



Message from Claude Roux – President

Dear ANZFSS Members,

If you attended the recent 22nd ANZFSS International Symposium on Forensic Sciences held in Adelaide you will agree that it was a huge success by all accounts. The final report is still being drafted by the Organising Committee and their PCO and the Symposium features as a full story in the present newsletter. With some 825 delegates, many informative scientific sessions of high standard, and a social program enabling essential networking, the Symposium cemented the view that the ANZFSS runs one of the best forensic conferences in the world. The Symposium was also a financial success (the final numbers are still being worked out). This will provide more financial stability to the Society and will assist us to offer strong support to members to attend the 2016 Symposium in Auckland, for example. On behalf of the Society, I warmly congratulate Dave Eitzen, Symposium Chair, Prof. Adrian Linacre, Scientific Chair and the whole Adelaide team, along with All Occasions Group for this fantastic success. I also thank all the members who took the time to attend this memorable event. For the others, there is always Auckland in 2016!

The AGM in Adelaide marked the start of a new term of office for the ANZFSS Executive. As a Society, we have come a long way to make the ANZFSS a more professional Society. However, is it enough? From now to the Auckland symposium, every member of the Society should seriously consider what kind of Society they want. The Executive and

Council may have a clear view about this challenge. However, ultimately, the members should give this some thought and advise their local branch of their thoughts.

As indicated previously, the question needs to be asked and answers sought, otherwise we run the serious risk of seeing other bodies deciding for us what constitutes a forensic practitioner. And this may lead to uncomfortable outcomes in the future, to say the least.

To assist with this ambitious agenda, the ANZFSS Council approved the creation of a Professionalisation Officer position and the appointment of Alison Sears (NSW) to this important role. With Alison on board, we aim to improve the communication with all members and to increase the momentum. As a small example, a Professional Corner will appear in the newsletter from now on. If you have any idea or concern, please do not hesitate to contact Alison and/or anyone on the Executive. Don't forget, we are here to listen to you!

I take this opportunity to wish you and your family a very happy and safe holiday season and a successful year in 2015.

Yours Forensically,
Prof. Claude Roux
ANZFSS President



Message from the Newsletter Editor

Welcome to the third edition of the newsletter for 2014 and I hope you enjoy reading it. As you are all aware the official publication of the ANZFSS is the Australian Journal of Forensic Sciences, an international peer reviewed journal. However, we also believe that there is a place for short snappy articles or commentaries. To this end we are introducing a number of new features to the ANZFSS Newsletter. We will be approaching members for short commentaries and inviting you to submit short articles/commentaries and/or letters to the editor regarding issues relevant to the forensic science community on which you wish to comment. The submissions, whilst not peer reviewed will be subject to editorial oversight.

Our first article along these lines is Gerard Dutton's report following his study tour undertaken under the auspices of the Alan Hodda Memorial Travel Award.

Yours Editorially,

Anna Davey
ANZFSS Vice President (Australia) and Newsletter Editor
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ANZFSS 22nd International Symposium - 2014

Symposium wrap up – from the Chair.

For many of you, your conference started on the Sunday afternoon with registration and the Welcome Reception and concluded with the Gala Dinner on the Thursday night. Some of you were involved a bit longer with either a pre or post symposium workshop. As I mentioned in my opening address, for the committee, this was a four year journey, and we all are extremely proud of the result.



During the event, we witnessed a capacity Trade Exhibition. It takes time, money and energy for the trade to be part of this event, and I was very pleased with the wide range of equipment and consumables on display. Thank you to all the exhibitors for your part of the symposium – it was quite an event.

The plenary sessions were sensational. We started off with a “Punchy Plenary” with Dr Jason Fox, and from your feedback, you really enjoyed his motivational style. Then on came the big-guns. Eight of the best plenary presentations I have witnessed for some time covered our theme, Detect, Decipher, Deliver and the Future of evidence. The final presentation by Sebastian Marino was quite different and certainly gave us some insight into where audio-visual techniques are going and how they will be part of our future investigations.

In most cases the Session Chairs and the Adelaide Convention Centre lent itself to allow for our seven concurrent sessions to run very smoothly with minimal interruption as people changed rooms.

The ANZFSS Symposia are renowned for good science and good networking or “connecting” opportunities. To this end the Tuesday Extreme Night and Gala Dinner, balanced with a “Free Night – Monday Happy Hour” and the Wednesday Free Night/ Public Night, gave delegates a chance to have some down time, or connect up with what was happening, but either way allowing plenty of opportunities to meet fellow colleagues and members of the International Forensic Family.

