



Message from Claude Roux – President

Dear ANZFSS Member,

Like the wider community, I have been shocked by the recent Malaysian Airlines flight MH17 tragedy. Our thoughts go out to the families and friends of the victims. A number of ANZFSS members are on the ground in Ukraine and many more will participate directly or indirectly in the forensic science response. In these times of tragedy the strength of our forensic science community always makes us proud.

Meanwhile, since the weather in the southern parts of our region reminds us that we are definitely in winter, this also means that the 22nd International Symposium on the Forensic Sciences is nearly here! I continue to express my gratitude to David Eitzen, Chair of the Symposium, and his team for their fantastic efforts. The preliminary indications are excellent, and I have no doubt that the ANZFSS Symposium will, once again, be a memorable event. The branches also play a crucial role in this success through a large number of state-based scholarships to assist practitioners and students attend the conference, as does the ANZFSS Council with more than \$51,000 in support to our members through the ANZFSS Travel Awards. I remind all members to check

www.anzfss2014.com.au for up-to-date information about the Symposium. Of course, I look forward to seeing you in Adelaide. And, if for some unfortunate reason, you can't make it...there is still Auckland in 2016!

While the next change of season will occur during the conference, will it

coincide with significant changes for our Society? The answer is yes and no! Yes, because, in its operations, the ANZFSS is increasingly moving towards being a more professional and harmonised organisation as opposed to a loose federation of branches. No, because this is happening as an evolution rather than as a revolution.

And reflecting this, the current Executive will seek re-election but with a few changes. These will be presented in time before the AGM in Adelaide, along with the directions proposed for the Society. At this stage, the main change is that Prof. James Robertson will stand down from his position of Australian Vice-President. As many of you would know, James has managed to keep himself very busy in retirement, and his other commitments no longer allow him to continue to serve on the ANZFSS Executive. On behalf of the Society, I take this opportunity to thank James for his hard work and contributions to modernise and professionalise the ANZFSS. Personally, I feel sad to see him stepping down. However, I know he will always be prepared to provide some friendly advice when required. Thank you, James!

Without pre-empting the outcomes of the AGM, I believe the next term will be crucial for the Society. Members will have to get the elephant out of the room and seriously consider what kind of Society they want. Do we continue to be a social club with a top symposium every two years or do we want a professional Society that represents the forensic science professions? Asking (and answering) this question will be the main challenge for the ANZFSS in the next 24 months.

Forensically Yours
Prof. Claude Roux
President ANZFSS

ANZFSS 22nd International Symposium - 2014

Update July 2014

Planning your Xmas Dinner yet?

At the time of this report there is just over 32 days to the Welcome Reception, Sunday 31 Aug and about 147 days to your Xmas dinner.

It seems a long way off but as it gets closer, those of you hosting the Xmas festivities will make a list, send out invitations and start to plan the menu, wine list, seating arrangements, decorations and other little surprises to make sure the day is a success. Some on the invitation list will be local, but others will have to travel some distance to join in the festivities.

Q. What makes a memorable Xmas dinner?

A. Everybody knows that! Good company enjoying the well planned occasion in a relaxed atmosphere.

Well your Symposium Organising Committee have been preparing over the last 3½ years, planning to bring the Forensic Family together in our welcoming city of Adelaide. We have done the leg work with the conference venue, and the Adelaide Convention Centre is all set and awaits your arrival.

The program has been released and I must say I am quite impressed with the strength and diversity of the abstracts. The menu looks mouth-watering with plenty of science to choose from.

Networking is always so important. Due to the international scale of our meeting, some of us may not see each other again, but by making that personal contact in Adelaide, and with modern means of communication, the connectivity you make here may last for years. The Social/Networking program is set up to maximise the opportunity for people to mix and chat informally: firstly, at the Welcome Reception on Sunday afternoon, then the Extreme Night Out at our showcase Adelaide Oval, and then again concluding at the Gala Dinner where we will announce award winners and hand over the role of Symposium Organizers to our New Zealand cousins in Auckland.

We will have a Special Plenary on the Opening Day, with motivational speaker Dr Jason Fox providing us with the inspiration and motivation to “make clever happen”, do our jobs smarter, be more efficient, and “shift the motivational dynamics of teams and get projects moving”. See what Jason is all about at drjasonfox.com, and come along to be inspired for the rest of the week.

Those of you who have been watching the AFL will have noticed the splendid turf and stands of the NEW Adelaide Oval, just a short walk over the new bridge across the Torrens River and into the inner sanctum of our premium sporting arena. For the first hour of the evening, the Sir Donald Bradman Exhibition will be opened exclusively for the delegates to view rare images and marvel over the brilliance of this amazing cricketer. Then we venture upstairs to enjoy the night with plenty of sparkles and decorations (sort of Xmas style, not really). The theme of the evening is



“Gangsters and Molls” - drift back to the 1920’s – as seen in the movies. Be sure you make an impression in the themed attire in your best Bonnie and Clyde outfits.

