

A Round Table Discussion on Forensic Science In Australia

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Abstract

This manuscript is an edited transcript of a round table discussion held during the Australian New Zealand Forensic Science Society International Symposium held in Sydney, 2010. The discussants covered a variety of topics, including the management of science, the handling of quality issues, and the report on forensic science from the US National Academies of Science National Research Council. This discussion offers a frank account of the current state of Australian forensic service providers.

These views are then considered in the context of recent events unfolding in the United Kingdom and in a broader international context. It poses the question, are there lessons to be learned from the Australian experience which would have relevance to other parts of the world?

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Introduction

This article is an edited transcript of a round table discussion held during the Australian New Zealand Forensic Science Society Symposium (ANZFSS) in Sydney, September 7, 2010. The round table was moderated by *Forensic Science Policy and Management* Editor-in-Chief Dr. Max Houck. The attendees represented some of Australia's leading scientists and managers in forensic science:

- Mr. Bryan Found, Latrobe University & Victoria Police, Melbourne
- Dr. Hilton Kobus, Flinders University, Adelaide
- Dr. Simon Lewis, Curtin University of Technology, Perth
- Dr. Tony Raymond, New South Wales Police Department, Sydney
- Mr. Paul Reedy, Australian Federal Police, Canberra
- Dr. James Robertson, University of Canberra, Canberra
- Dr. Alistair Ross, National Institute of Forensic Science
- Dr. Claude Roux, University of Technology, Sydney
- Dr. Ross Vining, Forensic Science South Australia, Adelaide

The opinions of the participants are theirs alone and do not necessarily represent the opinions of their individual agencies or *Forensic Science Policy and Management* or its publisher, Taylor & Francis.

Australia's Ability to Self-Correct

Dr. Houck: This is a round table that's being sponsored by Taylor & Francis who publishes *Forensic Science Policy and Management*. I'm co-editor of that journal with Jay Siegel, my name is Max Houck. And the idea is to discuss issues facing forensic science in terms of management and policy in Australia. This is my fourth time here, and I have noticed that there is a particular sensibility about the way Australia comes at forensic science issues, and the forensic science service providers seem to have a keen approach to addressing problems in their own states and also at the national level. And so to my mind, with so many people in this country who have that interesting approach, I wanted to capture some of that, particularly in reflection of the borderline circus that seems to be going on in the US right now post-National Academy report. So starting with that notion of the report, Australia itself has had a fair number of internal national or state reports on either particular cases or particular labs and issues therein. And yet you all seem to do a fairly good job at responding to those reports and actually—

Dr. Robertson: Are we the only ones that focus on over-kill?

Dr. Houck: Apparently. (laughs) You seem to have a unique ability to respond to those reports and actually do something with them constructively. And so I'm wondering in terms of what you all have done here, 1) why do you think it is that you are able to respond so directly to those reports?, and 2) why do you think it's so hard for the US to respond, particularly given something with the size and weight of the National Academies report? And remember, before you start talking, if you could just identify yourselves.

Dr. Ross: One of the things in the paper I'm going to give today, one of the things that I think we have the advantage here is that we're quite a small community, but a close-knit community through NIFS (National Institute of Forensic Science) and SMANZFL (Senior Managers of Australian and New Zealand Forensic Laboratories) and the SAGs (Scientific Advisory Groups), and also quite a close working relationship with the tertiary sector.

Dr. Houck: When you say "tertiary", what do you mean?

Dr. Ross: Universities that have got forensic science programs. I think we can quite easily get the views of academia and bodies, we get the views of the lab directors because we're so small. And I think in the United States, obviously that's not the case. Much more fragmented sort of society than what we are here.

Mr. Found: Max, I think I agree with Ali (Ross), and I think people look at the NAS report as a singular event that comes out to be reacted to in some way. But there really is, reading that report particularly from the point of view of cognitive forensic sciences, there's really nothing particularly new if you had followed the literature over the last 20 years. It's really a summary of that literature experience. I think in Australia, we've been very good at keeping up with that material and over time through our organizational SAGs because we have small groups of people who do have a passion for improving forensic science. We've been able to respond to publications rather than the large reports. So I think that puts us in a very good position because we're already mobilized on a lot of those issues, and with my experience in the pattern evidence sciences, these sorts of models have been around now for 15 years or more. So the NAS "event" really I don't see as such a critical thing to which any sort of knee-jerk reaction should be made. I think it's something which is a literature summary of 20 years of criticism or 20 years of suggestions, much of which may not have been responded to. And really, the things that need to be put in place to respond internationally, really these increased interactions between academic institutions and forensic science laboratories, many of these cognitive forensics, these boutique forensic sciences, don't have academic correlates, but we need to create them. And if that

means encouraging universities to take on practitioners in these small areas to do graduate studies, then that's something we should look into.