From the Organising Committee’s perspective, the whole meeting went extremely well. Needless to say there were a couple of little hitches here and there, but we all learn from our experiences and we will work with the New Zealand Committee to ensure that their symposium goes without any hitches and builds on the success of previous symposia.

Thank you to all my committee, my mentors and my wife, for supporting me on this Forensic Experience - one I’m sure you will enjoy again in 2016.

I would like to say how humble I feel in receiving ANZFSS life membership. It was a thrill to receive mine alongside Dr Ross James. Ross was inspirational in encouraging me to become a member of ANZFSS, many years ago. He and the other members of the day were so welcoming that I joined and have stayed part of it for what has been a working lifetime. Congratulations to the other Life Members, Eric and Tony, who received their new medals at the AGM.



ANZFSS Life members (l-r): Mr David Eitzen, Mr Eric Murray, Dr Ross James and Dr Tony Raymond.

Also congratulations to Dr. Tony Raymond AM for being announced as the 2014 recipient of the Adelaide Medal.

Finally, I wish the Auckland 2016 committee all the best for what lies ahead - an exciting journey!

Closing off now,

David Eitzen
Retired Symposium Organising Committee Chair

**DON'T FORGET TO READ THE SPECIAL EDITION OF THE SA BRANCH
NEWSLETTER FOR THE FULL WRAP UP
ANZFSS 2014 – DETECT | DECIPHER | DELIVER
THE FUTURE OF EVIDENCE**

<http://anzfss.org/wp-content/uploads/2012/01/Symposium-Newsletter-Final-2014.pdf>



SYMPOSIUM AWARD WINNERS

There are two rounds of awards associated with each ANZFSS Symposium. Firstly there are the travel awards that assist with funding for the recipients to attend the Symposium. Then there are the awards for best paper and best poster in each of the disciplines and the Ian Riebeling Memorial Medal for the best presentation by a young practitioner.

Congratulations to the following travel award winners

STUDENT TRAVEL AWARDS		AWARDS FOR FULL MEMBERS	
Nikkie Beckett	QLD	Allison Barty	NZ
Kate Cashman	TAS	David Bruce	NSW
Tahnee Dewhurst	VIC	Bindi Burnell	NT
Laura McGrath	NSW	Alex Caruana (Borg)	ACT
Marie Morelato	NSW	Karen Cavanagh-Steer	NT
Josie Nunn	SA	Sherryn Ciaviaglia	SA
Renee Ottens	SA	Penny Costello	NZ
Kate Perrault	NSW	Sarah Cresswell	QLD
Mithun Rajshekar	TAS	Lynn Forrest	VIC
Regina Verena Taudte	NSW	Michele Franco	NSW
Jennifer Templeton	SA	Joanne Gerstner-Stevens	VIC
Maiken Ueland	NSW	Kerryn Gray	TAS
Tim Verdon	Vic	Hadyn Green	WA
Eletra Williams	NZ	Kate Grimwood	NSW
Jennifer Young	SA	Hilary Hamnet	NZ
		Julianne Henry	SA
		Melanie Holt	NSW
		Fiona Jackson	NSW
		Amy Kok	TAS
		Rebecca Lee	NSW
		Kerry-Anne Maroney	QLD
		Kerryn Mason	SA
		Duncan McCarthy	QLD
		John North	TAS
		Felicity Pagan	ACT
		Ben Painter	SA
		Jim Pearson	Vic
		Janette Psaroudis	VIC
		Cate Quinn	VIC
		Sarah Scott	NZ
		Ellie Simpson	SA
		Nicola Sly	SA
		Emily Sowter	TAS
		Sasha Voss	WA
		Stewart Walker	SA



Congratulations to the winners of the following presentation awards

DISCIPLINE	BEST ORAL PAPER	BEST POSTER	HIGHLY COMMENDED
Archaeology, Anthropology and Odontology	Brad Ross	Oznur Gulhan	
Biological Criminalistics	Kaye Ballantyne	Sue Vintiner	Nano Nagel Eletra Williams
Biometrics	Alice Towler		
Bloodstain Pattern Analysis	Nick Laan	Natasha Garcia	Niki Osbourne Patrick Geoghegan Michael Taylor
Chemical Criminalistics	Regina Verena Tautde	Karen Cavanagh-Steer	Georgina Sauzier
Crime Scene Investigation	Claire Ferguson	Michael Lee	
Document Examination	Simon Baechler	Melanie Holt	
Education and Training	Cyril Muehlethaler	Shirly Berends-Montero	
Electronic Evidence	Jason Barr		
Fingerprint Examination	Mackenzie de la Hunty	Michelle Death	
Firearms and Toolmarks	Jason Bar	Alex Caruana	
Fire and Explosions	John Goodpaster	Margaret Black	
Illicit Drugs and Clandestine Laboratories	Kerrie-Anne Maroney	Christopher Ewers	
Management and Quality Assurance	Katrina Edmonson	Loene Howes	
Pathology and Clinical Medicine	Sarah Weller	Roman Lenchine	
Science and Justice	Kate Cashman		Peter Woodman
Toxicology and Pharmacology	Hilary Hamnett	Amy Kok	
Wildlife Forensics, Entomology and Botany	Rebecca Buis	Katelynn Perrault	Michael Pais

