

September 11 – will forensic science ever be the same?

Being prepared for the 21st century

Dr James Robertson, Director Forensic Sciences



Dr James Robertson,
Director, AFP Forensic
Services welcomes the
symposium delegates

During May 13–17 world leaders in the field of Forensic Science met in Canberra for the 16th International Symposium on the Forensic Sciences. The theme of the symposium was *Forensic Science: Outcomes for Society* to discuss future developments in the forensic sciences and how to improve forensic science outcomes for society.

Hosted by the Australia and New Zealand Forensic Science Society (ANZFSS) in affiliation with the Australian and New Zealand Forensic Medicine Society (ANZFMS) and the Australian Society of Forensic Dentistry and supported by the Australian Federal Police, the symposium aimed to enhance the quality of forensic science through the sharing of the latest technical developments.

Chair of the Symposium Organising Committee and Director of the Australian Federal Police Forensic Services, **Dr James Robertson** delivered the opening paper which appears below.

Some 10 years ago I stood in a similar position to this at the Hobart meeting of the ANZFSS. The theme of that meeting, Bridging the Gap, referred to the ‘gap’ which sometimes exists between forensic work done in the field and forensic work done in the laboratory.

My vision for the past 10 years or so with the Forensic Services group of the Australian Federal Police (AFP) has been to not merely eliminate this ‘gap’ but also to show the irrelevance of the concept by developing a truly holistic provision of forensic service. At the risk of reiterating a message I have delivered in many fora over the years, forensic support can only achieve its maximum impact – and hence contribute in the best possible way to outcomes for society – when we all accept that the forensic sciences encompass all aspects of forensic support. This should be a self-evident fact but all too often the reality is that there is still a serious disconnect between the field provider and the laboratory.

This point, although important in the overall message I wish to deliver, is not my central theme. However, it is worth restating because realising

“Technology has an ever-increasing impact on how crime is committed and how law enforcement detects and brings to justice such criminal activity”

(AFP Commissioner Mick Keelty – Platypus; Sept 2001).

truly integrated delivery is the best way to provide forensic support.

I have a simple message that I wish to communicate. It is that forensic science can play a much greater role in the future in supporting law enforcement, justice and more broadly, the society in which we live. If we are to play this role we need to have an holistic view of forensic science. The events of September 11 have only served to raise the stakes. We do need to think about some specific issues arising from this terrible event and I will expand on this during my presentation.

Is forensic science being used effectively and fully?

In 1996, a UK report on *Using Forensic Science Effectively* (UFSE) found that:

- scientific support was usually managed separately to the investigative process and was rarely seen as

- an integral part of it;
- forensic science was almost always used reactively, except in the most serious crime, and did not readily support intelligence driven initiatives;
- forensic science usage was not an interactive process; and
- awareness of scientific support was poor, and often insufficient for purposes.

This report, jointly published by the UK Association of Chief Police Officers (ACPO) and the Forensic Science Service (FSS), was seen as a blueprint for the more effective use of forensic science. Regrettably in July 2000 a review of its impact and implementation found: “not only that the advice of UFSE had frequently not been acted upon but also that, even more regrettably, the failure to respond was a product of ignorance of its contents”. Not an encouraging outcome. The report concluded that the document and its guidance should have been a cornerstone of a more professional and strategic exploitation of forensic science. “The whole service must recognise that the use of forensic support is integral to reducing crime and work to make that a reality” (Report of the HM Inspectorate 2000).

Here in Australia a comprehensive report on ‘Science, Crime Prevention and Law Enforcement’ concluded that, “There is a need to change the dominant culture in law enforcement agencies, which views scientists and ‘technos’ as a curious, if albeit frequently necessary, adjunct to the main game of crime fighting. A more wholehearted engagement with the science community must be actively promoted...this engagement in turn, should inform strategic planning by law enforcement agencies” (Report of PMSEIC working group on Science, Crime Prevention & Law Enforcement, 2000). The above report recommended that there needed to be an improved law enforcement capacity to fully engage with the scientific community.

It is one thing to recognise that there is room for improvement in the use of forensic science in support of law enforcement, but it is another matter to identify the underlying reasons why this is not happening and find ways to bring about necessary changes. Better education of law enforcement officers as to what forensic science can and cannot do in support of police investigation, would be a good starting point. The lack of accurate knowledge about forensic science must inhibit its proper uptake and use. In my own organisation, to attempt to do this better, we have created a School of Forensic Science within the AFP’s training division. One role of the school is to ensure all police training includes relevant, structured forensic input. A less formal, but equally important role, is to improve communication between the operational police and

the forensic scientist. Crime scene personnel have a very important role to play here as they are usually the first forensic people operational police have to deal with. However, it is of equal importance that senior police have commitment to ensuring forensic support is properly utilised. To this end Forensic Services also contributes to the AFP’s Management of Serious Crime (MOSC) course. Here the need for timely proactive engagement with forensic science is stressed. As forensic support is not a free resource (whether or not there is formal charging) we also stress the need to consider the relative costs of forensic support to other methods of investigation. In the long term the key to forensic science being best used by law enforcement has to lie in showing that the use of forensic support makes economic sense.