Dr. Kobus: I actually think the thing we've had going for us in Australia is that, at a senior management level in forensic science, we've had a relatively stable community. There hasn't been rapid change, I think, and we've had a—I actually think we've got a really nice balance between good management direction for forensic science and good focus on science. I think the NAS is an absolute classic for me is that, how do we fix this? Let's put in some bloody structures, it's all structures, it's all... let's have another administration, let's put in a focus group, let's—come on! And I think when NIFS was established, it's had a really good focus on forensic science, not actually on having more committees or more administrations and so on. And I think the people who have been part of the SMANZFL group for the last 20 years have all had a good focus on what is good forensic science, how can we make science better, and I think that's why—and Ali's picked it—there's a good connection between forensic science practice in Australia and perhaps academic forensic science. It's because we focus on that, and I have to say, those guys in that NAS report, they can put as many of these layers of structure as they like, and it will fix nothing. Absolutely naught-point-naught, there's no question about that. And until somebody gets really focused on what is good forensic science and what does it need to do, and we can focus on that. And actually I think we can humbly from Australia claim that Australia's been good at that, and I think we've done it well. And I think labs have had good direction in making sure we're doing good science and moving forward. Such is actually dotting the i's and crossing the t's and quality management is actually moving forward, and I think most operational labs have been quite innovative in terms of new technologies, new methods, training. I think the SAG workshops are a really good example of how we've coordinated in the development of the science, and I think it's always due to, you've got good management, but you can't just manage things by doing management kind of things and putting in those sort of structures, you've also got to connect with the science. And I think in America there are too many people who get to an administration level in laboratories who actually don't connect with the science. It becomes an administrative task.

Dr. Raymond: Yeah, I mean I'd just like to echo what my colleagues have said, and I think one of the things for us is that small is good. NIFS has been an honest program for a long, long time, and that's helped us hold trust between all the senior management. What Hilton says is correct, the fact that we have quite a bit of longevity, and there's nobody around this table who I don't know pretty well, and it goes for everybody else even though we're all in different jurisdictions. The flexibility that NIFS has had has also allowed them to respond to things of a national issue. I think we're...

perhaps we have not been as good as we'd like to be in this sort of thing, is that we haven't picked up on some of the big risk issues. What impacts jurisdictions, in my mind anyway, is not really the NAS report, it's actually the reports that come from the jurisdiction or the general report which is having an impact on us in New South Wales. One in South Australia some time ago, the ombudsman's report in Victoria, those have a higher impact on our business than some of the international stuff.

Dr. Houck: One of the things that I'm hearing is that it's size that matters in a sense, but not simply the scale of the number of people or the number of institutions in Australia, but the relationships that come from that. So it's not as if this success could be transported to say a large state like California where maybe they have the same sorts of relationships, or same size rather, but it's the relationships that go on because of that. And NIFS does seem to be one of those central things which I think is interesting because that could be an argument in the US to say, "We were right, we need that new layer of structure". Whether that's accurate or not, we'll leave that for the moment, but it does seem to have an effect that you've had that on us over all these years at least as a neutral point.

Mr. Reedy: We've had our challenges over the years, and they've come up as individual challenges in particular sharing some...statistics, so the experts, the practitioners and leaders in that area have taken that problem aboard hence the workshop we've got associated with this today. Consequently, I think a lot of those issues are being dealt with as they arise rather than becoming a headlining issue as it was in the NAS report. In part that's the relationships and leaders being encouraged, in fact pushed, to take ownership of those issues early. Virtually any court case that goes bad is dissected fairly quickly. I think one of the other significant differences too is that if we do have a challenge, our political masters have taken an approach—generally speaking, there are exceptions—of addressing the problem and finding a solution and in a relatively quiet manner, rather than a "heads will roll" type approach. And that's quite Australian, to take that sort of an approach.

Will the NAS report affect Australia?

Dr. Houck: In moving on, unless anybody has anything else they wanted to talk about in terms of using those reports in an active fashion, or maybe not a reactive fashion, which is another theme I'm hearing, that in the States we tend to be a bit more reactive than looking ahead which I would agree with completely. There does seem to be a "heads will roll", salted-earth approach in the US whenever there's a problem of just, you know, if there's a problem with an individual, cut him loose, don't retrain him, don't worry about that, just get him out of here and then act as if everything else is normal.

Do you think that the National Academy report will have, other than moments of interesting discussion—do you think it will have an effect in Australian forensic science?

Dr. Vining: I think it will. Certainly it has had an effect on me. I've gone through it very carefully, I've summarized the key points, I've discussed them with all my senior managers, I've discussed them with the chief executive of justice. I've gone through, I've done writing on where do I think we in South Australia are in relation to each of the key points raised, where do I think Australia is generally. So does it have an effect? It is kind of easy to say "no it doesn't" because on the quick surface level, no it has no effect, but I think the fact that I've done that and we did it as SMANZFL, in fact we had a teleconference with all the SMANZFL directors, we actually went through the report. So if you try to point to, well can you now present a report where Australia has responded, we've done A, B, C and D? No, had no effect at all. And has it actually affected us at a subconscious level? Yes, it has. We refer to it all the time, we're referring to it now, it's been referred to numerous times at this meeting, it's been referred to numerous times at the last SMANZFL meeting. In fact we had a special—you or Tony went right through the entire report. So absolutely, yes it has had an impact... I think if you stack up around the world, we'd probably score pretty well against the aspects that were raised there. Something I'd just like to go back to, which I was talking to you about earlier, Max, which is about structure and culture of our society. And this is not very helpful to the US cause you can't really change the structure and culture of society, but it certainly does provide some insights into why we're different. While we're, Australia and the US are largely Anglo-Saxon kind of countries with, on the surface they look similar, but they are actually very, very different. The US was founded by religious fundamentalists, and all of Australia apart from Adelaide, was founded by convicts. (laughter) And I never realized how different it was, I'd always assumed the US was a big version of Australia 'til I went there the first time. And sort of on the East coast I could not find a radio station that didn't have gospel stuff on it; I mean in Australia, it just never happens. And then as you sort of travel around, you see that the US is this interesting dichotomy of, on the one side, fierce sort of independence and anyone can be President kind of effect, and on the other, this absolute sort of mind-blowing conformity and respect for authority, and "Mr. President"—I mean it's always "Mr. President," here I mean we just have, you know there was "John" and the others, just first name terms with everybody. And I guess it's that first name terms with everybody that means your opinion matters so you don't have to comply with what God has said. And so you get this, sort of, in Australia, I guess we talk to each other. So it's that in America there's this respect for authority that means you don't attack a problem 'til it becomes so big, and then just throw massive amounts of money at it to make it go away. And in Australia, I don't think we've ever had that much money and so we tend to sit down and think about it and come up with a solution that usually works reasonably well. I think also in the early days of the