We will initiate a new concept and have a “SPEAKERS CORNER” sponsored by UTS within the Trade Exhibition to again encourage Networking. The Plenary speakers of the day will spend their morning tea in this area. So often it is difficult to pin these people down, so we have done that for you .They will be waiting there just for you to come up and have a chat. Make sure you visit SPEAKERS CORNER and meet the Plenaries of the day. At other times during session breaks, this area will be utilized by the Trade, who will be allocated time slots to talk on their product or some technical advancements in an informal environment.

There will also be a Panel Discussion on Wednesday afternoon, entitled “**TECHNOLOGY ON TRIAL**”. The panel, representing all facets of the judicial system, will examine the admission of new technology to the courtrooms, using the recently developed DNA interpretation software, STRmix™, as an example.

How do judges assess new technology? What does defence counsel really think of expert witnesses (and their evidence)? How do they prepare a challenge to a technology they barely understand? Are prosecutors greedy for the next great advance? And what do jurors make of these unseemly disputes between expert witnesses?

These questions and many more will be posed and answered in this lively hypothetical-style panel discussion, which will be moderated and led by prominent South Australian barrister, the sharp-witted Mr Michael Abbott QC. The Hon Justice John Sulan (Supreme Court) will be our Judge and our own Liesl Chapman SC (Defence) and Sandi McDonald SC (DPP) will lead the cross examination. We will have technical experts, media and jurors to question the process and provide some of the answers.

We have sent out the invitations and at this point, 563 of you will be here. But we know there are more coming, so we are keeping an eye out for the postie waiting for your acceptance (registration), and then we will put the turkey in the oven.

So our table is set, and we have a seat allocated with your name on it.

Come join the Forensic Family in Adelaide and enjoy the menu of Science, Fun and Excitement where we will explore the theme of..... **DETECT – DECIPHER – DELIVER – The FUTURE of evidence.**

Look forward to welcoming you all.

David Eitzen, Chair, Symposium Organising Committee

REMEMBER:

AUSTRALIAN & NEW ZEALAND FORENSIC SCIENCE SOCIETY PRESENTS

TECHNOLOGY ON TRIAL

at the 22nd International Symposium on the Forensic Sciences – Adelaide Convention Centre 3rd September 2014 @ 3:50 – 5:20pm

How do judges assess new technology? What does defence counsel really think of expert witnesses (and their evidence)? How do they prepare a challenge to a technology they barely understand? Are prosecutors greedy for the next great advance? And what do jurors make of these unseemly disputes between expert witnesses? These questions and many more will be posed and answered in this lively hypothetical style panel discussion moderated and led by prominent South Australian barrister, the sharp-witted, Mr Michael Abbott QC. The panel, representing all facets of the judicial system will examine the admission of new technology to the court rooms, using the recently developed DNA interpretation software, STRmix™ as an example.

Panel members:

- Moderator - Michael Abbott QC, Gilles Street Chambers
- Judge - Hon Justice John Sulan, Supreme Court of South Australia
- Defence Barrister - Liesl Chapman SC, Len King Chambers
- Prosecutor - Sandi McDonald SC, Deputy Director, Office of the Director of Public Prosecutions SA
- Technical Expert – Dr Duncan Taylor, Forensic Science SA
- Juror – To be advised

For more information or to register <http://www.anzfs2014.com.au>
 Cost: "Technology on Trial" session (only) \$75 GST incl. Student \$50 GST incl. To register for other oral presentations at this multi-disciplinary symposium visit the website for day or full symposium registration options.

NEW
 Student \$50
 Contact
anzfss@aomevents.com

ADELAIDE SOUTH AUSTRALIA
 31st August - 4th September 2014

ADelaide TWENTY14 | DISPECT | DISCRIMINATE | DELIVER THE FUTURE OF EVIDENCE
 ANZFS 22nd International Symposium on the Forensic Sciences

ANNUAL GENERAL MEETING OF THE AUSTRALIAN AND NEW ZEALAND FORENSIC SCIENCE SOCIETY

Advance notice – formal papers will be distributed shortly.
 Thursday 4th September 2014 @ 4.00pm

Have you thought about nominating for the ANZFS Executive?????????

And if that is not enough.....

REMEMBER:

2016 - 23rd International Symposium on the Forensic Sciences – Auckland, New Zealand

2018 – 24th International Symposium on the Forensic Sciences – Perth, Australia



I had the chance to visit the International Criminal Court (ICC) in The Hague, The Netherlands, to represent the ANZFSS at the inaugural meeting of the Scientific Advisory Board (Board) of the Office of the Prosecutor (Office). This group, representing 17 forensic science societies and networks from around the world, will provide recommendations to the Prosecutor on the most recent developments in new and emerging technologies, along with scientific methods and procedures that can reinforce the capabilities of the Office in the collection, management and analysis of scientific evidence relating to the investigation and prosecution of crimes of genocide, crimes against humanity and war crimes. Australia was also represented by Dr Tony Raymond, who wore two hats - the International Forensic Science Alliance (IFSA) and SMANZFL.



The Board spent most of the first meeting reviewing Standard Operating Procedures related to human remains recovery, autopsies, forensic clinical examinations, digital evidence, and crime scene examination.