Many organisations around the world are no doubt engaging in the same dialogue and activities as my own organisation but it is pleasing to note that the AFP has embraced the concept of science and technology being an integral part of our strategic planning through the establishment of a high level Science and Technology Steering Committee supported by science and technology working groups.

In jurisdictions in which the various elements of the forensic sciences are housed in different agencies and where there is formal charging, the challenges are probably greater in ensuring a coherent, enhanced and cooperative adoption of forensic support.— And then there was September 11th!

[“History is written by the winners” – Alex Haley.](#)

Others will write about September 11 from a variety of perspectives, will analyse its impact and, as Alex Haley has said will put their spin (as winners!) on history. I had the good fortune recently to listen to the Director of the FBI talk about his early thoughts on how September 11 has impacted on his organisation and its thinking. Amongst his many observations, he drew attention to a number of key points. He said that in the future there needed to be greater cooperation between law enforcement and intelligence agencies to deal with terrorism and transnational crime. This reflected the reality that although terrorists could be viewed as common criminals, they threatened nation states. The same can be said of organised crime syndicates especially in the area of high-tech crime.

It is generally the situation around the world that law enforcement and national security agencies have not fully shared intelligence. It is beyond the scope of this paper to fully analyse why this is may have been thought a desirable separation of information but is it now a luxury we can no longer afford? The Director commented that the FBI, in

common with all law enforcement agencies, had as its starting point the investigation of crime from a reactive viewpoint – dealing with a crime already committed – and with an end purpose of prosecution in a criminal law environment, with the relevant standard of proof of ‘beyond reasonable doubt’. As we now know, the non-US citizen Al-Qaeda ‘suspects’ detained by the US will be tried in a process similar to a military court marshal with quite different rules of evidence and standard of proof.

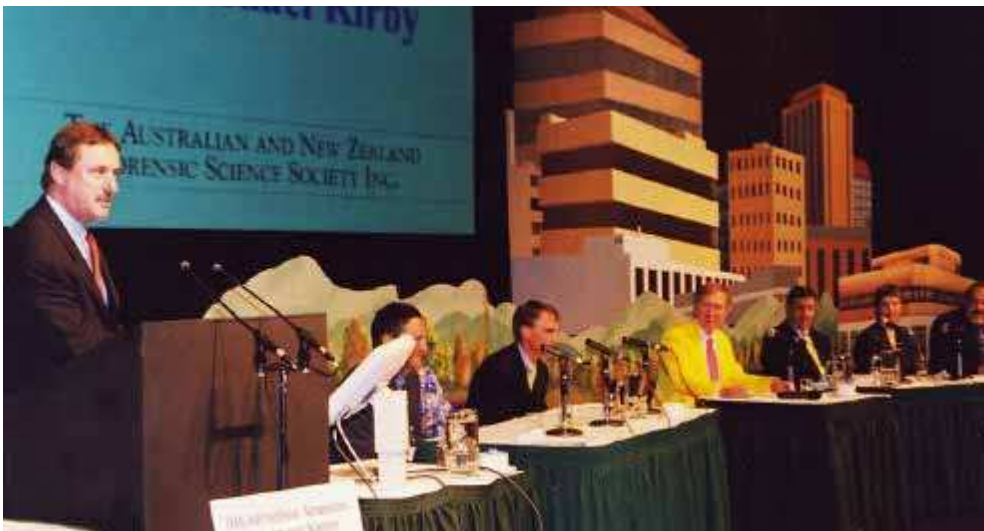
Whilst the need for a more intelligence-driven proactive use of forensic science should be self evident, we all need to ask, “How well are we doing?” The Director also commented on the need for greater use of technology, not only for forensic science but in other areas such as enhanced communications. Whilst forensic science can cite instances where investigators have used forensic science in a proactive way, before any offense has been committed, this would not be the exception that makes the rule. Generally forensic science happens ‘after the fact’ and all too often, some time after the fact before any results are forthcoming. Our profession is driven by the need to ensure compliance with standards, getting the results correct 100 per cent of the time and although, we like to talk about ‘timely delivery’ of service, few of our customers would give us a glowing assessment in the latter area.

By comparison, in policy areas it is well accepted that, whilst information must be accurate, there is a trade off between completeness and timeliness. Late information is useless information. In the context of September 11, the investigators were faced with having to identify whether or not there were other terrorists or their support network at large and they had to do this quickly. I know that in one forensic area, forensic computing, the FBI dealt with almost as much seized material in the first two weeks post September 11 as they had dealt with the entire previous year. Clearly, the approach used must have been tailored to address the most pressing questions for the examiners to have had any chance of providing any meaningful information. I believe that we all need to consider these issues and that we will need to accept that:

- it is not only entirely appropriate that forensic science contribute to the investigative process, it is a major future role for forensic science;
- this will require us to re-examine how we meet accreditation requirements where proactive involvement may well mean covert as well as overt activities;
- the need to accept ‘fit for purpose’ approaches with the emphasis on intelligence and investigative assistance; and
- timeliness is not a throw away line – we will need to make much faster progress in the development of ‘real time’ delivery of substantive (if ‘fit for purpose’) information.

