully mature, which it is not, and does it surprise us that the juvenile brain on average is different from the adult brain? It doesn't surprise me at all, and anybody who is surprised I think is being pretty foolish.

Indeed, if we haven't found brain differences I would conclude that the brain science isn’t sophisticated enough yet, and we will find them. Okay. We know that we already knew there were behavioral differences, and finding the brain differences is consistent. Why is it that across, let's just use the Western world and within different classes of our society et cetera, we have such vastly different juvenile misbehavior rates, when the brains presumably are all pretty much the same.
Even if you look at kids from the middle class, let's say, where they haven't had a cultural depravation or something of the sort; Swedish and Finnish adolescent crime rates don't look the same as American adolescent crime rates. If we focus just on the brain what we're not focusing on is the social determinants and the psychological determinants of criminal justice.

Let’s go back to the prediction question. We have already decided in our criminal justice system that we are going to make predictions. We know we're not very good at it, but we’ve already decided we're going to do it. We have to do it to run the railroad successfully. We do it for deciding whether someone should be diverted from criminal justice, should someone be put on probation as opposed to send to prison, should someone be paroled. Remember, I talked previously about mentally abnormal sexually violent predator commitments. Is this person going to be a danger in the future? Because even if they're not responsible, if they’re not going to be a danger, why lock them up?

We're using predictions all the time. We think it’s justifiable to do that. If we think it's justifiable to do that what's the argument for not doing it better? What's the argument for doing it worse? Unless you think it's going to lead to bias, prejudice, subordination, stereotyping of certain groups and the like, which is, given our history, a real possibility and something we need to be profoundly careful about.

**Steven Barnes:** You're both a lawyer as well as a forensic psychologist?

**Stephen Morse:** Right.

**Steven Barnes:** And an expert in where the law and neuroscience intersect?

**Stephen Morse:** Mm-hmm (affirmative).

**Steven Barnes:** What are the other implications, someone who for example is worried about constitutional rights or personal civil liberties about on the one hand trying to make sure
someone who may be prone biologically, psychologically, sociologically, whatever to violent crimes up to including murder or mass murder, and at the same time spreading the net too wide in drawing people into the criminal justice system or otherwise should not be involved?

**Stephen Morse:** Unless they've committed a crime you can’t sweep them into the criminal justice system. You're going to need some form of preventive detention. Now one of my good colleagues here at Penn, Paul Robinson has suggested that we ought to just in a sense bite the bullet and admit we're doing pure preventive detention. In other words, what he wants to do is get rid of desert/disease jurisprudence and just move to a pure dangerousness evaluation let’s say at the end of a prison term, which is by the way something the Norwegians do. They have a form of pure preventive detention. And, so, Anders Breivik, the young nationalist Norwegian who killed 70-some odd people, is going to serve at max a 21-year term for murder …

**Steven Barnes:** Under Norwegian law.

**Stephen Morse:** Under Norwegian law yes, but then they are entitled to keep them locked up just because he is dangerous. Now there is something to be said for it. It’s not assuming we were good enough that we weren't sweeping too many people into preventive detention, but there's something to be said for desert/disease jurisprudence, which is this, what it does is if it isn’t abused it maximizes autonomy and liberty. As long as people are responsible agents we leave them alone unless they commit a crime.

Now that produces risks. That was the gap I talked about earlier. That produces risks. The question is it's a moral and political and ultimately legal question, how much risk are we willing to bear to preserve a sphere of liberty and autonomy for citizens that might produce some degree of danger we'd rather live without?

**Steven Barnes:** How do you encourage those kinds of debates on two very technical topics? It's hard to be a lawyer, and it's hard to be a neuroscientist, and to have a good grasp of both is absolutely remarkable. How do you encourage debates around these topics in the public sphere?
Stephen Morse: Well there's been actually a lot of this going on. Now one thing, and let me do some special pleading, I'm part of a group that is sponsored by the MacArthur Foundation called The Research Network on Law and Neuroscience. It had a prior incarnation that was called The Law and Neuroscience Project. The idea was to bring together neuroscientists, lawyers, and philosophers with a view towards figuring out how to conceptualize the field and how to do some research on legally relevant topics that might actually be useful to the law.

I can talk a little bit about the research we did. But these kinds of discussions of the sort I was just talking about have started to make it into the media. *The Economist* magazine, in an editorial in 2002 said, “Genetics could gut the concept of human nature, could do all these terrible things, but neuroscience could do it first.”