And the winner of the **Ian Riebeling Memorial Medal** was Danielle Butzbach. This medal was struck in honour of the late Ian Riebeling, a forensic document examiner with Forensic Science South Australia in Adelaide. Ian passed away suddenly in February of 2001 and was an active member of the Society. He had held the position of President of the South Australian Branch of the ANZFSS and many other positions in the preceding years. The medal is awarded to the best new practitioner who presents either a poster or paper at each ANZFSS International Symposium every two years.

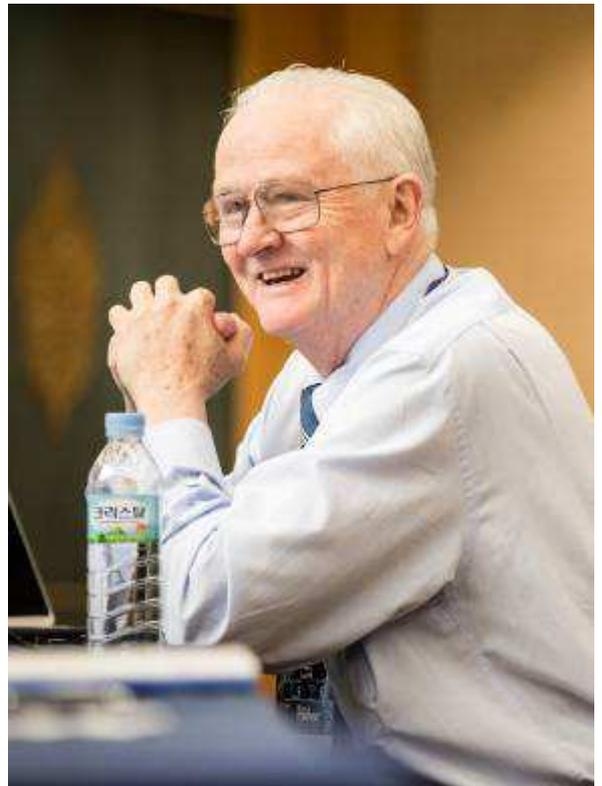


AND WHILST WE ARE ON THE SUBJECT OF AWARDS



The Adelaide Medal was first awarded by the International Association of Forensic Sciences in 1991, when they ran a joint meeting with the ANZFSS in Adelaide. The medal is awarded for scientific achievement that had a marked influence on the forensic sciences from an international perspective. Work that resulted in a change of direction, new thinking or significant improvement in current methodologies should be recognised. It was not intended that the award be for management or administrative achievement. Since its inception it has been awarded to a range of eminent forensic scientist such as Doug Lucas (Canada), Sir Alec Jeffreys (UK), Dr Ian Evett (UK) and our own Alastair Ross.

The 2014 medal was awarded for the second time only to an Australasian member - Dr Tony Raymond. Tony commenced his forensic science career in Zimbabwe, but is most well known for his work with Victoria Police, NSW Police and as Director of the National Institute of Forensic Science. Tony was the principal scientist in the Royal Commission of Inquiry in the Chamberlain Convictions and in the McLeod-Lindsay Inquiry. Tony has been at the forefront of DNA analysis, blood stain pattern analysis and forensic counter terrorism initiatives. Tony is a life member of ANZFSS and has always been active with ANZFSS in both Victoria and NSW; he was instrumental in the development of ANZFSS and the initial incorporation of the National Body.



The medal was presented at the 20th World Meeting of the International Association of Forensic Sciences in Seoul, Korea in October. As part of the presentation event, Tony was asked to deliver the IAFS Keynote Lecture.

In this lecture, Tony presented an inspiring account on how new technologies are changing the face of both law enforcement and criminal activity. In particular, he highlighted the double-edged sword nature of the information age and latest 'widgets' such as drones, which simultaneously assist investigations but also facilitate criminals in their business. This lecture was very well received by the audience. We warmly congratulate Tony on this significant achievement.