Australian colony, the land was very harsh in the first few colonies established in Australia, it almost didn't work. And so the whole culture became one of helping one another and developing innovative solutions, so... In all sorts of little ways, Australians have been traditionally been fairly innovative, and I think we see it reflected in all sorts of things. Before I was in forensics, I was involved in pathology, and as I traveled the world I'd always assumed that the UK and US had much better systems than we did. But as I looked around, I found on average, the systems and the way we ran things were better than the UK and better than the US. The US's "best" is always better than Australia, but your average is less in everything I've looked at, and I think it's part of the underlying culture, this independence and the obedience. In Australia we don't have so much of that, and it has advantages and disadvantages. So I don't know that it helps you fix your problems, but it helps us understand why there's a difference.

Dr. Robertson: I'm not sure I agree with Ross' religious analogy, but I actually don't think the NAS report has had a major impact. It's a bit like the tsunami that hit Bali. It did reach the rest of the world, and I think it was one centimeter in France. Well, your tsunami [the NAS report] barely measured on the Richter scale in Australia. Yes, we discussed it, maybe some groups did go and analyze it, have written a little bit about it and so on. But I think it's more like a useful report to look at and see, does it have any resonance for our industry here? Personally I'd love to say I don't think it's a well-written report, it comes across to me as a collection of B+ essays the students put together with a bit of front page written by someone else, and it's about that quality, honestly, in terms of its analysis of some of the issues. And so that's my personal view of it. But like a good manager, you pick the bits out that you think might actually be helpful to actually poke your own politicians or your own senior management to actually say, gosh, look at this, you should actually be scared what's coming around the corner and can we have this please? So that's more the way I tended to look at it, I'm not sure it really had a major tsunami ripple-like effect. But the thing you cannot help but pick up when you read that report is who wrote it. Not just talking about the intel, as who wrote the actual thing, the group of people who were brought together by NAS, and if I think you want to look at one fundamental difference in this country as opposed to US is we still own our industry. And it's not just this, it's the SMANZFL group, you heard me going about our societies of putting that beside nothing else, is a significant structural weakness for us, but the SMANZFL group and NIFS have worked very closely in terms of how forensic science is managed. But we've got an equally horrible federal state system; we've got far from perfect, frankly, organizational structures. We're in different ministries, different departments, and so on and so forth. But we've been able to overcome the bureaucratic impediments which you would think when you look at it from an outsider's viewpoint, you know, which would actually make things not work in Australia, and because the managers in this group actually work together and address the issues that

affect all of us, we kind of think kind of globally Australia not locally within our own jurisdictions in terms of finding a way to make these things work within their own bureaucracies. So we've kept it at a very low bureaucratic level and in our own industries, we still have all these external commentators who will occasionally want comment on our industry, we haven't lost our industry to the lawyers, and the social commentators and everybody else. And that's what I think, looking into the US, has happened. I find it hard to see in that group of people a genuine operational forensic scientist, you know, in the group of people they've put together. So in our industry, I think that's been a big difference for 20-odd-years-plus, that's been the case here. And I think that's one of the major differences in Australia.

Dr. Houck: I take your point completely. I've often said that, I think at this point in the US, that the legal tail is wagging the forensic dog, and the great danger for us is to buy into their rhetoric and use our own words against ourselves. We're no longer... we don't need them to treat us sadistically, we've learned how to be masochists just fine (laughs), and we can beat ourselves up using their own words.

Dr. Robertson: Let me just make one other comment, that is picking up another one of the points that Ross made earlier, the other differences that I notice coming from the UK is that we have a very thin layer in term of our president and the prime minister down to where we are. So as a relatively senior manager, you've got direct access to ministers, much easier to actually go and talk policy. We don't have layers upon layers upon layers of separation, and I'm not saying that we've always played that card particularly effectively because we haven't. We're not great with politics, frankly, but none-the-less where we have—and we're not always listened to—but we've probably had a little more impact than the States. At least put it this way, we didn't have to go hire an actor to go represent us in front of Senate, and pick him because he was a star of *CSI*. And while that might be a bit of a sound-off or throwaway remark, I think it's actually a fair comment that that was seen as a useful thing to do. Most of us in our own jurisdiction we've met our ministers where we talk to over the years, been able to lobby them effectively, I know Tony has some very good examples when he was down in Victoria or in New South Wales that changed legislation, you know, shaped legislation because of that closeness and the fact that we don't have 20 layers between us and the people that are actually legislators.

Dr. Raymond: Just an example, I remember a call I got from the Minister direct saying, "I gather you've got a problem in ballistics", I go "Who is this?!" (laughter) We did, we'd had a couple of guys with an issue and it was the Minister. (laughter)... But the... it's just, you know, reinforcing what James has said. We were the most over-governed country in the world with about three tiers and all the rest of it, but the access is pretty good.