Alan Alda, as you may know, did a TV special on PBS called the “Brains On Trial” that had an associated website that actually did discuss these kinds of questions in a very intelligent way with people from one of three camps I would say in this area, people who think neuroscience is ready for prime time now, people who think it will never be ready for prime time. I’m in the intermediate camp, I'm someone who says in principle I think it will have relevance, not as much as the proponents think, but it will have relevance, but not yet, or not much yet.

Steven Barnes: You consider yourself in the intermediate camp. What kind of things or developments in neuroscience do you see as promising?

Stephen Morse: All right, I already talked about getting objective indicators of pain. I also think these proof-of-concept prediction technologies are very, very important, and could be really, really helpful in increasing accuracy of the sorts of judgments we already make.

Another is what I call memory recognition. Some extraordinarily interesting work is being done on that now with some just amazingly clever research methodology that is using a particular technique called pattern analysis that looks at the whole brain, not just a particular region of the brain, it’s looking at the activation of the whole brain, and essentially it's trying to determine if
we can use neuro data to identify when a person is having an accurate memory or not an accurate memory of what they've actually gone through.

Now as you know, the law is always looking at storytelling. One way to look at the legal process is storytelling. “Here's what I said would happen.” “No, here is what I said would happen,” and we have a dispute. Often it depends on memory. We know that memory can be notoriously fallible and that memory is not like a photo album where every time you open it you see the same thing, every time you open a memory it changes a little bit. Wouldn't it be nice if we had some objective biological indicator of whether when you say yes I remember that you’re remembering accurately or not?

**Steven Barnes:** A witness for example.

**Stephen Morse:** A witness, exactly. Some really, really interesting and very promising research is being done about that. Those are some, I think, really good examples.

**Steven Barnes:** As a kind of counterpoint in your research you've written about the radical challenges neuroscience presents to personal responsibility. What do you mean by that and where do you think we're headed on that front?

**Stephen Morse:** Neuroscience is thought by some people to present the challenge of determinism. If determinism is true, how can any of us be responsible? Neuroscience cannot prove the truth of determinism. No science can prove the truth of determinism. It's a working hypothesis of scientists. Neuroscience is just the newest science on the block. There's nothing new.

This is a debate: is personal responsibility possible in a world that is a causal universe or a deterministic universe? This has been going on in one form or another for millennia. There is no resolution to that metaphysical debate in sight. Neuroscience certainly doesn't answer it. Interestingly enough among the people who do this for a living, the philosophers of responsibility, the dominant view is even if determinism is true we can be responsible.
Now they don't have slam-dunk arguments but neither does the other side. Now, what do we know about our law? Our law treats some people, most people as responsible, some people as not. Law depends on what I called previously the folk psychological concept of the person, the view that is that we can explain ourselves to each other and to ourselves using mental state concepts. I would ask why is Steve Barnes in this room today? I'm not—

**Steven Barnes:** Good question.

**Stephen Morse:** Well I'm about to answer it for you, and you can correct me if I'm wrong. You're not going to tell me a story. Even if you were the world's greatest neuroscientist, you wouldn’t tell me a story about your brain nervous system. You'd say something roughly along the following lines, “My job at Penn is to produce certain kinds of product that will help promote the goals of the law school. I believe that by doing this Case In Point interview with Stephen Morse I will produce that kind of product. I form the intention, therefore, to do this interview and here I am.” You will tell me a story about your desires and your beliefs and your intentions, right? That's the folk psychological model.

Now, again, mental states aren’t going to explain everything. There are going to be biological variables that help explain why you're here. I can assure you there are others psychological kinds of variables and sociological variables, but in explaining human action you don't want to leave out mental states.

We all think mental states do work. Now we can be fooled about our mental states or in denial about our mental states, but we think they do work and law depends on it. Think what law is. It’s a series of rules that are addressed to human beings to help them guide their conduct. We use them as premises in citing what we have reason to do. We’re all acting in the shadow of the law all the time.

What kind of creature can use rules to guide their conduct? Only creatures with mental states of the sort we have. We share with lots of other animals various kinds of mental phenomena like
consciousness, but to the best of our knowledge we are the only creatures that act for genuine reasons, and law gives us reasons. I mean how could the law even be coherent if it didn't give us reasons to guide our behavior? It would be an incoherent enterprise.