AND JUST WHEN WE THINK THERE CAN'T BE ANY MORE SYMPOSIUM NEWS



Together InForming Justice

**ANZFSS 23rd International Symposium
on the Forensic Sciences
18 - 23 September 2016
Auckland, New Zealand
www.anzfss2016.org**

Hi to all,

Firstly we must begin by extending our warmest congratulations to the Adelaide team on a job extremely well done with the delivery of another fantastic ANZFSS Symposium. The bar has been set high and now our work really begins.

Those of you in attendance at the gala dinner in Adelaide would have witnessed the uniquely Kiwi launch of Auckland 2016 and our President Claude accepting the challenge on behalf of the Society, to come to NZ. Now we challenge you the members to also accept that challenge and join us for what we hope to be one of the best ANZFSS Symposia experiences yet and one with a uniquely Kiwi flavour.



Hopefully those of you in attendance at Adelaide had a chance to call by our booth in the exhibition hall, pick up your screen cleaner and say hi. There was an incredible amount of interest in coming to Auckland 2016 so we have all of your names and we will be expecting to see you on our delegate list! Of course, selling the value of ANZFSS symposia to those attending an ANZFSS Symposium is not a challenging job. The scientific sessions, poster session, fantastic trade exhibition hall and vast number of interesting delegates to network with makes the entire experience enriching to say the very least.

We realise for many it is a wee way to come to get to pristine New Zealand so why not bring your 'significant other' and have a holiday while you are here? See the beautiful South Island, explore the beauty of the far North or experience the wonder of the geothermal Central North Island to name but a few travel ideas. NZ in September is just a fantastic time of year; the ski fields will hopefully still be open but spring sunshine is also making itself felt. As Sarah said at the launch, "So much to see, so much to do, so much to taste, and so much to experience". Time to knuckle on down, work on those papers and get yourselves all prepped because you only have a year and a bit before we will be calling for your abstracts.

The Auckland organising team are working hard to deliver to our delegates a fantastic educational experience here in beautiful NZ. We are currently working on sourcing a selection of engaging plenary speakers to lead the program and discipline chairs to look after the streams. We have a fantastic venue lined up in Sky City

Convention Centre which is centrally located and close to a wide variety of accommodation options in the city. The area around the Convention Centre has just had a nice civic upgrade - all pedestrianised and looking sharp with blue stone cobbles. There are some very popular eateries close by which offer some excellent options for delegates.

We are also delighted to welcome members of the Forensic Isotope Ratio Mass Spectrometry (FIRMS) group who will be joining the 2016 Symposium and holding their meeting as a stream within the ANZFSS Symposium. This will benefit both groups with the opportunities to intermingle and freely attend each other's sessions. Since Adelaide, we have also had numerous approaches for the incorporation of new discipline streams which we are hoping will come to fruition but not at the expense of existing disciplines.

So it's definitely going to be an event not to miss. It's never too soon to start your planning so accept the challenge and say 'Yes' to Auckland 2016 today!

Matthew Gittos
NZFSS President

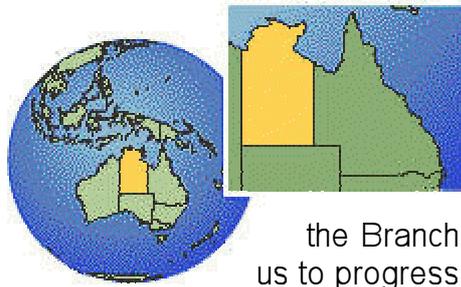
AND MORE AWARDS



Sarah Scott (ANZFSS Symposium 2016 Chair) along with Matt Gittos (NZFSS President) being presented with a New Zealand Business Event Award by the Hon Steven Joyce in recognition of the work thus far in relation to the 2016 ANZFSS Symposium.



Branch Reports



Calling: Northern Territory

The biggest news from the Northern Territory this year is that we have finally become Incorporated under the NT Associations Act after two years of hard work from the committee. The Executive of the Branch has remained stable during this period and allowed us to progress the Society in many ways including building our membership numbers from the mid-teens to over 30 current members.

The Northern Territory Branch of the ANZFSS has taken their show on the road with their first regional meeting held in Katherine on the 16th of August. Special Agent Michael Wigent from the Naval Criminal Investigative Service (NCIS) Singapore Field Office made the journey from Singapore to Katherine, 300kms south of Darwin, to present to over 30 members and guests. His lectures included case studies on clandestine grave identification and recovery of remains, including recovery of Lance Corporal Maria Lauterbach who had been concealed in a grave in the back yard of the offender, Corporal Cesar Laurean.