Some of these technology needs were recognised in a 1999 US review of status and needs for the forensic sciences. A number of areas where current methods could be improved or where developments were occurring included:

- small, rugged, chemical analysis instruments for onsite preliminary or confirmatory analysis in investigations involving drugs, explosives and hazardous material (to these we might add today DNA);
- sample location, identification, capture and stabilisation technology “in a kit”, suitable for recovery of trace particulate, liquid, chemical, and biological evidence;
- portable and remote hazardous materials detectors



The forensic symposium culminated in a debate entitled “Trust me, I’m a forensic scientist . . . or should we?” Introduced by Commissioner Keelty, the proceedings were facilitated by Justice Michael Kirby. – Photo by Brian Hartigan.

- for alerting/protecting crime scene personnel;
- micro-robotic platforms to support scene visualisation, safety assessments, and sampling; and
- computerised crime scene mapping supported by global positioning systems (GPS) and multimedia capture technologies for three-dimensional crime scene visualisation, memorialisation and location of evidence.

What impact will emerging technologies have?

The simple answer to this question is that they have the potential to transform the face of crime scene examination in the next 5–10 years and more generally forensic science.

Whilst it might not be possible to predict with 100 per cent accuracy the actual instruments which will be available or the precise timeframe – these factors will be determined more by market and business realities than scientific or technological limitations – it is easy to predict that there will be the emergence of an ever increasing variety of field useable instruments. The desire of the customer, in general law enforcement agencies, to have quick, preferably real time answers, will be a major driver for the uptake of field technology.

However, the emergence of field-portable analytical instrumentation will not see a lesser need for the laboratory for a number of very practical reasons. Firstly it will not be possible nor desirable to analyse everything in the field. This may be for practical, security and scientific reasons. It can be expected that the more complex and difficult analysis will still be conducted in the laboratory. For example, whilst it will be possible to identify illicit drugs in the field, and it may even be possible to quantify in some circumstances, it will not be possible to carry out higher-level drug profiling analysis. However, what it may enable is, through rapid analysis, small seizures of drugs to be dealt with in much the same way as alcohol is dealt with in many countries with on the spot analysis. For those who find this hard to come to terms with one need only ask an older colleague how blood samples were analysed in almost all laboratories prior to the introduction of substantive breath testing devices.

If it were possible to analyse accelerants in the field would there be a role left or reason to analyse accelerants in the laboratory? And how much better to test in the field to help determine the seat of a fire, with the additional benefit of a decrease in the risk of accelerant loss from the time of collection to the time of analysis?

DNA testing in the field will become a reality as biochip technology develops. DNA biochips already exist but, once again, these will become smaller, self-contained complete analytical packages. It will be possible to conduct analysis in real time and search databases in the field.

At the recent Commonwealth Heads of Government Meeting (CHOGM), AFP Forensic Services deployed a mobile laboratory in the field with capabilities in the area of explosives analysis. My group also has plans to further develop our capability and capacity to respond to remote

incidents through a range of initiatives with a unifying concept of creating a truly mobile laboratory. These are just a few examples of how the boundaries between the field and the laboratory will become less and less meaningful.

In so doing, we need to be cognisant of the need to ensure that we address key issues such as:

- what type of people will we need?
- what implications will this have for training? and
- how will we ensure or assure quality in the field?

Some commentators have tended to dismiss field applications by raising the spectre of ‘contamination’. This needs to be put to bed now before it gains currency. Yes, contamination is an issue but this is the same today as for tomorrow. We rely on our field scientists to collect potential evidential items in a way which recognises this potential and minimises it through the use of appropriate collection techniques. As anyone who has worked in forensic science knows, the biggest potential for contamination is in the field before items are collected and appropriately packaged. Surely better then to analyse in situ, where possible, at the earliest opportunity to minimise the risk of further alteration, loss of evidence or contamination? If we are to take analytical instruments to the field obviously we will need to develop protocols and procedures to ensure they remain ‘clean’ – surely this is not beyond our imagination or innovative capacity?

Of course, we must ensure we do not compromise integrity on the alter of expediency. These are serious issues which will require well conceived and developed answers. As the Reverend Henry Beecher put it, “Expedients are for the hour, but principles are for the ages”. However, it will do us no service to hide behind old paradigms or the scientists’ defence of “this is the way we have always done it and anything less than this will undermine its scientific integrity”.

Recognising the role of forensic science

We must respond to the new challenges and, management speak or not, opportunities if we are to embrace the notion of forensic science being a truly integral component of the future law enforcement environment. We must recognise and accept that forensic science can play an important role in national security which by its very nature will bring us closer to the intelligence agencies and defence agencies. This will require us to rethink what our success measures are – in this environment, our aim should be to produce as quickly as possible, fit for purpose answers that are truly an integrated component of the intelligence as well as the investigative process. Our challenge will be to maintain our hard fought for and won standards.