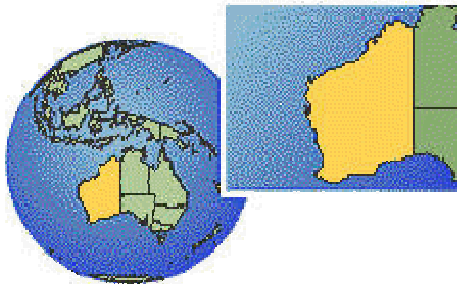
The ICC, governed by the Rome Statute (signed by 120 countries), is the first permanent, treaty-based, international criminal court established to help end impunity for the perpetrators of the most serious crimes of concern to the international community. It is worth pointing out that the ICC is an independent international organisation and is not part of the United Nations system. More information is available from <http://www.icc-cpi.int/>.

The Office of the Prosecutor often conducts its investigations in the midst of volatile on-going or post-conflict environments, with shorter windows of opportunity to collect, store and preserve evidence, due to security or other challenges. In her closing remarks at the inaugural meeting, the Prosecutor, Mrs Fatou Bensouda, expressed her appreciation to the Board members for their commitment to the quest for the truth and the crucial mandate of the International Criminal Court, stating that “the law and scientific innovation is not a marriage of convenience, but one of necessity, and together, they make a powerful couple indeed.”

The Board will meet once a year, and will be presided over by its newly elected Chair, Prof. Duarte Nuno Vieira of Portugal. No doubt it is a great honour for the ANZFSS to be associated with this international work of humanitarian significance.

Claude Roux
ANZFSS President

Branch Reports



Calling: Western Australia

Greetings to everyone from the Western Australian Branch of ANZFSS.

Entering its 41st year in existence, the WA Branch of ANZFSS is going strong with a current membership group of 66 financial members and another 60 interested parties on our mailing list (potential members in waiting). 2014 is shaping up to be an excellent year for the branch and we are excited to be able to share with you our progress so far and our plans for the future.

Digital Forensics

ANZFSS WA has proudly sponsored the Edith Cowan University Digital Forensics Prize for the last few years. This prize recognizes the achievements of the graduating student with the highest course average in the Masters of Digital Forensics course. In February this year, the award was presented to Mr Andri Heriyanto for his achievement last year. On behalf of ANZFSS WA, congratulations once again, Andri!



ANZFSS WA Branch Vice President Dr Chris May presenting the award to Mr Andri Heriyanto

ANZFSS 2014 Scholarship Recipients

The WA Branch presented a strong field of applicants for scholarships to attend the 22nd ANZFSS Symposium in Adelaide. In addition to the National Scholarships received by Mr Hadyn Green and Dr Sasha Voss, the WA Branch will be providing financial assistance for Ms Elsie Kinnaird, Ms Ariane Maggio, Mr Michael Lee, and Mr Richard Donovan to attend the Symposium. Additionally, Mr Hadyn Green has been awarded the prestigious Frank Digwood prize for the highest ranked scholarship recipient from Western Australia. Congratulations to all our scholarship recipients - we wish you all the best in Adelaide.

Circumstantial Forensic Cases: The State of Western Australia v Rayney

Following on from receiving the Frank Digwood prize for 2014, Mr Hadyn Green gave the WA Branch a taste of what you will see in Adelaide with his presentation on the recent highly publicised trial of The State of Western Australia v Rayney. Mr Rayney had been charged with the wilful murder of his wife Corryn, following the discovery of her body in a clandestine grave in Kings Park in 2007. The trial by judge alone in 2012 involved a large volume of forensic evidence from a range of experts, with the trial ultimately resulting in the acquittal of Mr Rayney – the outcome confirmed following an unsuccessful final appeal by the State in 2013.



Digwood prize recipient Mr Hadyn Green presenting an overview of the Rayney case to the ANZFSS WA Branch

Hadyn's presentation in front of a packed exhibition space at Curtin University explored some of the forensic evidence of the case and the findings of the bench trial. This was an informative presentation that captured the attention of the 100+ member audience and sparked several discussions upon its conclusion. I urge all of you attending the Adelaide Symposium in September to go along and see Hadyn's presentation – you will not be disappointed.

crimeScene WA

crimeScene WA, in conjunction with ANZFSS WA, will be presenting a scientific stream at the 2014 crimeScene conference to be held on the 11th and 12th of October. crimeScene WA brings together speakers in the fields of crime fiction writing and the investigative sciences on an annual basis for a conference. This year's conference will be held at the Rydges Hotel in Perth. The stream 'Forensic Science in Action: From the Crime Scene to the Court Room' will take an in depth look behind the scenes with a series of presentations from practitioners, including crime scene examiners, forensic scientists, and lawyers. The stream is aimed at high school students (Year 10 – 12), but will be of interest to undergraduates and members of the general public, including those who are thinking of a career in forensic science or law enforcement. This follows on from successful involvement of ANZFSS members, with previous crimeScene conferences in 2012 and 2013. For more information, please visit <http://crimescenewa.wordpress.com>.