SA Wigent also gave a captivating insight into the true events surrounding the pirate attack on the cargo ship the Maersk Alabama which has recently been made into the film Captain Phillips. As an added bonus NCIS SA Timothy Westfall, who worked on the investigation of the Maersk Alabama case, was able to provide highlights of the challenges to coordinating an international investigation on that scale.

Our Secretary Bindi Burnell has been another crowd pleaser with her presentation 'When Crocodiles Attack – Death in the Northern Territory.' In preparation for the presentation at the International Symposium in Adelaide, Bindi presented to the home crowd at the AGM on the 29th July and again on the 16th August in Katherine. The presentation included a brief history of crocodile attacks in the Northern Territory and case studies into two recent fatal attacks, including the cultural sensitivities when dealing with crocodile attacks in aboriginal communities and how identifications of remains were conducted in each case.



The photo to the right shows (L-R) Anna Collins (NT Branch Chair), Michael Wigent, and Bindi Burnell (NT Branch Secretary). Michael holds in his left hand a crocodile attack insurance policy presented to him by Bindi. This is an actual policy available in the Territory.

At the 22nd International Forensic Science Symposium in Adelaide the Northern Territory was represented by three members doing us very proud. Karen Cavanagh-Steer's poster 'A Trace of a Trace' won Best Poster presentation for Chemical Criminalistics, Suzanne Mullen's poster 'Blood Pattern Destruction via Insect Invasion' captured amazing images of insects interacting with blood stains and Bindi Burnell's oral 'When Crocodiles Attack – Death in the Northern Territory' was presented to a standing room only crowd. Well done to all the Northern Territory girls for their hard work and effort.

ANZFSS ALLAN HODDA MEMORIAL TRAVEL AWARD

Allan was a well-known and respected scientist and individual. He was instrumental to the development of the NSW Branch of the ANZFSS, being over the years its President, Vice-President, Secretary, Public Officer and Life-Member. In 2004, he received the National President's Medal for his services to the Society. For many years Allan was a forensic toxicologist at the Division of Analytical Laboratories in Sydney. His professional credentials and focus on quality and integrity were greatly appreciated by the forensic science community, as demonstrated by his various executive memberships, including on the Panel of Advisers of the National Institute of Forensic Science and on NATA's Forensic Registration Advisory Committee. His dedication to training and education were also shown by his organisation of the annual ANZFSS (NSW Branch) seminar 'Inside the Forensic World' and his association with the University of Technology, Sydney. Allan was a true gentleman and possessed a very fine sense of humour.

The Allan Hodda Memorial Award is be offered each year to allow a member of the ANZFSS to travel to any destination to further their own study, attend a notable forensic meeting or visit a laboratory of their choice. The Award is bestowed upon the applicant who can best demonstrate how they will benefit from this opportunity both personally and professionally.

A SUMMARY OF THE TRAVEL UNDERTAKEN BY SERGEANT GERARD DUTTON, BALLISTICS SECTION, TASMANIA POLICE

In late 2013, I was very excited to be informed by the ANZFSS President, Professor Claude Roux, that I was the 2013 recipient of the ANZFSS Allan Hodda Award. This award provides funding of up to \$5000 for an ANZFSS member to undertake travel/study overseas, with an additional \$2000 provided to orally present the outcomes of such travel at the next ANZFSS Symposium. Without doubt, I recognised one of the best aspects of the Allan Hodda Award is that the parameters are not rigidly set; they can be as wide as the individual wishes to make them, as long as the conditions of the Award are met.



One of countless unique firearms displayed in the Royal Armouries Museum in Leeds; note the highly unusual four nipples in a sliding row on this percussion pistol. The ENFSI meeting dinner was held inside this amazing facility.

Between 9 September and 13 October 2014, I travelled to Europe to attend and give two presentations at the European Network of Forensic Science Institutes (ENFSI) Firearms/Gunshot Residue annual meeting. Having been to many forensic firearms/tool marks meetings in the USA but never one in Europe, I was very interested to experience a European one at last. This September the ENFSI Firearms meeting was convened in Leeds, England.