Dr. Robertson: I think that's – to say we're over governed...This country's not over-governed. You go to the UK, you go to the States, and you will find far more layers of government than you have in Australia. We've only really got two layers: state and federal. Local government is almost irrelevant in this country.... You go to the UK, and you've got three, four layers of significant government.

Dr. Houck: And also in the US you've got that... that translates into a jurisdictional overlap. When I worked in Fort Worth, the city of Fort Worth police department had a forensic lab, the county medical examiner had a crime lab associated with their ME's office, Arlington which is 30 miles away had a forensic service provider in their police department, another 20 miles away, Dallas, city of Dallas, had a crime lab in their police department, the county ME had a crime lab with their office, and then within an hour of all of them was a state forensic lab. Now in terms of trying to coordinate services in that sort of crazy quilt—

Dr. Robertson: In the US also – if you go around- I mean obviously you have layers and layers and layers of different levels of forensic labs. If you go around this room here, I mean currently to raise the level of the job in Victoria recently, three of the directors in police labs are assistant commissioner level. That's not replicated around the rest of the world. If you go to most of the rest of the world, you'll find an inspector or a superintendent of police, not even a forensic person, often heading up the forensic group...there is often a much lower level and because of that, we're part of the executives to the organization we're in... Ross and Adelaide in the same situation, and I think again that's a major difference in Australia. That, largely speaking, the heads of labs are sitting at executive level and part of corporate decision-making within their organization.

Dr. Vining: I'd like to point out we're just restructuring in South Australia, as director of the South Australian laboratory, I report directly to the chief executive, and they've set up a justice council for South Australia and I'm sitting on that. So just echoing James's point, that we sit at a very high level within each jurisdiction.

Dr. Houck: And with that obviously comes an attending authority to allocate resources and discuss issues with other people at a relatively higher level than you might see as you've mentioned in other countries or even in the States. I mean I've had lab directors in the US tell me, "You know, all this business stuff doesn't really apply to me because I don't have a budget".

Dr. Robertson: A lot of us attended a workshop a number of years ago on how to get funds to your organization, but I wouldn't know much about that personally, and the people who attended it were from one-person labs. And really that's part of the problem, you see it when you go to a conference in the US, particularly ones that the FBI run, where they spend the first half of the conference just trying to get everybody even up to a basic entry level of understanding before they can build anything of it. So it's such a diverse group, and trying to solve the problems of such a diverse group I think is really the complexity of it. Our group may have a lot of variation, but in terms of level between states, in ways we approach in terms of intellectual level, is pretty similar. I could be funny but since we're being recorded I won't name any states that might not meet that criteria. But largely speaking, there's fairly consistent level so we can deal with people in a relatively consistent way.

Dr. Ross: I think on that funding issue was a classic example of what I suspect that influence where I've found, and I'm sure other people have found, that when we were going to government and we want more funding for forensic science, they were coming back and saying, well why should we invest in you? Well where's the return on the investment? Shouldn't we be investing in prisons or health or education or whatever? And because we have that relatively close-knit community, pretty quickly we were able to put together a team, get a really healthy research grant that is now looking at the effectiveness and cost-effectiveness of forensic science because that is a big missing piece of the jigsaw. How do you justify what you're asking for in terms of additional resources?

Does DNA dominate Australian forensic work?

Dr. Houck: Okay, let's shift slightly on topic, something that's related to that. In terms of handling—I'm sure it's true in many places, maybe not most, but many—that DNA is the big dog, and drives a lot, or has driven a lot of forensic science particularly in the last 10 years. Has that been the case in Australia, and how are you looking at handling the—and I hate saying it this way—the non-DNA forensic sciences. Cause it seems to be that's the dichotomy anymore, it's DNA and everybody else, realizing that it's about 10% of the workload for DNA, and the other 90% really fills up the rest of the lab, as the common thinking goes.

Dr. Robertson: Another question might be, how are we going to deal with the DNA technicians as opposed to the scientists and I'm being serious about that. The scientists generally in the organization are sitting elsewhere, and frankly our DNA people are being turned into robots and process workers. And that is a significant issue for the future. Nobody would deny that DNA's been a major issue and draining many of the available resources sadly on the laboratory side. But I think again necessarily what

Max said, separating him a little bit from the rest of the world, is that most labs have, in fact all labs have managed to maintain a reasonable balance in my view and some considerable strengths across the board. And so we haven't just thrown in the towel and said it's all DNA and we're not going to do anything else. We've managed to again maintain some control over our industry, maintain some reasonable integrity, whilst recognizing a lot of resources have to go into DNA. The next big issue around the corner is computer forensic, because if you think DNA takes a drain on resources, just you watch the computer forensics space.

Dr. Kobus: I think with the DNA expansion, the advantage we have in Australia again is because of the smaller number of law enforcement jurisdictions. I stand corrected, but I think there's only one DNA forensic service lab in each state. And so James is 100% right, I mean it's a high throughput technical operation, so if you need three genetic analyzers to cope with the work, they're all coming in through the one resource. You don't have multiple different labs all trying to upgrade equipment, buy robots, and so on. It's all going into a main service center, and I think that's the real advantage. We've got the multi-law enforcement jurisdictional structure of the States has to be seriously limiting in terms of how you can invest in a rapidly changing technology, and I think that DNA is the next step. We may be into totally new technologies in our lifetime, and in fact if you've got multiple labs all wanting it, then you can't do it. And as soon as you have higher case numbers and a high throughput operation like DNA which you can automate, what you have to do is actually increase the numbers to maximize your investment, you can't fragment it and have different labs all having robots, all having genetic analyzers. And that's my lasting impression of US forensic science was the number of jurisdictions, and I'm still startled to see people still doing routine, relatively high-throughput drug analysis by microcrystal test. I mean, come on! And that's because, if a lab's not big enough to go and buy a decent GCMS and automate the whole thing, and go and sit on their bums drinking tea while it—oh geez, sorry about that. (laughter) I really think we have a great advantage. We complain about forensic science fragmented into some health departments and so on around Australia, but we can cope with that far better than the highly multi-jurisdictional nature of what you guys deal with. I think we do have an advantage there.