There are a group of neuroscientists out there who are the radical challengers. They say, “We are not the kinds of creatures we think we are.” To use a very interesting phrase coined by one of them in a very influential article, two of them, and a very influential article from 2006, “We are simply victims of neuronal circumstances.” In other words, we have mental states but they're not doing any work.

**Steven Barnes:** Meaning we have no free will or … ?

**Stephen Morse:** No, no, no, it means we’re just not the kinds of creatures we think we are. You think you’re asking me questions for a reason. You're not. You have these mental states but it's just our brains are interacting, we’re just victims of neurons, we're not acting human beings who act for reasons and can be guided by reasons.

When I talked about the determinism debate before, that camp of people who thinks we can be responsible, even if determinism is true, accepts that we are the kinds of creatures we think we are, we’re the kind of creatures who can act for reasons and be guided by reasons. And, so, it's consistent with the law we have.

If the radical challenges are right that our reasons, our mental states do no explanatory work, think of them as sort of cranial appendixes, evolutionary natural selection has caused us to have them, but they don't do anything, just like we have an appendix that doesn’t do anything. Now there’s some evidence that it does, but let’s assume what we all learned in high school biology that the appendix doesn't do anything. That's the way to think about mental states. If that is the truth it's not just criminal responsibility that becomes incoherent; it’s law that becomes incoherent.
But would I say that the radical challenge is this? Let's assume you're right. What do I do now? Do I wait for my brain to tell me what to do? Am I going to stop deliberating? Now I have a theory about the radical challengers when it comes to criminal law. They hate the justification of punishment called retribution. They think it's pre-scientific, and they think it's barbaric. Retribution being simply, again for you non-law listeners, the theory that one justification for punishing people is that they have committed a crime and they deserve to be punished. It is good in itself to give people what they deserve.

These people believe that’s barbaric. They don’t believe in that kind of ethics that anything is good in itself, and they think if you're a retributivist because they often confuse it with revenge, but not always, it’s a theory of justice for retributivism saying it’s good to give people what they deserve. They think if we got rid of our retributivism the criminal justice system would be kinder and gentler. But you can be a tender retributivist. I'm a tender retributivist. I believe we should give people what they deserve, but I think we give people much too harsh punishments for too many things. Also, I’m not a pure retributivist. I think we need to take consequences into account as well.

But the interesting thing is if you look at the most draconian criminal justice changes over the last 30 or 40 years, they haven't been driven by retributivism, they've been driven by concern with public safety, consequential concerns, not with doing justice to individuals based on their desert. I fear our criminal justice system that is unmoored from notions of retribution. Here's the actually most interesting thing about these radicals, if they're right and reasons do no work I have no reason to do anything, and neither do they.

**Steven Barnes:** Right, so is the argument there representing them as best as you can, seeing how you take a different view, do they view mental activity and related behaviors simply as random? Are we all the times in that—

**Stephen Morse:** No, no, no, it's not random, it's completely determined, but your mental states play no part in that process because they don't do anything. It's just brain states that are doing everything. Now there are two issues. One is, is there a scientific basis for this claim? At
present I think it's utterly scientifically preposterous. It's totally on the come, as it were, and I see nothing in the developing neuroscience that would suggest that our mental states do no work.

In fact, what I often say to my neuroscientist friends who work at this level of explanation, cognitive, social, and effective, is your job is not to explain away mental states. Your job is to explain them. The second thing is, suppose somehow I got convinced by their arguments and evidence that they were right. Now, what would it mean for me to be convinced? That suggests that there's an acting person here, not just brain states. Brains don’t get convinced; people get convinced.

Let's assume somehow my brain somehow got convinced and then it convinced me that I was convinced. Think how dualistic that sounds, by the way, and neuroscientists often talk incredibly dualistically even though they have juror dualism, the other notion that we have minds separate from our bodies that are somehow in causal connection. I say to them, “Okay, suppose you're right, what you’re arguing for is morally, politically, and legally inert.” If reasons don’t matter, once again we have no reason to do anything.

**Steven Barnes**: Well I think that's a great way to end it. Professor Morse, thank you so much for joining us here.

**Stephen Morse**: Steve, thank you so much.

**Steven Barnes**: It’s our pleasure. Please join us for our next episode of Case In Point.

[00:53:19]