The main purpose of my travel, however, was to research a highly topical issue by spending a number of days each in some leading European forensic laboratories in six different countries:

1. **England:** The Metropolitan Police Service, Specialist Forensic Services, 109 Lambeth Road, London.
2. **The Netherlands:** The Netherlands Forensic Institute (NFI), Laan van Ypenburg 6, The Hague.
3. **Belgium:** The National Forensic Laboratory (NICC - Nationaal Instituut voor Criminalistiek en Criminologie), Vilvoordsesteenweg 100, 1120 Brussels.
4. **Sweden:** The Swedish National Laboratory of Forensic Science. (SKL – Statens Kriminaltekniska Laboratorium), SE-581 94, Linköping.
5. **Switzerland:** University of Lausanne, School of Criminal Justice - Institute of Forensic Science, Batochime - Quartier UNIL-Sorge, 1015 Lausanne.
6. **Germany:** Bundeskriminalamt (BKA), Äppelallee 45, Wiesbaden.

The main issue I wanted to explore was: *The Statistical/Probabilistic (Bayesian) Interpretation of Firearms/Tool Marks Evidence*, with a secondary but related topic being: *Contextual Bias in Firearms/Tool Marks Analysis*. A number of experts from various forensic comparative sciences around the world (firearms/tool marks, fingerprints, shoeprints, documents, etc) who do not currently use a Bayesian framework in evidence interpretation are now looking at the viability of this to apply to casework, myself included.

I needed to take five weeks annual leave to facilitate this study tour. By visiting these institutions I was keen to discover first hand as an experienced firearms and tool marks caseworker, what I saw as the pros and cons of the application of a probabilistic (Bayesian) framework for the interpretation of firearms and tool marks evidence. As it eventuated, I identified issues that were in favour of using Bayes, as well as some potential problems. However there are possible solutions to the problems I identified, if implementation of this framework were ever to occur within the Australian setting for the comparative disciplines.

The pros and cons of using Bayes are too numerous to be fully outlined in this article, even if only briefly mentioned. However, it is my intention to write a paper on my findings for the international Association of Firearm and Tool Mark Examiners (AFTE) quarterly peer reviewed journal in due course for the information of colleagues worldwide. Ultimately, it is my intention to present my findings at the ANZFSS Symposium in Auckland, September 2016, satisfying this requirement of the Allan Hodda Award.

As far as I'm aware, the probabilistic interpretation of forensic evidence is not conducted in forensic science laboratories in Australia except in the area of DNA analysis and perhaps in some trace evidence areas, i.e. glass or paint comparison/analysis. It is however conducted in other forensic comparative/identification disciplines in some of the European laboratories (Netherlands, Sweden and the University of Lausanne in Switzerland), in addition to New Zealand and I believe in some parts of the UK. The approaches these laboratories use when considering identification evidence from a Bayesian perspective are not standardised however and varies somewhat between them. That this variation exists is a difficult aspect to grasp, particularly for any newcomer to the topic. This is not a problem *per se*, but something that needs to be understood and rationalised as to why this is so.

My experience with many other examiners from around the world in recent times is that they don't understand the Bayesian approach and find it confronting and difficult to relate to. This is understandable, given that the Bayesian interpretation of this type of evidence with the subsequent reporting of conclusions is a quantum shift from how it has been carried out since the inception of this branch of forensic science around 100 years ago. This will take time (years) to address but education and training in this area is the key and it has to start somewhere.



The Institute of Environmental Science and Research Limited (ESR) in New Zealand have been using a Bayesian framework for all types of forensic evidence since the 1990s and are considered world leaders in evidence interpretation. Staff from the highly respected Netherlands Forensic Institute (NFI) stated they had been thinking about applying a Bayesian framework to evidence for twenty years but have only been using it in casework since the start of 2010. They are also leaders in the practical application of Bayes. The Swedish National Laboratory (SKL) is also using this approach in some disciplines, whilst others including firearms/tool marks, are working towards it and are very close to implementation.

Because using a Bayesian framework is a big change to the status quo, it needs to be slowly and carefully presented to practitioners to give them time to understand. I have seen that trying to sell this idea in one large hit does not usually work for most practitioners and it turns them away from even trying to evaluate it.

To help answer what critics are stating about the way forensic science is currently conducted, applying a Bayesian approach to the interpretation of identification evidence does at least address the shortcomings of the traditional method which has always been a logically flawed argument: identifying a bullet as having been discharged from a specific firearm is problematic in that it is only a *belief* held by the examiner that this is so. It can never be scientific fact when all firearms have not been examined as a part of that particular examination. The possibility that another randomly chosen firearm could have made the same marks on the questioned bullet must be considered, no matter how unlikely that may practically seem, no matter how small that probability is – it will always exist as a probability.

It is worth stating however that I think individualisation is still possible in situations of a 'limited universe' investigation. If for example in a shooting incident the

circumstances are such that there are only three firearms to be considered (not all the firearms made of that class, in that town, in that country, or in the world), then it may well be possible to make a definitive identification. A Bayesian framework does not necessarily need to be applied to every comparative case received by the laboratory; it is somewhat case/circumstance dependent.