Dr. Raymond: The other thing that we have is a very good, close liaison with the crime scene people and with our law enforcement. They are either with the lab or close to the lab. And so the drawdown on laboratory services for DNA also had a significant impact on the crime scene people in terms of the way they operate and what they need to make sure nothing is contaminated. And the computer scientists are going to have the same impact, there's no doubt that's going to have a hell of an impact on resourcing by

way of the field and also the collection and the analysis. But nonetheless, we actually are weaving together the training packages integrated and that sort of thing. I think that's a big difference. And the NAS missed the crime scene completely.

Mr. Found: The upside to the DNA big dog drawing on resources, and it also presents the opportunity for our funders, our political masters, to focus attention on forensic science like we do have a gap here. And we say, well we're doing this much, and this goes for DNA or computer forensic, but by the way, this is another area where we've been quite effective as well. And both of those opportunities do present.

Dr. Houck: I think it's a matter of culturally recognizing that momentum and trying to get over the obstacles presented by the perception of "all things being all DNA to all people", and trying to redirect that avalanche.

Dr. Robertson: Can I comment on that, cause it has been one of my hobby horses over the years, particularly recently, people talk about DNA and DNA backlogs and I keep reminding people there is no such species. Technically there was no DNA backlog in this country, there is more capacity to actually do the DNA analysis than you could ever use. Feeding the machine, there was an evidence of recovery backlog. And this is a problem, and this is a challenge that's going to face forensic labs increasingly in the next, you know, now in the next 5, 10 years. It's setting up structures that are actually more effectively able to manage cases, manage the evidence items that feed into the analytical side. And again, we have an advantage in Australia because of what Tony said, and that's the connectivity between the crime scene people and the laboratory in Australia is much stronger than it is in the US.

Dr. Houck: I think here you probably get far less of what we refer to as "garbage truck forensics", where they just back the truck up and dump it into the lab.

Dr. Robertson: We still get some of that.

Dr. Kobus: We all started with that. As DNA got going, I think we all had that, and all jurisdictions then have really worked to setup triage systems and systems at the front end to stop it happening.

Mr. Found: I wanted to say one more thing. We didn't get to talk about the more boutique areas, and I think one of those areas which has been very effective in courts of law has been the pattern evidence sciences whether it be fingerprints or whether it be handwriting or shoe marks. And really I get the sense with DNA and with the emergent CCTV technology, that pattern evidences are not as well connected with academia. There's certainly not a huge industry incentive because the return on their investments,

given how boutique it is, is quite low. So I think a lot of the issues that came out of NAS was about the lack of validation and perhaps the lack of standardization across what should be very similar sciences. And we're still, to a certain extent, neglecting that. And that might be for good reason because coming from my own area, if you're looking at behavioral forensics, in order to generate chance-match probabilities and in order to get computer programs to estimate the frequency of characteristics in the population of the pattern, it would be a massive investment of funds and time. And I guess from a forensic manager's point of view is, what is the return on that? And so maybe those areas will never fully develop into such powerful sciences, but maybe that decision is quite up-front and honest, to say, well what if we had a choice of funding this sort of evidence which is fairly easy to extract and has a very strong basis in science, maybe the best thing is to not to worry your boutique sciences about it too much at all.

Dr. Robertson: I think the solution to what you're saying is when you stop having these boutique sciences done by technicians in many of the pattern areas and that, and put actual scientists into doing them who think scientifically, then perhaps we'll start to see some advances in them. And again, this is in the US, they are a peculiar weakness, because in pattern evidence type areas, almost I would say perhaps without exception, but largely speaking again, it is largely in the technician land, police end of the game.

Mr. Found: I would absolutely agree with that, and some of the fields that I'm intimately involved with, some of the difficulty in generating a good research culture is the culture itself where we might have a mixture of people coming from policing, scientific backgrounds—you can't get consensus amongst those people because their understanding of what good science might be could be very, very different. But one thing which stuns me working, and I'm sure other people here are in my situation, working at a university, working at a forensic laboratory. You know, universities are at a very high level of academic qualification going in, which then expands through their research and their exposure to whatever it is they're interested in. At forensic laboratories, it seem that the undergraduate degree seems to be enough for the most part for those people to get in, and it doesn't seem to progress. Now in this day and age where you're looking at so many forensic courses out there with graduate programs, where you've got so many masters, PhD students which are clearly in the market to employ, we don't seem to capture many of those. And perhaps if we did, some of the problems brought out in the NAS report would be identified by the practitioner, and those practitioners would have the skills instantly to start putting together some research projects which might at least address parts of what those criticisms are. At the moment, it is very technical and maybe what has to happen is we have to go through labs and say, these positions are in fact technical positions. This is the limit of what you have to have in terms of academic qualifications, but if you're in the

interpretive sciences or if you're in one of those areas where we require a lot of cognitive energy to generate any sort of meaningful interpretation, then you've got to be looking at bringing in people with higher academic qualifications. So I think that should go without saying, but it hasn't been a practical reality here, and I'm sure it isn't in many other countries.