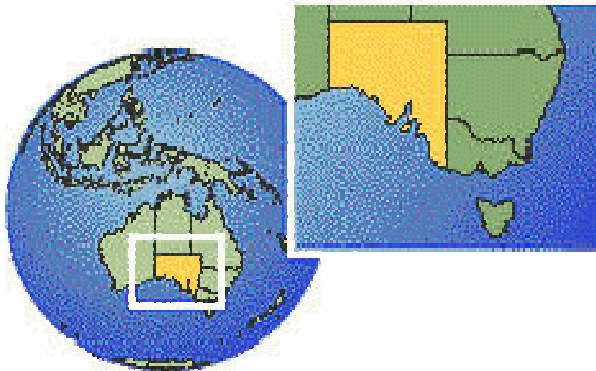
ANZFSS 2018

At a recent ANZFSS Council meeting, the WA Branch was confirmed as the hosts for the 24th ANZFSS Symposium to be held in 2018. We look forward to this exciting opportunity to showcase the progress that our state has made since the symposium was last on the west coast in 2006. We will soon convene a conference organising committee and start fleshing out the details, so as the saying goes - "watch this space".

That wraps things up from out west. We are always looking for ideas for presenters at branch meetings so if you are coming through town in the future and would be interested in presenting, please let us know. We will also be taking expressions of interest soon for the organising committee for ANZFSS 2018 so please do not hesitate to let us know if you would like to help out. Finally, a quick thank you to all our members who help make the WA Branch what it is today. I look forward to seeing you all at our upcoming meetings.

Chris May
ANZFSS WA Branch Vice President

Calling: South Australia



The last 12 months in particular have been very exciting for the SA Branch in the lead up to the Symposium in Adelaide, with the Symposium Committee very busy! In 2013, membership at the South Australian Branch increased, with 29 new or returning members, and more joining in 2014. While the QLD branch might have upstaged us by mentioning Rob

Chopin's talk about Lake Eyre in the last edition, we also had two local presenters joining him when he came to the SA branch, and so have included it in this newsletter.

AGM and National Science Week Event - "Celebrating a century of advances in forensic science."

ANZFSS-SA 3rd Annual National Science Week Public Event 13th August 2013

In keeping with the theme of Science Week, The Australian and New Zealand Forensic Science Society - South Australia held a free public event for members and the general public, focusing on advances in forensic science.

Like all sciences, forensic science is constantly improving techniques to solve crimes. Now that the 4th inquest into the death of Azaria Chantel Loren Chamberlain, 11 June 1980 - 17 August 1980, has concluded, we looked at the way evidence was analyzed in the past and how it would be analyzed now – one third of a century later. The scene was set by an invitation to the audience to "imagine that they have been selected for jury duty and have just entered the court room". Some of the first words they hear are:

"A baby was killed at Ayers Rock on 17th of August 1980 during the evening between eight and nine o'clock... She died very quickly because somebody had cut her throat." Opening Statement of Ian Barker, Queen's counsel

Our interstate guest speaker, **Dr Tony Raymond**, AM, who is Chief Scientist of NSW Police and was the principal scientist in the Royal Commission of Inquiry into the Chamberlain Convictions, presented "*100 Years of Science - What has Changed in Forensic Science over the last Few Decades?*". He highlighted advances in techniques, quality control and quality assurance, practices and education. He also considered changes in attitudes and expectations from scientific evidence. In the past, "scientific evidence used to simply add substance to a court brief that traditionally relied upon good investigation, good interview techniques, surveillance and eyewitness reports."

Tony was followed by **Sherryn Ciavaglia** – a living example of one of the changes, as she is both an employee of Forensic Science South Australia and a PhD student at Flinders University. Sherryn used recent cases of dog and dingo DNA to illustrate how the case would now have been examined. The controversy over whether the cuts in the matinee jacket were dingo teethmarks or scissors could have been cleared up if DNA technology had been available.

Prof Rob Morrison then presented experiments that he had undertaken to determine if a dingo could have taken a baby in its mouth. In the trial, a 'dingo expert' from England had claimed that a dingo could not open its mouth enough. Using Ingham size 18 frozen chickens as baby surrogates, Rob showed video evidence that a dingo could take up a chicken in its mouth and drag it away. He also discussed the media's role in demonizing the Chamberlains and finally gave some insight into the personal side, as he had met and talked to the Chamberlains during the inquest.

The speakers were joined by **Prof. Adrian Linacre** (SA Justice Chair in DNA, Flinders) and **Chris Pearman** (Acting Director FSSA) for a panel discussion where a range of interesting questions were asked from the audience.

The aim of the event was to give an opportunity for our members and the general public to hear about advances in forensic science over the last 100 years and specifically over the last third of a century since the death of Azaria Chamberlain. The presentations finished with an image of Lindy holding up the death certificate that has given her closure. The evening finished with a light supper and much further discussion with the speakers.

ANZFSS-SA acknowledges receipt of funding for this National Science Week event supported by the Government of South Australia.



Cyber Crime – Sonya Ryan and Detective Barry Blundell

On 11th October at the German Club in Adelaide, we heard a very insightful presentation by 2013 South Australian of the Year, Sonya Ryan, and Officer in Charge of the SAPol Electronic Crime Section, Detective Senior Sergeant Barry Blundell, regarding internet safety. Since the murder of her 15 year old daughter, Carly, in 2007 by an internet predator and paedophile, Sonya has been an active campaigner highlighting internet safety. She educates groups including schools about how easily paedophiles are using the internet, especially social media sites, to target children. As part of this, she has set up the Carly Ryan Foundation to create awareness and educate people about internet safety (www.carlyryanfoundation.com).

