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(laughing) I'll just gesture to myself...

Alright, I want to take us from Cambridge 2004 to Baton Rouge 2003, which was, the winter in Baton Rouge that year was, a frantic one because there was a serial killer on the loose. There had been five murders which had been linked by DNA by evidence left at the crime scene. And here's a screen shot of the victims from the television station and it gives you the sense of the distress that Baton Rouge was going through at that time. This case, actually I think, illustrates a number of interesting points about the use of DNA in the criminal justice system and I want to draw those out.

During the period that they're investigating the crimes there were really very few leads. They had the DNA but they actually didn't really have much else. There were witnesses in a couple of the locations that saw a white pickup truck so that was a lead but they really didn't have too much else at least according to news accounts. So they started, and obviously given the pressure and visibility of the issue they had to somehow investigate this. In order to take advantage of the one really good lead that they had, which was the DNA, they started collecting voluntary DNA samples in part using the other lead they had which was a white pickup truck as well as a few other bits of data that they had gotten from particular individuals. And so the authorities collected literally - I'm not sure of the exact number - was over a thousand "voluntary" DNA samples. And I put voluntary in quotations there because there was more than a little pressure on people, when police came knocking on the door, to give those samples. That is for example, in one case, the name of the person they were asking for who declined initially to give a sample... his name was accidentally released to the public and he subsequently changed his mind and I think that probably sent a signal to others as well. Very few people turned down these opportunities to give their DNA. Currently, actually, the disposition of the samples is under litigation in Louisiana. Because after people were excluded, there wasn't any provision for destruction or return of samples. So that's one notable issue.

Second notable issue is that the development of a racial profile from the DNA, I think this is the first documented case in the United States that they did this. They sent out the sample to a company called DNA Transgenomics which came back with a prediction that the contributor of the sample was seven-eighths African American and one-eighth Native American. Before that authorities were working on the guess that the perpetrator was Caucasian because the profile had been developed from serial killers who had committed similar crimes that had typically been Caucasian. So that they were looking, actually I think that most of the people that they were getting the voluntary samples were Caucasians with white pickup trucks. OK, that's the second notable event that we will be talking about this morning and tomorrow for those of you that will be participating in the workshop.

The third point is that the suspect was caught actually not from the dragnet but because he had DNA collected in another case. There was a court order for his DNA in which he was a suspect in the case. And then that was used, obviously, not just for that case but it was used for the serial killer investigation and it matched. And eventually he was apprehended, Derrick Todd Lee, as a result. So that's notable because again, it was because he was a suspect in another case that they got his DNA and then it was used in another case and that's how he was apprehended.

The fourth point is that he had an extensive criminal history before this with convictions and arrests and the like. And so again given our discussions up to this point about who should be in the database if you had had these rules in place earlier, let's say arrestees or convicts of certain categories being in the database he would have been in the database in Louisiana. So I think all those are notable facts about the case.

I think it highlights the certain general issues that I want to talk about today which #1 is that the use of DNA in criminal justice system raises general issues about individual interests, individual rights versus the collective interest in security. And it also raises, actually I reversed the order here, issues about equity. That is, who should be paying, if you will, for this collective interest in security? And finally how should the state be organized given that the state is doing this? Does this affect how the state should be organized?

So surveillance, the question here is what does DNA do? And there are two things here that highlight - number one is there is a certain degree of locational surveillance. I have my cup here and someone could come and swab it later and could say David Lazer was here if they had my DNA. So that would not be such exciting information but that would be something that I wouldn't be necessarily thrilled about, as a general principle, that someone could do that.

The second is, as we have just alluded to eluded to that there is quite a bit of information that potentially could be extracted from the DNA molecule in terms of your let's say tendency to get certain diseases or certain physical characteristics and other information as well. So then the question becomes who should be subject to these types of surveillance?

This is the key equity issue. That is, there is a collective interest in surveillance that we all benefit when any of us to some extent is under surveillance. Right, I mean, I haven't really committed any crimes up to now but its theoretically possible and there is some probability that's greater than zero, and if you could watch me then society can be a tiny bit safer. So the question is those people who are under surveillance are basically paying the price for the collective interest in security. So what one sees, and Kim did a very nice job outlining the distribution among the states in terms of who's in and who's not in

and Chris talked about the UK that pretty much anyone who cycles through the – with any interaction in the – criminal justice system gets in there. So should it just be a very narrow sense the violent felons? Should it be all felons, arrestees or suspects for those crimes? Maybe we should even go for easily available samples. If we have all these blood samples from the armed forces database it would be very cheap. We could type them all and put them in a database and it would be millions of extra samples. Where should we draw the line? We could also - Mike Smith and David Kay are here, they have argued that we should put everyone in the database. And currently if we look at the UK, you know these are very ballparkish figures, but roughly one to ten men are in the database in the UK. And in the US it is roughly one in 50 or a good bit less than that, I mean men. We are talking about men because they are the ones who commit most of the crimes.