Getting forensic science into academia

Dr. Houck: Without meaning to, we've gone right to the topic I wanted to go to, which is education and staffing and requirements. But I love your take on the research culture because that's one of my persistent questions is, what happened to the research culture in forensic science? And I think... without pointing fingers, I think it's equally to blame on the industry side, and the requirements that have been placed on it from its origins—law enforcement. But also on the academic side, the same amount of blame can be assessed for the same reasons of... "Shoe prints? Who studies shoe prints? That's not a real science!" And that can go for everything, up to and including some of the stuff that is actually seen as science—fingerprint development chemistry, that sort of thing.

Dr. Lewis: Interestingly, I've been involved in developing a forensic investigation degree to try and help police officers who are working as forensic investigators to improve the level of their qualifications. And I've actually come up against this particular situation with very senior staff within the university who have... interestingly enough, they have no problems at all with the idea that someone working at a crime scene should have an undergraduate [science] degree. But when we wanted to have a fingerprint stream specifically... [they] just couldn't understand why somebody in fingerprints would need a degree. Just didn't get it, didn't get it at all. And in the end, that's one of the problems again for forensic science I think within universities, they take an increasingly hard-headed view of student numbers, and they won't look at courses that will have only relatively small numbers. By that I mean, for example, and you hear different versions across different universities, and I'm sure Bryan said something similar to this, if you have a unit of study... so that's say part of the degree course, that has less than 15 students in it, you won't be allowed to run it. That's not enough. And certainly in a jurisdiction like Western Australia, you're not going to be able to find 15 folk to fill say a unit on... a course on handwriting. And the getting like that as well in the postgraduate area... I agree with you entirely on postgraduate studies, but they are getting similarly hard-headed that if you can't make a business case that you can bring in 20 students a year into a graduate program, then you're not really going to get off first base in developing that course because I'll look at it purely economically and say no we can't run it, just not interested. They want lots of bums on seats, and it's difficult to disagree with that when you look at their financial situation.

Mr. Found: In America where they've had quite successful internet style teaching/learning activities and doing their degrees in that way because in any geographical area there might be not enough people to run a course, but across the entire US, they certainly can get enough up to put a successful course together.

Dr. Lewis: Yes, but no. Because one of the problems is again that the investment and putting up a genuine online course is pretty big, and again we've had a similar situation where people wanted us to put up an online course in chemistry up, and we looked at the financial pace for it, and we didn't have the resources to do it. Just didn't have the resources to do it. And so they're beginning to understand that to put an online course up requires a lot of effort to actually, to do it properly. I mean you could do it quick and dirty, but that's not going to last very long. If it's to be genuine, a genuine program, it's a lot of investment and again unless you can guarantee the numbers, they're not interested.

Dr. Robertson: I don't want to sound like an advertisement, but we are part of the University of Canberra, who have an online thing for global education, and I have to say straight-up that that is aimed at people who are working in the industry, and cause it's not practical to any extent. I haven't yet seen how you deliver a practical over the internet, and you've got to understand what they're actually trying to deliver. But Simon's quite right, the cost of actually developing courses for small number of students is enormous, and I can't understand why given that forensic now has become... well, one of the methodologies and technologies that have become so commonplace and uniform around the world, and this really is a global problem, and I don't think you can solve it at local levels. And a lot of jurisdictions hide behind that, well we're so unique and different, but the reality is they're not. You can put two into layers 80% or whatever it is, that's common at least in the theory and understanding, cognitive part, and all that, and then layer the 20% locally into the student side or through industry or local delivery. So I think there's actually going to be an international solution for those sorts of issues in our world because forensic science is small. When I was researching a paper I gave at the conference the other day, when I was doing a comparison with pharmacy, well in Australia, there are 12,000 registered pharmacists. I don't know how many people are working in forensics ...but I guess it might be at maximum, if you took across every single discipline, 3,500- 4,000 people. We're not a large industry worldwide compared to lots of other industries. We're always going to have difficulty - and it's got so much diversity across it because there might be 10 or so other disciplines in there, they're actually developing product for that, done locally, just isn't working. I think we need to get more international solutions for it.

Dr. Lewis: To follow on that point again, there are the hard-nosed pragmatic view senior management universities take now. There's an online program at the University of Canberra, why are we trying to compete with that? We don't have the same number of staff involved in that area, we're not going to do it because financially it's just not viable. But it goes back to the idea of some of these patent evidence areas being taught at universities or having academic staff at universities. The issue that you run up against is that the current experts in that area don't have the degree qualifications that allow them to actually progress through a university structure necessarily unless you've got a specialist, say, forensic department within the university which ... setting up a specialist forensic department in a university is an investment in itself.

Dr. Houck: So it's like a chicken and egg problem. They don't have the academic qualifications that would allow them to be considered faculty to do research, and they're not going to do that until they get the academic qualifications to, right?

Dr. Lewis: Obviously there are going to be some exceptions to that, and especially if you have a specialist forensic department for example. But again, there's still going to be problems with dealing with folk who again have this idea that forensic isn't really science.