Sonya said she found that being a mum, rather than a corporate suit, helps her when she is giving presentations to school children and promotes better communication on the topic. As part of her campaign, she has set up some basic rules that everyone, not just children, should use when online:

- Remain as anonymous as possible – anything you post that identifies you, or your location, etc, can also put your family at risk.
- Make wise choices online – remember that the actual audience is very different from the intended audience – is it only your friends that can see your Facebook posts, or can friends of friends see them, or even anyone from the public?

Sonya also recommends turning off geo-tagging on your phone when you take photos (you will usually find this under privacy or camera settings). Geo-tagging

enables people to perform a search on the image, and find out where it was taken. This is particularly scary if you consider how many innocent photos, such as children's birthday parties and other milestones that would occur at home are photographed and put up on social media. Others include not using the "check-in" part of social media, don't add people as friends if you've never met them, and if someone does request to meet in person, suggest using Skype or another live webcam media to "meet" first, to make sure they are not lying about who they are.

Sonya also has lots of advice for parents looking to protect their children while they are online. She recommends you sit down with your children and negotiate what they can and cannot do while they are online, and has created a contract between the parents and child where boundaries can be set on the time of the day and duration they can be online for, and for which websites they are allowed to visit (see the Resources page on the Carly Ryan Foundation website for the contract). She also recommends that there is a book of passwords for everyone's various internet accounts, kept under lock and key, that is not to be used except in the case of an emergency. This could be life-saving if a child is abducted by enabling police to track down who they have been in contact with much quicker.

A major problem that is becoming more prevalent, and is gaining media spotlight, is sexting – when people send sexually explicit photos of themselves to others, or pass on the photos that they have received. Several well-known instances include celebrities Lara Bingle, Scarlett Johansson and footballer Nick Riewoldt, where photos later made it onto the internet and the tabloids. Unfortunately, many teenagers sending pictures to their boyfriends/girlfriends do not comprehend the serious life-long consequences that can happen when they partake in this, not only the damage to their own or others' reputations, but the criminal legal proceedings that can and do happen from these events. If convicted of producing or sending sexually explicit images of under-18's (child pornography), even if it is of themselves to other teens, that person will be on the registered sex offender list for life, which will ruin many potential career paths or other opportunities in the future.

Some of the statistics on social media and our reliance on technology provided by Det. Barry Blundell are quite staggering. Twitter has 200 million active users, YouTube has 800 million users and 100 hours of video is uploaded every minute. In 2013, mobile phones are the #1 exhibit type (or evidence) collected – of the top 20, only one is not digital in some form, being drug tablets.



Adrian Linacre, Barry Blundell, Sonya Ryan, Darren Bails and David Eitzen, with the \$500 donation to the Carly Ryan Foundation from SA Branch, ANZFSS.

Another point that Det. Blundell mentioned is that the internet is dynamic, and if an offence has occurred, the content may have changed before any evidence preservation can occur. This causes particular problems when the servers that hold this data are overseas, as international treaties need to be used, and responses from servers can take months or even years. Therefore he recommends that if you are the subject of bullying, have been

threatened, or come across illegal content on the internet, that it should be preserved immediately and burnt to disc in some way. Many websites such as Facebook now have a means for its users to report inappropriate content as well. Other hints he provided were to physically cover up any webcams in case they are compromised (a simple Band-Aid would suffice and can easily be removed), update your software regularly and to also change your passwords regularly.

More information on Sonya's work and the Carly Ryan Foundation can be found at the website: www.carlyryanfoundation.com Other resources, including government agencies, can also be found through the website.

Animals at the Astor – Prof. Adrian Linacre and Dr. Shane Tobe

With 2013 being a non-symposium year – it was time for the SA Branch dinner. This year we took a slightly different approach to the traditional 3-course dinner. Instead, elegant ladies and dapper gentlemen flocked to the Astor Hotel to listen to Professor Adrian Linacre and Dr Shane Tobe from Flinders University discuss the subject of wildlife forensic science. The presentation was split into 2 halves to allow people to eat, drink and mingle. The first half was an introduction to wildlife forensic science, and the second a slightly more technical discussion of the DNA testing techniques. We learnt a lot about the illegal trade of wildlife, some of the methods for smuggling, why things such as rhino horn are used, and the scientific techniques used to identify which species has been found in an illegal product.

Lake Eyre Helicopter Crash – Jock McKenzie (SAPol), Dr. Karen Heath (FSSA) and Rob Chopin (ATSB)

On 18 August 2011, an experienced ABC aircrew was operating in an area east of Lake Eyre, filming a story about Lake Eyre in flood for an ABC documentary. On board were experienced pilot, Gary Ticehurst, award winning cameraman, John Bean, and well known and respected journalist, Peter Lockyer. The twin-engine helicopter landed on an island in the Cooper Creek inlet, about 145 km north of Maree, in the late afternoon. At about 7:00pm, the helicopter departed the island and soon after take-off it collided with terrain. All on board were fatally injured, and the helicopter was destroyed by the impact forces and a fuel-fed fire. This was the first fatal accident in Australia involving a helicopter of that type, and the first since 1986 of a twin-engine helicopter.

