

# BREAKING NEWS

## SYDNEY WINS BID TO HOST IAFS 2020

ANZFSS  
Newsletter

August 2017

CHALK UP ANOTHER ONE

IN THIS ISSUE

## Presidents Message

by Adrian Linacre

It is, amazingly, 10 months since the new Executive took office and much has happened - so welcome to your newsletter.

At one of our regular Council conference calls all the Branch Presidents gave a short update on recent meetings. The diversity of talks is worth noting as these ranged from case studies to psychology of persistent offenders, forensic anthropology, clandestine labs, wildlife forensic science and low level DNA typing. Please note that many talks are recorded and up-loaded onto the ANZFSS website for members to view. Further, the themes of these talks may give ideas for other branches to consider. More recently, as part of professional development, workshops are being developed and are encouraged provided that they are in line with current and future practice. Recently guidelines were agreed on by Council that support a unified approach to short courses and workshops being run by Branches that require ANZFSS support and must carry the ANZFSS logo.

The scope of talks and presentations going on at a local level underscores the objectives of our society. In essence these are to advance the study and application of forensic science through the interchange of

information by activities such as Branch meetings and through the biennial symposium.

Additionally, a check of scientific publications illustrates the breadth of research ongoing in Australasia (ANZPAA NIFS now also provide regular up-dates on papers recently published). Here we should also note the valuable research fund set up by ANZPAA NIFS to assist with linkage grants from the ARC.

In regard to research, academia can play a central role and there are many interactions between operational laboratories and universities in both New Zealand and Australia; such a situation is uncommon in so many other parts of the world. Our collaborative efforts in this part of the world has led to many excellent and productive research projects in the recent past and multi-collaboration projects are a key means develop large scale steps in scientific developments. Further, the requirement for the underpinning sciences behind the forensic analyses we conduct is part of the on-going or proposed research projects.

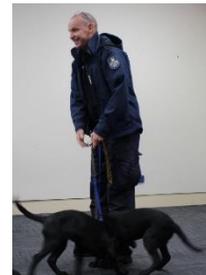
President's message is continued on Page 2.

## 2015 Allan Hodda Memorial Award



Natasha Mitchell was 2015 recipient of the Allan Hodda Memorial Award. Natasha has provided an overview of the work she conducted during her research trip. If you wish to know more regarding her work, Natasha can be contacted at [Natasha.Mitchell@sa.gov.au](mailto:Natasha.Mitchell@sa.gov.au).

On Page 3



## Branch Meetings

The ACT and Qld Branches have provided overviews of some of their recent meetings and workshops.

On Page 4



# Allan Hodda Memorial Award Recipient 2015

by Natasha Mitchell

In 2015 I was honoured and delighted to receive the ANZFSS Allan Hodda Memorial Award. The award afforded me the opportunity to travel to the United States to further my knowledge of DNA analysis methods used to identify severely degraded human remains. I wear a few different hats and along with my role as Senior Forensic Biologist at Forensic Science SA, I am also an Army Reservist posted to Unrecovered War Casualties-Army (UWC-A), the Australian Army's Investigative unit responsible for the recovery and identification of missing soldiers from past conflicts.

Over 20,000 of Australia's fallen soldiers have no known grave and many families remain hopeful that their loved ones will be found and identified. This is no easy task and is akin to working on an extremely complex cold case. Time of death is typically over 70 years, historical records are incomplete, access to appropriate Family Reference Samples is limited and DNA recovered from skeletal remains is in limited supply and often severely degraded, particularly remains recovered from the Asia Pacific arena. UWC-A employ standard Y-STR and mitochondrial DNA methods to determine ancestry and lineage, however in several cases these methods have not successfully resolved ancestry or assisted identification. The primary objective of my travel to the US was to identify Massive Parallel Sequencing (MPS) methods that could help overcome these challenges.

First stop was the 27th International Symposium on Human Identification held in Minneapolis, MN 26-29 September 2016.



Key topics at the conference included MPS and analysis of low copy DNA. In total 29 oral presentations were delivered and 126 posters presented. Approximately 840

people attended and 23% of those were international delegates representing 44 different countries. I attended 2 of the 9 workshops in addition to several of the vendor showcases held at the beginning and end of each day.

The first workshop 'Moving Implementation mountains - Experiencing laboratory NGS and bioinformatics Workflow through Simulation' was developed in partnership with RTI International which is a not for profit group that partner with researchers and companies to advance projects in many areas of science including forensic science. The group have developed a simulation program to help laboratories wishing to implement MPS develop appropriate workflows and lab design.

Secondly, I attended the Human Identity Traits Association workshop; 'Determining phenotypes from Genotypes'. Presenters included Professor Manfred Kayser and Dr Susan Walsh co-developers of HirisPlex, a kit that allows for determination of hair and eye colour. The addition of phenotypic information has great potential to assist the UWC-A investigative and identification process and we have since developed a collaborative project between UWC-A, Dr Susan Walsh (Indiana University-Purdue

University Indianapolis) and Griffith University, Queensland.