Dr. Kobus: I actually think we are too caught up in the whole thing about minor discipline-specific stuff and teaching it at university. You don't need to teach fingerprints, you don't need to teach handwriting. If you're going to approach it as a science, you're going to come at it from a much bigger picture level. I actually think Simon made a good point. University of Canberra run a very good online course, I reckon that's good. I don't think we're big enough in Australia to sort of all compete with each other, and universities are pushing people to compete. I think it's quite good to say, hey you want to do an online course? Go to the UC, they got a great online course. And in the same way, they could turn around and say, gee you want to go and learn this? Go to Flinders or go to Curtin. We need to be more cohesive in terms of addressing these forensic problems, and I think still the main advantage to forensic science operationally for academic partnerships is in research. Labs don't have time to do research, universities can produce PhD students and so on. The key to it is actually good projects that are good science, that have an impact on forensic science, and that's where we should be focusing our attention. I've always said quality management is a big driver in forensic science these days. And in fact, all these things like proficiency tests and manuals and so on—it's all this enabling stuff that that's what you do every day in a quality management. If you want to be strategic about quality management, you're going to have a big research arm with a good partnership, with a academic institution that's going to drive your research, that's going to make you think outside the

box, and that's going to make you come at forensic science globally. I've been fortunate in my life to be able to do some of the pattern recognition sciences and so on. I never did a bloody fingerprint course or this and that. But you can come at... if you come at it from science, and that's what the challenge is in forensic science education, is to deal with it like that. Not to start down in the bloody detail and try to massage it up from there, let's look at it globally. That said, when somebody comes out of it, we don't have people that are buttonholed into being handwriting people. Bloody... I just about faint when somebody tells me, oh what do you do? Oh I'm a gunshot residue analyst. God All-bloody-mighty! (laughter) And I think the universities have a role to play in making this more globally science approach to forensic science but making it forensically relevant.

Dr. Robertson: This is the condition for the scientist, and that's why so many of these areas are stuck in technician land. Like I said, there's nothing wrong with good technicians, good technicians are worth their weight in gold, and I don't know how you pick this up verbally, they're this wide or that deep, whereas scientists are that wide and can be deep in such an area. We need more people who are more broad thinkers, cognitive thinkers around the issues. Just want to point out that University of Canberra didn't develop this on its own; we couldn't have done it; we didn't have the resources. We've done it because we were partnered up with the University of Florida who had a very successful program in the fourth largest public university in the US. They had resources that we don't have, so we buttonholed onto them, put our courses up on their website, they do all that, we just deliver it. And we've also picked up units that they put in.

Conclusions

Dr. Houck: We're just a little past time, but if anyone has any final comments or anything else that they want to add?

Dr. Lewis: There was one thing I didn't get to say right at the very beginning when we were talking about the role NIFS has had was that I'm a relative newcomer to this, and not a forensic scientist by training at all. I'm a regular academic chemist, if there's such a thing. One thing I did notice when I started, which the first academic meeting I ever went to was a NIFS-arranged educational forum in Adelaide in '99, was how welcoming the forensic community was to newcomers who are interested. And that's made life very much easier for me, and I think it's true of my other colleagues who have got involved in the forensic community is very welcoming. And NIFS acted as a central point, saying oh you need to go and talk to so-and-so, they can help you with that, they can help you with that. And that made, as an academic, very much easier. I think there's a mechanism that help engage other academics in working areas that may well

be very useful to forensic science. The only problem is convincing those academics that they really ought to do that.

Dr. Robertson: They are also very good at welcoming old timers like myself back into their fold. My final comment would be, if I had one piece of advice to give to America is, take back some ownership of forensic science by the forensic community, that does not mean, but frankly, if you are a professional, then own your own profession. And I think that's what's happened in the US, having ownership of it broken up, it's too diverse, and there's no real ownership of it, certainly have lost the intellectual battle in terms of ownership of it.

Dr. Houck: Great. Thank you all very much for coming, I appreciate the time. I know at a conference like this, scheduling is everything, and I appreciate the very early morning and your attendance.

Summary, conclusions and thoughts for consideration.

The purpose of the round table was certainly not to tell the rest of the world how to organize or run their forensic services. It was simply to capitalize on the opportunity to bring together a group of senior leaders, managers, specialists, and academics from Australia to spend a short time focusing on some contemporary issues confronting the forensic industry and profession and to see how Australian forensic science has responded to these issues. In a global environment, sharing experiences may help others to see how to respond to similar issues at their local level.

The group first explored how Australia had 'self corrected' and responded to reports such as the NAS report from the USA. The key points emerging from this discussion were that:

- Australia is a large country but with only a relatively small number of governments and forensic organizations.
- Australia's National Institute of Forensic Sciences (NIFS), along with the Senior Managers Group (SMANZFL), have provided a relatively stable environment and venues where key issues can be discussed and a common approach developed which still recognizes local factors – this has been built on long term and trusted relationships.
- Australia has achieved a good balance between science, including effective connections with academic providers, and management.
- In general, Australia has not seen a "blame culture" when things go wrong and, hence, management of change may have been less reactive than in some other parts of the world.