Jock McKenzie, SAPol, provided an overview of the police response, investigation and identification of the deceased. When the first responders arrived at approximately 2:00am, the fire was still burning (7 hours after crash). The remoteness of the terrain provided challenges for the DVI response from SAPoL. The crime scene and CIB officers secured the scene that evening to protect the area from dingoes. At first light they went through the crash scene and identified three areas containing the remains of the deceased.

Jock described the five distinct phases of DVI: 1. Scene; 2. Post Mortem; 3. Ante Mortem; 4. Reconciliation, and 5. Debrief. The logistics of transporting the DVI equipment in the helicopter became



an issue. DVI protocols were followed but the investigating team were required to make adjustments. One of the main problems was communication as only satellite phones could be used and the batteries needed to last. The remoteness of the scene made resupply of equipment and resources difficult. The recovery process took two days.

Karen Heath, FSSA, explained the pathologist's role in DVI incidents where identification is a major issue. She highlighted the meticulous system used to number all pieces of evidence collected and the difficulty in distinguishing body parts from debris. A GPS grid was constructed based on the location of body parts. There was an assumption that fragments surrounding torso material was of one individual. However, that was shown to be incorrect as fragments were spread throughout the grid. Odontology and DNA were vital in reconciling multiple fragments with positive identification of the victims being made by the second day. Five weeks after the accident the bodies of the victims were released to their next of kin.

Rob Chopin, Australian Transport Safety Bureau (ATSB) presented the findings of the final report that took more than two years after the crash to be released. The ATSB found that spatial disorientation was the major cause of the accident. ATSB investigators worked with researchers from the US Army's Aeromedical Research Laboratory, who had experience in a similar military helicopter crash investigation in 2005 where spatial disorientation was a major factor. Flight simulations and computer modelling were used to demonstrate the actions of the aircraft gathered from the helicopter's GPS flight data and witness reports. This enabled them to reconstruct the flight path to within seconds of impact.

Night-time flight is recognised as being more difficult than during the day because there are fewer visual references for pilots. It gets very dark in central Australia and where there is no moon it is difficult to distinguish the horizon. This is known as a "Nautical Twilight". There may be some light from the stars but this is obscured by the instrumentation lights from the aircraft. Spatial orientation is 80 per cent visual, and it would have been extremely difficult for the pilot to see the horizon in these conditions.



Overhead image of the crash scene. The blue tarps were protecting the main parts of the remains of the deceased.

Investigators identified that the helicopter would have encountered trouble less than two-and-a-half minutes into the flight, and there was just 20 seconds to determine the problem and what needed to be done. There is also the phenomenon of the pilot and crew being leant over rather than upright but due to their limited perceptual cues not actually detecting that's the case.

The Civil Aviation Safety Authority now requires that helicopter air transport operations flying with passengers at night either have an autopilot or a two-pilot crew.

Centennial Park Crematorium Visit

On Wednesday 5th of March, SA branch members and guests arrived at Centennial Park Cemetery for a tour of the crematorium and funeral facilities. The group was split in two and taken on a tour of the facilities staff from Centennial Park. The attendees learnt about the facilities available at Centennial Park, burial practices, exhumation practices and cremation practices. Points of note include that around 6 exhumations are done per year at Centennial Park; the most common reason being to relocate the remains to another state or country. Centennial Park has three chapels available to be used for funeral services, ranging from the Mawson Chapel which holds around 40 people, through to the Heysen Chapel which can hold 250 people. Regular maintenance needs to be done on the cremator, with the bricks being replaced after approximately 3500 cremations and a total rebuild of the oven required every 8-10 years. In the next refit, the openings to all the cremators will be widened to deal with the increasing obesity of the population. Funeral directors must remove pacemakers from the body before cremation as they can explode and cause a large amount of damage to the cremator. If the battery component of the pacemaker explodes within the cremator it will buckle the bricks. Any large metal objects (screws, implants etc.) that are retrieved after the cremation, are put into a metal recycling bin before being sent to Holland. Shipments are sent approximately every three months and make approximately \$30,000. The money generated from the recycling goes into a fund for the education of orphan children.

Our guides provided us with a wealth of information about Centennial Park, as well as the burial and cremation processes. In addition to the tour, they took the time to provide informative and detailed answers to all our questions.

Gladstone Munitions Factory Explosion - Brendan McEvoy (CFS) and Paul Sheldon (SAPol)

At approximately 1125 hours on Tuesday 9th May, 2006, the munitions factory at Gladstone in the mid-north of rural South Australia exploded, with 3 fatalities and several injured. The sound of the explosion could be heard in Port Pirie, approximately 40 km away, and houses up to 1-1.5 km away were damaged. We were able to hear from Brendan McEvoy of the CFS regarding the safety issues involved with accessing and stabilising the site, and Paul Sheldon from SAPol regarding the post-blast investigation.