So the question is why should some people bear the costs and not others? And there are two, and pardon me for borrowing from your article but I'll pitch my book by the way... but I think it's a nice way of distinguishing the logic underlying why some be should be in and some people should not. One argument is the deprivation of rights, that certain people can be tried and if you are convicted of a crime and therefore you can lose, for the rest of your life, certain rights. If you a convicted of sexual offenses you can have to register with the state, depending on where you live and that's a certain level of surveillance. That passes the constitutional muster and the policy muster. The second argument could be a probabilistic argument that certain people are a greater risk for committing crimes than others. And therefore we should get the people that are at the highest risk of committing those serious crimes. Those are the two arguments. I now want to move now to an interesting case which challenges these logics. This is the case of Nannette White. This is a case from the UK. She was murdered in 1988. She was stabbed fifty times on Valentine's Day. There were three men who were convicted, the Cardiff three. This case gained quite a bit of notoriety because they were convicted but then the case was later thrown out because there were shown to be various investigative and prosecutorial errors to put it kindly and this case, like I said, produced quite a bit of tension.

The case was reopened in the year 2000. And they, and they went back to the crime scene all these years later, 12 years later, and they found some spots of blood on the skirting board, which I'm guessing in London is something like a baseboard and Chris, you can tell me but - and so they found some spots of blood that didn't match the victim but was right near where the body had lain. And so they said let's save this blood and this will be a good way to find or indicate and that it could have very well been connected to the crime scene so search it against the database. And there were no hits. So case closed, right? Well actually no.

Because our DNA, and this is something that we have talked about, our DNA is closely related to the DNA of people that we are related to, and so what the forensic science service did was to look for near misses. And there were some particularly rare polymorphisms which made it easier to do this, so they originally searched and found 600 near misses, all right, in the database. And then, I think it's a little unclear from news accounts but I'm guessing that they then went to those 600 samples and got more loci so that they could be more discriminating. And maybe they went to some of the Y chromosome or mitochondrial DNA information. And they cut it down to seventy. And my guess is they examined it some more and got some more information. And eventually they came up with one person who was impressively close. And it was actually someone who was born after the crime had been committed. It was a fourteen-year-old. So again, that's indicative of just how wide the net is cast that they would find a fourteen-year-old in the database and they then used that information to look at the family tree of the fourteen year old to come with potential candidates and it matched the DNA of Jeffery Gafore who was eventually convicted of the crime.

So why is this interesting? I mean other than it being a cool sort of *Law and Order* kind of story. Well one could imagine and it's not difficult at all to imagine a world where we expand substantially the amount of information extracted - the amount of DNA information extracted - from each individual in the database. Rather than 13 loci, we could do 26, or do 100 or Move to the SNPs. I mean we could do 1,000 loci. The math changes a little bit, but you could vastly increase the amount of information we get out of the extraction of each person's DNA, as well as get Y chromosome and mitochondrial DNA.

And what that would allow one to do is to take, let's say, genealogical information - all those of you who have done genealogic research online about your family tree. Well actually that could be very useful to track down suspects. That is you can say - well you know it's the mitochondrial DNA so it has to be matrilineal, but we have a Y chromosome so we actually have a couple different people in the family tree in the database from a few generations ago. They're dead. They're long dead. But we can still use it to catch people from their progeny many years later. I mean, look, we managed to catch Thomas Jefferson, all these years later, so....

And like I said as you increase the amount of information, you don't need this information by the way to identify people because 13 loci is plenty really to search the database to get a match as a general matter. So the question is and indeed right now although right now it's I think my guess is a more limited use. FSS does sell familial searches to help law enforcement who are at 5000 pounds, so this is a service of the(unclear) but you can do this kind of familial searching with what the law enforcement uses right now. And I think the UK has used it a fair amount and my guess is in the US in a much more quiet way, it's being used some but I could be wrong.

The question is how many people would be under de facto surveillance if you used genealogy in this fashion? And you know the question is, it's an empirical question or perhaps it's also a mathematical question. But it is conceivable that many more people could be under this de facto surveillance not because they committed any crime but because they are related to someone who committed a crime. And so, should this be something that we're troubled by? Well it does create both, I think, legal, ethical and political challenges to the system.

It creates legal issues because, let's say under the deprivation theory there is no reason just because you are related or because your great grandfather committed a crime, maybe jaywalked or something like that. In the UK – that would probably be good enough - the problem being that you are now under greater surveillance. And from a probabilistic reason it is also not clear that because you're so distantly related, potentially - again we're talking we're not talking today but we are perhaps not talking too far beyond today that what people and what kinds of relationships are under greater risks of committing crimes.

It also upsets, I think, greatly the political balance underlying the system. Think of it. It upsets the political balance underlying the system, which is that generally people don't have a tremendous problem about depriving people who have been convicted of crimes of rights, as a political matter. It's just not something that, there is no one that is going to be out there - I don't see John Kerry or George Bush going out there and saying that this is an outrage that we are placing convicts under greater surveillance. But it is a problem if - let's say - if there are ten million people convicted of crimes in the database and there are 80 million people related to them who are de facto in the database. And I think that creates certain political challenges on top of the ethical challenges.