After the symposium, I travelled south east to Dover in the state of Delaware to meet with Dr Suni Edson from the Armed Forces DNA Identification Laboratory (AFDIL). AFDIL is a subdivision of the Department of Defense DNA registry and has several missions. They perform identifications for personnel killed in both current and past conflicts in addition to data-basing of the 6.9 million reference samples of US military personnel. The AFDIL MPS strategy is divided between two projects.

The first is the Punchbowl project which led to the development of an MPS protocol for extremely degraded, chemically modified mitochondrial DNA for which standard methods were unsuitable. The method incorporates a long range PCR and hybridization and enrichment capture technique to target extremely small fragments of DNA. UWC-A are currently considering this method as an option for remains that have so far failed to produce a DNA profile.

Additionally AFDIL have a MPS project that seeks to develop a simple rapid cost effective method for routine samples, reduce turnaround times whilst maintaining or increasing the amount of information. This project is one of continuous improvement and assessment of emerging technologies. UWC-A is a relatively small group of professionals without dedicated laboratories or research programs. It is important that we partner with service providers and research laboratories to help resolve the challenges we face. My visit to Dover went a long way towards developing a collaborative relationship with AFDIL.

I continued my travels and headed south west to Professor Bruce Budowle's lab at the University of North Texas Health Science Centre (UNTHSC). I spent two days with the lab staff learning about MPS validations and associated data analysis software applications developed at UNTHSC. I also spent time with Dr Angie Ambers who took me through her bone sampling and extraction techniques. Professor Budowle



explained how their advanced DNA extraction and MPS protocols were applied to a set of 140 year old remains recovered from the site of an old cemetery in Deadwood, South Dakota. The group ascertained that the individual had European ancestry, light red hair and brown eyes. I was very grateful for the time afforded to me by Professor Budowle's staff and they expressed a keen interest in future collaborations.

Lastly I headed to the Defense Prisoner of War/ Missing in Action Accounting Agency (DPAA) in Pearl Harbour, Hawaii. DPAA are responsible for the recovery and identification of missing US service personnel and are legislatively required to complete 200 identifications each year. To achieve this, they collaborate and partner extensively with universities and volunteers. I met with Dr John Byrd, the laboratory director and Audrey Meehan, their DNA specialist. Audrey provided me with her protocols and demonstrated her extensive experience in bone sampling.

In February 2017 I presented the details and outcomes of my travel at a SA Branch meeting. Our members showed great interest in hearing about the work and challenges faced by UWC-A. I am a proud ANZFSS member and I took every opportunity whilst travelling to talk about our society and the upcoming symposium in Perth next year. Many people I spoke to you knew ANZFSS well and talked fondly of previous symposiums they had attended. The laboratories I visited kindly provided me with many protocols and other procedural interpretation documents and each lab has since been a point of contact for advice and information. I am very thankful to all. I learnt a great deal and I am also thankful to FSSA and UWC-A for their support. Lastly, I wish to thank ANZFSS for this amazing opportunity and I am looking forward to potentially providing further feedback at the symposium next year.



For further information contact Natasha at [Natasha.Mitchel@sa.gov.au](mailto:Natasha.Mitchel@sa.gov.au).

## Branch Meetings

### Queensland Branch

by Carl Streeting

We have hosted a number of presentations to date for our members. Queensland's Chief Forensic Pathologist, Associate Professor Charles Naylor, led a panel of interdisciplinary experts in the investigation into the hypothetical death of 'John Doe' in our well received public presentation 'Beyond Reasonable Doubt: The Investigation Trail' which started off with canapés and refreshments.

The panel consisted of:

From QHFSS

Dr Annu Nanagia, Forensic Odontologist  
Dr Peter Culshaw, Clandestine Lab Group  
Mark Stephenson, Forensic Toxicology  
Jenny McFowan, Illicit Drug Group

From QPS

Lucy Maxwell, Analytical Services Unit  
Sen Sgt Duncan McCarthy, Fingerprint  
Sgt Carl Streeting, Scientific Section, Major Crime Unit

A few recent highlights include: in February our members were treated to presentations about Cable Ties and Blowflies and as I soon learnt this was not an entomologist's parody of Fifty Shades. Associate Professor Sarah CRESWELL of Griffith University presented on 'A comparison of plastic cable ties based on physicochemical and stable isotopic measurements'; and Julianne FARRELL presented on 'Age and type of maggot food sources, and the potential to affect the minimum post mortem interval estimate'.



In June we had a pawesome presentation from QPS dog squad representatives and their hooman side kick, Senior Constable Glen Bruun. The open question and answer session was well received by our members.