Brendan explained how the munitions factory was located in an area around 10km outside of the Gladstone township, surrounded by scrubland, with 3 creeks running nearby. The explosion was a HAZMAT incident based on the chemicals present on site and the hazards present. Upon arriving, first responders found fragments of bonded asbestos cement sheeting littered across the site, a methoxy (methanol and sodium hydroxide) fire in progress, biological materials from the victims, and other potentially reactive chemicals present. On site post-explosion, the chemicals present included 300kg of un-exploded TNT, ammonium nitrate (a component of ANFO – another explosive), nitric acid, monomethylamine nitrate, blitz aluminium (which reacts with water), LPG, and many unlabelled or poorly labelled containers. The site was declared unsafe on the evening of the 9th until the SAPol bomb technicians and the CFS MART personnel were able to assess and secure the site. Along with the hazards to the personnel on site, the chemicals were running across the ground and into the nearby creeks contaminating the waterways. As part of the

CFS's assessment of the site, they used atmospheric monitoring devices which measure levels of oxygen, hydrogen sulphide, carbon monoxide, and volatile organic compounds, and also utilised a robot to assess the site remotely.



(L) the blast site with the damaged retainer wall, and (R) debris around the site, including the burnt shipping storage containers that stored TNT.

Paul was able to describe to us that the role of the bomb scene examiners concerns the what, why, when and how of an explosion. If the incident is a criminal offence, then they assist in a crime scene investigation/forensic role to obtain sufficient evidence to apprehend a suspect. We also received a brief history lesson on explosives, from the “slow” explosive known as black powder, which explodes at 400m/s, through to the high explosives. The high explosives generally have a velocity of detonation of 4000m/s and up, with most military explosives at around 8000-10,000m/s. The blast from an explosion will also tend to move up and out in 360°, unless there is a barrier in the way. One result of the high explosives that can be seen post-blast is that there are a lot of small fragments of debris around the site, whereas slow explosives tend to have less small fragments and more large pieces of debris. Another indicator of whether the explosion is a concentrated or dispersed explosion can be seen at the site. A concentrated explosion, where the blast originates at a specific point like a chemical explosive, will often result in a crater on the ground/flooring, whereas dispersed explosions, such as a gas leak with ignition of vapours means that the point of origin may not be as obvious.

The information that the bomb scene examiners received upon arriving at the site was that the factory was producing RIOGEL (ammonium nitrate based explosive), there was TNT on site along with a multitude of other chemicals, and that there was no indication of suicide in the victims. What they didn't know was what actually exploded and why. On site, there were around 3000-4000kgs of TNT stored in steel shipping containers. After the blast, these containers had holes burnt into the side of them from the TNT burning, rather than detonating. If those containers had detonated, the damage would have been significantly worse. There was a ground penetrating crater and pitting in the concrete retainer wall adjacent to the crater, which were able to indicate the location of the blast. What the bomb scene examiners were able to conclude was that it was not a dispersed explosion (ie it was a concentrated one), it occurred about 3m from the retainer wall, and it was not a criminal act. The “why” of the explosion was for SAFEWORK SA to determine.

The three deceased - Damian Harris, Matthew Keeley and Darren Millington - were retrieved and identified by dental records, followed by confirmation using DNA.

TASERS – SAPoL’s ECD implementation and forensic investigation aspects – Inspector Matt Nairn and Sergeant Darren Bails (SAPoL)

On 21st May at the German Club we heard from Inspector Matt Nairn who discussed the implementation and use of Electronic Control Devices (ECD) at SAPoL, while Sergeant Darren Bails explained the evidence collection and analysis after an ECD is discharged.

In 2008, the Commissioner of Police approved the use of a less lethal option for the South Australian Police. This became a reality in 2009 when SAPoL undertook trials of the TASER brand of ECD within limited Local Service Areas. After the successful trial, SAPoL purchased 300 ‘X26’ TASERs for use by uniformed patrols, and in 2012 ECD use was expanded by another 175 units and distribution included solo police officers, such as those in country posts. ECD’s have also been used by the STAR Group since prior to 2009.

Matt described to us what sort of incidents are allowed to be resolved through the use of an ECD, and that South Australia has a much higher threshold for the kinds of situations where an ECD can be discharged compared to interstate and overseas. The TASER can only be used in a high risk situation where a person is armed with a weapon. The device is not worn on an officer’s belt like other equipment, but is kept in a storage box. Only once it is deemed that a particular situation warrants the use of the ECD, is it accessed by the police officer. When the device is worn by officers, it is worn on the opposite hip to their service weapon in a cross draw, so that the firearm cannot be accidentally drawn rather than the ECD, thereby reducing the likelihood of an accidental shooting. An ECD cannot be used in certain situations, such as when the person is near water (risk of drowning), near a height (risk of falling), near flammable liquids (risk of igniting), or when a person is passively resisting (must be armed with a weapon for use to be justified).