So I just want to highlight this as what I think is going to be the number one political ethical issue coming up on the time horizon in the not too long distant time horizon.

So I want us to take a step back and sort of talk about the generic issue here is about sort of balancing societal interest in security which you all have an interest in and individual interest in not being watched. And the question, the thing you have to balance is how do we empower the state to protect individuals but limit the state's ability to abuse individuals. What is the architecture of trust and at the end of the day you can't depend on the wrongdoers taking pictures and videos of what they've done.

And so the question then is How do we allow the state – and this is a picture of Ulysses tied to the mast, right? And it's a metaphor and he's going where he wants to go but he has set it up so that he avoids the short term

temptations of the Sirens – So the question is, in terms of, and again I'm a political scientist here and I teach at the Kennedy School and I think How does one design governments? And there are a number of general solutions here and I'm just throwing these ideas up here. And I'm not really pointing to any one solution.

I am just trying to raise issues and questions - is one could imagine that you disempowered the state, well again this is the range of possibilities so let's minimize or eliminate databanks and databases. So this is the scenario where Ulysses stays home: this sounds like too much of a headache, too many hassles to go on this trip. I'm just going to stay home.

The other alternatives are regulating the state. Regulating the state really is about selectively disempowering the state so that you have certain, you might say, like for example, sample retention. If you want to disempower the state's capacity to extract information from the samples - there's the stuff that's in the database and the stuff in the databank. In the databank, there's all of the DNA molecules from which you can get information about their propensities to get diseases and the like. You can throw away those samples and obviously that disempowers the state in certain ways and it may disempower them in ways that you like and it may also disempower them in ways that you don't like. So there is no easy answer here.

You can have rules: say – you may only access the database for reasons like x, y and z. But of course if you have, and those rules by the way apply both to people and technology, because obviously technologies have embedded in them - and embedded within them certain kinds of rules like - let's say - what kinds of searches does the CODIS system allow you to do. And it may make it impossible, or let's say, impossible is a strong word, but technically difficult to do certain kinds of searches in which case that's embedded within the apparatus of certain rules. The key question here is transparency and whether you can actually enforce what's going on inside the state. Final point here is, you can restructure, it's a question of restructuring the state. So this is independent of the rules that you have, but - for example do you want to buffer the forensic scientists. Like in the UK, the Forensic Science Service is very independent from law enforcement. It services the law enforcement but institutionally they're not under the penumbra of law enforcement. And - or in Canada, you have, you have privacy talk and you do have voices and advocates within the government to watch what's going on. So again, these are some institutional mechanisms to try to limit the tendency of the state to potentially limit the abuse of information.

I've tried to focus my remarks here. I've not gone through all the issues. I do want to just quickly go right to some other big issues that we will be wrestling with. Obviously, finality, which we've touched on – that is statutes of limitations is not sensible in a world where you can look at DNA evidence from a particular

case which is very probative, but decades old. Should statutes be amended, thrown out and the like?

Post conviction: most of those 143 DNA-based exonerations have not come easily simply because the system sets up the priority on finality. And reflection. By reflection, I just mean you are getting valuable feedback from the system when you suddenly have DNA which reflects on things that went on 5, 10, 20 years ago. It can be learned from the errors that were made – and that's clearly with exonerations, there have been studies - and Chris referred to the NIJ study but there's a recent report that came out from Samuel Gross at the University of Michigan which went through 300, 300-plus exonerations over the last 15 years and examined what was systematically different in these cases. What can be learned to improve the system?

It is also true by the way we should be learning from where we catch people that we didn't catch from before. Did we have clues that we missed somehow 10 years ago? And can we somehow improve how we investigate things and we have learned a lot less about that then on the exoneration side. And then I think, and this also relates to behavior genetics and criminal justice issues is going to be another dynamite one relating also to these issues about family searches, that is, the question is - if one wants to build a rationale, and I am not at all opening the discussion, if one wants to build a rationale to why you de facto put relatives of people committing crimes in the database, well one reason for that, one argument for that could be well it's because they have the genes and those genes that passed on and we are storing genes in the database. Again I'm not at all advocating going down that path. I'm just saying that is, that is one ideology that would support going down that path.

So what is our objective? As being part of the team here that would be doing a series of workshops and national conference. I think to some extent it's time to pick up the baton from the National Commission on the Future of DNA Evidence which is to say we're not searching for answers. If we stumbled across a few that's wonderful. But we are trying to figure out what do we know and also knowing what we don't know and then I think sometimes knowing what we don't know is more important than knowing what you know. And then thinking about what are the trade offs in going down one path as compared to another. I think it's important to know that these systems are not and certain ways of proceeding are not inevitable. They will seem inevitable after the fact but we do have in our hands today sort of choices and I hope that our contribution will be to make those choices more informed. So thank you.