A Bayesian approach is applied by giving a probabilistic assessment (Likelihood Ratio) of two mutually exclusive hypothesis; in other words a ratio between two conditional probabilities: The bullet was discharged from this firearm [usually the prosecution stance], as opposed to the bullet being discharged from another firearm [usually the view taken by the defence]; then at least it can be said that scientifically defensible statements are now being made, whereas traditionally they have not been.

The added value of a Bayesian approach is that it more accurately weights forensic identification evidence in what is often a wide 'inconclusive' range, regardless of whether this supports the defence or prosecution hypothesis. Additionally, it shows that the practitioner hasn't only considered the prosecution's stance but has also had to equally consider the defence viewpoint in order to weigh-up the two competing propositions. This must surely be seen to be fair and equitable in any court of law and shows that the forensic expert is not just an advocate for the "side" that has employed him/her.

It might be said that applying a Bayesian framework to comparative evidence still doesn't remove some of the subjectivity involved in the decision making process by the expert, particularly when accurate data is not available to allow a numerical Likelihood Ratio to be determined. I don't believe subjective assessments by experts can ever be entirely removed from the examination process and nor should they be; it is inherent in any comparative analysis by the very nature of the work. Nor do I believe Bayes is a panacea for whatever problems are perceived to ail the identification sciences in the forensic science community, but I do think it is worth exploring further for the firearms/tool marks, (and other comparative) disciplines.

At each of the institutions I visited during this study tour, I gave presentations to staff usually of between one and two hours duration on how forensic science was conducted in Australia, including some of the more interesting firearms and tool marks investigations I have been personally involved in. I saw my travel as a double edged opportunity, not only to learn but also to educate those I was visiting on how we carry out forensic work in Australia, particularly in firearms and tool marks.

I was interested to learn that in the Bundeskriminalamt (BKA) in Germany, shooting scenes, firearm testing and comparative microscopy were separated into distinct and separate roles, with staff being limited to only the area in which they work, whereas in Australia we do everything. However, Germany has a population of around 80 million people, with the commensurate increase in the numbers of shooting crime to investigate.

Firearms used in crime in Europe are mainly handguns, particularly in 6.35mm, 7.65mm and 9mm calibre. In the countries I visited, they all had problems with what were meant to be 'deactivated' firearms being reactivated and especially blank firing handguns (quite common and legal in many European countries) being converted to fire live ammunition. These converted pistols are not anywhere near the same level of problem for Australian policing jurisdictions.



The BKA indoor shooting range is 100m+. They have the best test shooting facilities I have ever seen in a forensic laboratory.



Inside the very spacious and very l-o-n-g indoor shooting range at the German National Laboratory (BKA). The range is so long they bought a Segway to travel to the target and back!

One of the highlights of my trip was being able to present to forensic science students at the eminent University of Lausanne in Switzerland for a day, including aspects of a Bayesian approach to forensic firearm/tool mark evidence, with consideration of how contextual bias can affect the assessment of forensic evidence. I found this quite ironic, given that the University of Lausanne is one of the leading institutions of the use of the Bayesian approach and this was what I was overseas researching! Nonetheless, the students seemed to enjoy the day with positive feedback, despite English not being their first language.



The School of Criminal Justice - Institute of Forensic Science at the University of Lausanne (UNIL) has some great displays of historical interest. Many of the notable European pioneers in forensic science had affiliations with this institution.



Research Fellow Durdica Hazard and Professor Olivier Ribaux from UNIL with a Tasmania Police wall plaque I presented them to thank them for their hospitality.



Some of the places I visited were not related to forensic science as such but were certainly related to my discipline. In London I spent half a day at the London Proof House; this facility has been in continuous operation since the late 1600s! Firearms for sale in England are all legally required to be tested with what are essentially overloaded cartridges to ensure that they are capable of withstanding chamber pressures well in excess of what is considered standard. This decision was made centuries ago to avoid what was a common occurrence back then - poorly manufactured firearms exploding in shooters hands due to low grades of steel being used, or by faulty workmanship and so on. Firearms after testing are proof marked accordingly and this can provide valuable clues as to the identification of a

firearm in the absence of other markings. It was a fascinating visit and one of many valuable 'side trips' I was able to do, which complemented the days spent at the various forensic institutions.