Matt told us that many suspects de-escalate after a TASER is presented and the laser pointer is employed showing just where the person is about to be hit by probes, without even needing to discharge the device. When it is used, a TASER can be used in two ways. It can be discharged with two probes fired at the person from an optimum 2-4.5 metres away, which when both connect with the person, results in a complete electrical circuit with 50,000 volts and less than 0.004 amps running the circuit for 5 seconds. The other way in which an ECD can be used is in a drive-stun manner – this is where the officer touches the device to the person directly (much like a cattle prod) to complete an electrical circuit. If one of the probes has missed the person or not embedded properly, then the drive-stun method can be used to close the electrical circuit and incapacitate the subject. The device used by SAPoL affects both the sensory and motor nervous systems. This effectively results in the person’s muscles locking up and experiencing intense pain, thereby incapacitating them. Once the electrical charge is turned off, the neuromuscular effect and pain stops. Because it works on both the sensory and motor nervous systems, it is effective on people under chemical (drugs) or mental influences. The ECD should not affect the operation of pacemakers. Most people will have some minor wounds after being Tasered, such as wounds from the removal of the embedded probes which have barbs like fishing hooks on the tips, feel dazed for a few seconds, may have tingling sensations, and may have minor skin irritation. Most people who have been Tasered have said that they didn’t feel the probes being pulled out, which is believed to be due to the site being numbed and a cauterising effect.

All of the ECD's in use by SAPol have cameras attached to them, which start collecting infrared video and sound as soon as the safety switch has been turned off and the unit rendered live. The camera can record up to 1.5 hours of both audio and video, which can be downloaded to SAPol computers via USB for evidentiary purposes. The device also records the date, time and duration of use once the unit is deployed.

Darren explained to us what the various components were in a TASER X26 and how they can be useful in a forensic investigation. The main components that are useful post-firing are the probes, wires, blast doors, AFIDs (anti felon identification dots), the ECD itself and of course the video and audio recordings.



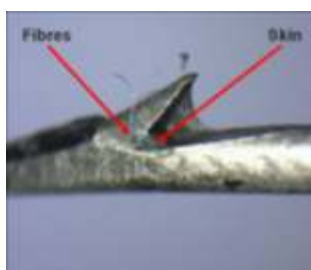
Components of a fired TASER. The model used by SAPol also has a camera unit at the base of the hand grip.

The TASER cartridge holds the probes, a compressed nitrogen container that expels the probes, and the other components like the wires, AFIDs, poron spacers, ejectors, etc. The front of the cartridge, which the target would see, is two bright green blast doors. The cartridge itself can indicate if the device was discharged correctly, and can be linked to an operator based on the serial number of the cartridge. This unique serial number is also imprinted on the AFIDs. The location of the blast doors can indicate the location of the user when the device was discharged.

The wires that are connected to the probes are copper-clad steel with an insulated covering. The wires, while reasonably robust, can break, and if the insulation is deteriorated, another person can be affected by a residual electrical shock if touching them during discharge. The wires can also indicate if the probes were fired, and if done correctly, whether both probes reached the target, and whether the target was struck at close or long range.

The probes used in SA are 54mm in length, with the barbed portion being 12mm and the rest being a bi-metal shaft. At the opposite end to the probe is a hole through the shaft called the air gap. The ends of the wires are in this air gap and this is where the electrical charge is transmitted to the probe to complete the electrical circuit. Examination of the air gap and any arcing marks can indicate the number of times the device was discharged, and the end of the wire can indicate the duration of the discharge based on how melted the insulating coating on the wire is. The barbed end of the probe can tell investigators whether or not the probes struck, and often what they struck. Trace evidence can often be found under the barb, such as grass, clothing fibres, and biological material (blood and tissues) if the barb penetrated the skin.

The AFIDs are tiny coloured discs that are dispersed when the device is discharged.



These discs have the serial number of the cartridge on them, thereby linking a site to the operator. There is a variable number of AFIDs per cartridge, meaning that if one was used inappropriately, the operator does not know how many AFIDs would be present at a scene. The location of the AFIDs can indicate the general location of the officer when the device was discharged, but this can be easily affected by environmental conditions. As the device

The barbed end of a probe showing the presence of trace evidence.

monitors such aspects as the date and time of a discharge, the duration of a discharge and the battery conditions, and also takes audio and video when in use, these all combine to ensure accountability for their use.

Darren then went on to explain what evidence needs to be collected in serious incidents involving the use of ECDs, which includes if a death occurs, whether or not it may have been due to the ECD use. The wounds on the person need to be examined and recorded, as these can indicate if a drive-stun action was used or give estimation on how far away the operator of the TASER was to the subject, based on the distance between the probes. Many other components of a discharged TASER should be collected, including the probes themselves for trace evidence, the AFIDs, the cartridge, blast doors, ejectors, poron spacers, and probe wires.

We then heard about a case study where SAPol officers used ECD's to prevent a person from self-harming, as they could not physically reach the person seated in a car within a carport. The TASER was used to incapacitate them until they could reach the person. Multiple devices were deployed, but each time the shock was stopped, the person continued attempting self-harm. As this continued between use of the TASERs, the scene then became bio-hazardous to the investigators also, which resulted in further complexity for the forensic investigation with ECD components then being mixed in with biological materials, broken glass, and other items strewn around the vehicle interior.

And now for something completely different.....

A CAPTION COMPETITION

In the last edition we asked you to in send your best caption for this photo.



The entries were:

Happy as!!

But seriously, what do I have to do to get outa here?

But seriously, what do I have to do to get outa here? Alive??

But seriously, what do I have to do to get outa here alive and all my bits working?

Groundhog day!!

And the winner is (drum roll).....

Mary Beale, with her three - 'But seriously ...' entries!

Well done, Mary 😊