### ACT Branch

by Samuel Bottrill

I recently had the pleasure of attending the Bloodstain Pattern Analysis II workshop, which was run by Ross Gardner of Bevel, Gardner & Associates and held on the CIT Bruce campus. This is my first year studying CIT's Forensic Science degree and I was apprehensive about my ability to keep up with the subject matter and fit in with the culture of the participants. I decided to jump in and give it my best anyway, and discovered nothing could have been further from the truth. I found my fellow participants warm, friendly, and the overall environment was very supportive and inclusive.

The majority of participants were technicians who were undertaking professional development.

As a student it was an incredibly positive experience interacting with so many industry professionals. That being said, we were all learning something new which made me feel more like one of the group. By making friends and developing contacts, I was able to

gain insights into what the industry is like directly from those working within it. Arranged during the course was a visit to the AFP Majura Forensics Facility, another great opportunity to explore part of the industry not available to most

The six-day course itself was intense, very comprehensive, well-structured and paced. There was a good balance between theory, case studies and practical application, with a large emphasis on learning through hands-on experimental activities. We spent multiple days creating bloodstains to gain an understanding of how they form, in order to assist in reconstructing the events of crime scenes after the fact. In the final days of the course, our teams were tasked with putting what we had learned to the test and analyse a full crime scene.

Ross' delivery was brilliant, both in terms of clarity and expertise. His energy and passion were as intimidating as they were inspiring. Throughout the course he suggested areas for future research to push the discipline forward. It really highlighted this as a progressive and changing industry within which everybody is capable of contributing.

To other forensic science students out there, these opportunities are ones to look out for and embrace with both hands. The exposure you'll receive to the industry is priceless. The skills you learn at courses like these are definitely relevant to your professional and academic future, but it's the people you meet and the insights you gain that prove the most rewarding. I feel incredibly fortunate to have attended this course, and I have a BPA certificate to put on my CV too.

This experience has introduced me to an interesting discipline, a possible future specialisation and an industry that is very supportive and welcoming of new blood.



## GCC Forensic Science Conference 2017

The inaugural GCC Forensic Science Conference and GCC DNA Symposium, supported by INTERPOL, will be taking place on 14-15 November 2017, at the Fairmont Bab Al Bahr in Abu Dhabi, UAE. The event is being organised jointly with Abu Dhabi Police and will cover a range of areas within Forensic Science, along with a 3<sup>rd</sup> day of workshops after the conclusion of the main Conferences. The hosts will take the opportunity to showcase the achievements of Abu Dhabi Police in securing the status as the only Middle Eastern country to integrate the INTERPOL DNA Monitoring Expert Group & the only Arab country in the INTERPOL Disaster Victim Identification Unit.

Brigadier General Abdul Rahman Mohammed Al Hammadi, Forensic Evidence Department Director at Abu Dhabi Police GHQ, commented on the event at the launch of the organising & scientific committees for which he currently serves as Chairman:

**"THIS HIGH LEVEL CONFERENCE WILL BRING TOGETHER FORENSIC EXPERTS FROM THE GCC, MIDDLE EAST AND INTERNATIONAL COMMUNITY. THE EVENT WILL ALSO ACT AS A PLATFORM FOR TECHNOLOGY COMPANIES TO SHOWCASE THEIR PRODUCTS & SERVICES THROUGH**

**THE EXHIBITION AND IS ALSO A CHANCE FOR ABU DHABI POLICE TO MEET CURRENT AND POTENTIAL SUPPLIERS TO DISCUSS REQUIREMENTS AND FUTURE PROJECTS."**

The Conference will offer a platform for scientific cooperation between forensic scientists of the Gulf countries. Amongst the objectives of the Conference, one of the most important is the strengthening of forensic science practices across the region. Some of the most internationally renowned forensic specialists will descend into Abu Dhabi in order to foster a global exchange of experiences and best practices. In addition, the Conference will motivate young researchers and emerging talent from regional universities to present in the 'Youth Stream', curated by the Khalifa University for Sciences and Technology, in order to showcase their progress in front of key stakeholders and education sponsors.

Another key area of focus will be the digital forensics and cyber security stream. The specialised programme will include various sessions for digital examiners as well as hands-on workshops on the latest issues for the sector such as crypto-currencies and blockchain. Several other topic areas will be covered at the two, co-located Conferences



مؤتمر الخليج العربي لعلوم الأدلة الجنائية  
14-15 NOVEMBER 2017 | FAIRMONT BAB AL BAHR, ABU DHABI

including: crime scene investigation, pathology & mortuary, toxicology, familial DNA & databases, ethics & bias, exonerations, wildlife DNA, documental forensics, fire investigations and other relevant areas.

For more information and registration, please visit: [www.gccforensic.com](http://www.gccforensic.com) and <http://www.gccdnasymposium.com/welcom>  
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