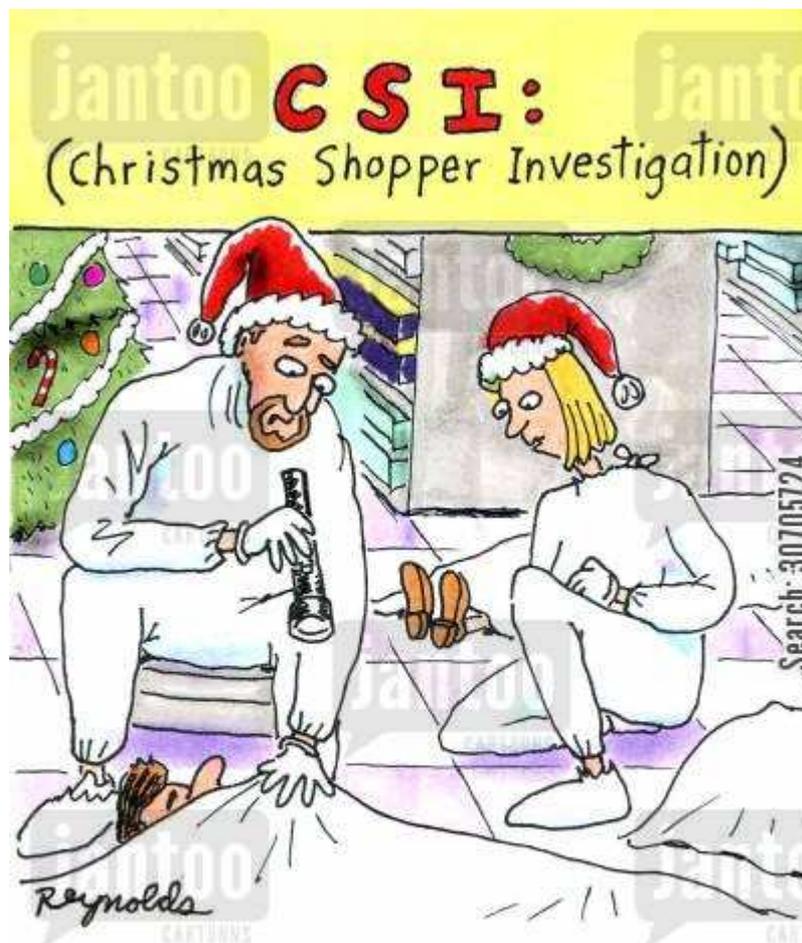
The personal benefits of this period of travel have been enormous; not only in the knowledge I've gained but in the contacts made with many fine people from a number of European institutions. I wish to thank and acknowledge the Australian and New Zealand Forensic Science Society for providing me with this excellent opportunity to travel via the Allan Hodda Award; it has opened up a wealth of possibilities for future professional focus. Although I needed to contribute some funds personally due to the extended nature of the travel I chose to undertake, it would not have been possible in the first instance without the financial assistance of ANZFSS. I highly recommend that members consider applying for the Allan Hodda Award to allow them to embark on such an enriching period of overseas travel. Don't be dismayed if your application is not successful. I applied in 2012 and was not chosen but convinced of the importance and relevance of the topic I wished to study, I reapplied the following year and was successful.

I also wish to thank the many individuals both at home and overseas from many countries who assisted me in the planning of this trip and particularly whilst I was travelling. The hospitality and generosity I was showed was fantastic. I cannot name everyone for it would be a lengthy list. Nonetheless, I acknowledge their help, friendship and the professional courtesy I was shown at every single turn.

My own interest in Bayes stems from the fact that if we as a forensic (firearms/tool marks) community are being criticised continually by outsiders as not being sufficiently grounded in science (i.e. the regularly referenced NAS report 2009, to name just one of many), then it is imperative that we listen, judge these comments for their veracity and if necessary act accordingly to try and address any problems that have been identified. To dismiss these claims and ignore their comments is akin to placing ones head in the sand and hope the critics go away. Such a dismissive response is untenable in my view.

I will continue to develop a deeper understanding in this area and pass on what I learn, in whatever format is appropriate. At this stage of my career I am interested in passing on to younger or junior members the benefit of my knowledge and

experience for in time, it is they who will carry the forensic sciences forward, long after I have left the field. I consider myself fortunate very early in my career to have been mentored by an expert I considered extremely competent and who was an outstanding role model. I am now in his position and I wish to do the same, for the benefit of practitioners and the discipline of firearms and tool marks as we try to find firm footing in what was always thought of as bedrock but is now currently a platform of somewhat loose and shifting sand.



“It’s the same EVERY year...5 minutes to midnight; victims are all male, and they’re carrying large sums of money.”