The discussion then moved to consider the more specific impact of the NAS report. Key points to emerge from this included:

- Cultural aspects with respect to how Australians view authority and structures which cut through their bureaucratic process.
- Although Australians sometimes think of themselves as over governed, in reality they have fewer layers of government than, for example, in the USA – this means senior managers in Australia are fewer ‘layers removed’ from policy and legislative decision makers.
- Perhaps as a consequence of the last two points senior managers in Australia have managed to maintain a higher level of ‘ownership’ and influence over the direction of forensic science than is the case in some other countries.
- Senior managers of Australian forensic science are ‘more’ senior on average than many overseas counterparts. Several senior managers occupy genuine executive level positions within their parent organizations giving them input to broader organizational executive decisions which affect forensic science, including multi-million dollar budgets.
- Australian senior managers do pay attention to significant overseas work and have seriously considered reports emanating from the USA and the UK. It is not so much that these reports have had any significant policy impact in Australia but rather that senior managers in Australia genuinely try and predict how their landscape may be influenced by external events.
- The NAS report had a lot to say about pattern evidence. Australian forensic science has been quite aggressive in picking up on issues in these fields and attempting to deal with them before they are seen as problems. A good example would be internationally respected work by Brian Found and colleagues on handwriting¹¹. Another strength of Australian forensic science is that SMANZFL and NIFS include all police forensic groups, so that field and laboratory forensic science are governed by the same standards including a commitment to quality standards and accreditation.

Overall the panel members believed that Australia had benefitted from having a smaller number of reasonably well resourced forensic providers, and, once again, from the balance between field and laboratory providers working together in case management. While the panel members expressed no doubt that, within the laboratory groups, DNA had received the most investment in the last decade or so, the other areas of forensic science have not disappeared. For example, Australian laboratories have maintained a

¹¹ For example, see a listing of Found’s publications at www.signatureforensic.com.au/content/view/32/64/

strong chemical criminalistics capability supported through a very effective specialist advisory group (SAG). The importance of better managing evidence recovery and case management were also stressed – in other words not just doing DNA analysis for the sake of it or because it is overzealously demanded for political purposes.

Finally, the discussion turned to considering the role of forensic science in academia. The panel considered that Australia had managed and developed this interaction better than some other countries. As forensic science programs started to emerge in Australia through the 1990's, NIFS and SMANZFL hosted the first of many meetings involving forensic providers and academia. SMANZFL also has an educators subgroup whose chair is a member of SMANZFL. Perhaps as a result of this active engagement, between the industry and academia, the number of academic institutions in Australia offering forensic programs has remained manageable and most have good interaction with their local forensic industry.

There was no specific discussion about research funding where academia forensic science, in common with most other countries, has to work hard to compete with more traditional 'core' sciences. However, both through NIFS, who developed a leadership R&D blueprint in the early 2000's and, more specific partnerships between industry and academic institutions, Australia has made a significant, and increasing, contribution to the scientific literature. However, the panel also recognized the importance of international cooperation in education and R&D. Many of the universities in Australia offering forensic programs already have strong engagement at an international level.

In summary, the relative geographic isolation of Australia may, in part, have worked to the advantage of Australian forensic science. Australia cannot afford to 'go it alone' and pays attention to what is happening around the world. Size dictates that Australia cannot 'reinvent the wheel', so jurisdictions work quite well together with leadership from NIFS and SMANZFL to come up with solutions which work for Australia.

However, on the other side of the coin, it can be argued that because of our relative isolation Australia has avoided some of the change seen in other parts of the world such as the UK. It is outside the scope of this paper to consider in detail recent changes in the UK where the government has announced its intention to withdraw by 2012 any government interest in being a forensic service provider; this is likely to see the breakup of the UK's forensic science service. However, of interest was a second announcement from the UK government, which followed only weeks later, of an inquiry into forensic science research and development. Although the scope of this review excludes 'aspects such as commercial considerations and the size of the forensic

market'¹², it is hard not to draw a connection with the timing of these two events and concerns raised about the role of the Forensic Science Service in R&D.

Other important aspects of the Australian forensic scene which, if not unique, together may be worth noting are the relative seniority (and stability) of senior forensic managers, the 'single' industry for field and laboratory forensic sciences, strong and effective leadership through the partnership of NIFS and SMANZFL and a positive partnership and interaction with academia.

No industry or profession can expect to wholly determine its own future and this is especially so when that industry is largely government owned. In Australia forensic science has remained a part of government with a strong (perhaps dominant) police involvement. Policy is largely still 'owned' by central policy departments. However, through a reasonably unified voice (NIFS and SMANZFL) and relatively senior managers, the forensic industry in Australia has been able to maintain a reasonable measure of influence and appropriate level of 'control' over its future destiny.

This workshop was held during the ANZFSS symposium. Little has been said directly about the role of the ANZFSS as a member society. The ANZFSS is the professional member organization for Australia and New Zealand. The Sydney meeting was the 20th biannual International Symposium held by the society. Attended by nearly 1000 delegates, it is now a significant international meeting which provides practitioners and academic researchers the opportunity to present and share research and case outcomes. The ANZFSS have always supported the inclusion of overseas speakers and usually half of the plenary presentations are allocated to overseas speakers, once again, reflecting the understanding in the Australian and New Zealand forensic communities of the essential nature of international engagement. This workshop is just another example of this outreach. This paper has focused on the Australian forensic experience as New Zealand, while sharing much with Australia, has different government and organizational structures.

In conclusion, the authors hope that this frank discussion and the themes drawn from it, will interest a broader audience and, perhaps, give others food for thought.

Acknowledgements

The authors would like to thank Taylor & Francis for arranging the panel and media for this round table and Dr. Claude Roux and the ANZFSS Organizing Committee for graciously working with us to fit this panel into the already tight schedule of their conference.

¹² UK Home Office, *Review of Research and Development in Forensic Science Terms of Reference*, 27 JAN 11, page 1.