



Australian and New Zealand FORENSIC SCIENCE SOCIETY



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Keep an eye out for the enclosed flyer concerning the 2006 Inside the Forensic World

NSW Branch Newsletter

NSW Branch ANZFSS Inc ABN 33-502-753-392

Farewell to a Colleague and Friend

It is with great sadness that we share the news that Peter Bradhurst has passed away recently following a long illness. This loss will be felt not only by friends and family but also the forensic science community.

Peter was a forensic pathologist at the Department of Forensic Medicine, Glebe since 1986, and a valued member of the ANZFSS. During this time he achieved much for the Society and Forensic Science as a whole. The highlight of his career was undoubtedly his extensive involvement in the Backpacker murders.

He was an absolute pleasure to work with. Peter's down-to-earth nature and a great sense of humour made it easy to communicate with him. He had a willingness to teach anyone who asked, and spent much time helping students to learn the profession he loved so much. A veritable "gentle giant", he will be greatly missed.

Peter was laid to rest in Pine Grove Cemetery on the 3rd of May. He is survived by his wife Elsa, and his six children.

New Mobile Number

After much discussion and exploring different options, the Committee has purchased a mobile phone for the use of the NSW Branch Secretary. In the past, the Division of Analytical Laboratories Switchboard was able to take incoming calls for public events for us, but are now unable to continue this service. We would like to thank DAL for previously donating this service to us. At present, our Secretary shares an office and phone with others and to impinge upon those unrelated parties with the high volume of phone calls (particularly during registration for public events) would be unfair, as would asking the Secretary to continue to use their personal equipment. Thus, to resolve the situation, we have purchased a handset and a recharge card (rather than entering into a contract). Future recharging of the phone credit will need to be approved by the Committee.

So, in order to contact Lisa, please make use of our new phone number: 0406-931-619. Don't forget to update your phone book!



Message from the President

Dear ANZFSS Members,

I received some interesting feedback from members about the proposed changes of Rules of Association by the National Executive, including some questions about what happened in Fremantle. The National Delegates Meeting on the Sunday prior to the ANZFSS Symposium showed that many of the concerns identified by our Branch were actually shared by other States. Minor changes to the proposal were discussed, including a more inclusive definition of the term 'practitioner'. It was also agreed that student members would be able to join Branch committees and vote, although they could not hold an official position. It was finally decided that the Special General Meeting planned for the Thursday would be cancelled and replaced by a 'general discussion'. As identified by many of our members, such a meeting would have been unconstitutional for a number of reasons. As a result, no firm decisions were taken, but the 'vibe' was that the Society should become more professional. As mentioned in my message last month, a balance must be struck, and I believe this is possible. The consultative step is not completed yet and more discussion with the National Executive is needed. For this reason, the National President, Bill Crick, plans to visit the State Branches. Stay tuned!

In my views, any profession must rely on sound education & training as well as research & development in order to be credible. Forensic Science is not different. For this reason, our Society has developed a tradition to present a one-day seminar entitled 'Inside the Forensic World' The power to educate the public and school leavers through such an event should not be underestimated. I am delighted to announce that Inside the Forensic World will be held this year on the 15th July (see details in the Newsletter). In addition, those of you interested in education and R&D are advised to visit the e-seminar on forensic education live and online on the 24th May (<http://forensic.e-symposium.com/education/>).

This 'virtual seminar' has the benefit of attracting speakers (and hopefully attendants) from around the world for the fraction of the cost of a real conference. The drawback of course is that there will be no opportunities to visit the 'Little Creatures' pub after the talks like in Fremantle...

Finally, I cannot leave you without sharing some thoughts for Dr Peter Bradhurst's family. Sadly, Peter has passed away recently. Being a forensic pathologist, Peter was a well known and appreciated figure within forensic circles and a valued member of our Society. He will be sadly missed by everyone.

Claude Roux
President
6th May, 2006



Welcome to New Members

The NSW Branch ANZFSS extends a warm welcome to its newly ratified members:

Sushil Bandodkar
Nicole Campbell
Adrian De Grazia
Helen Eyland
Danielle Lau
Ellen Matthews
Monique Nelson
Matthew Orde
Joanne Salama
Daliya Sari
Tony Simmonds
Dene Slater
Hilton Swan
Annalise Wrzeczynski





REVIEW: "Illicit Synthetic Drugs Production in the Netherlands"

by Dr Eric Lock

ANZFSS Meeting, Wednesday 26th April 2006

We had the unique opportunity to meet an international expert on the synthesis of illicit drugs in Europe. Eric was in Australia for the Freemantle Conference and kindly agreed to speak to us during his short stay in Sydney.

Eric began by describing the roles and responsibilities of The Hague, which is the only forensic laboratory in the Netherlands. It is not a Police organisation but is rather under the control of their National Ministry of Justice.

The XTC Project is a government funded project extending from 2001 to 2006 with the goal of reducing the trafficking and production of synthetic drugs in the Netherlands. The small forensic team (~3 scientists and 4 technicians) involved in the project play the following roles:

- ◆ supporting the special dismantling team for clandestine labs
- ◆ research and development in amphetamine and MDMA profiling, including determining relationships between seizures, clan labs, dumpings etc.
- ◆ knowledge and expertise centre on production methods and precursors
- ◆ international collaboration and partnership

Drug manufacture is a big problem for the Netherlands since most of the amphetamine seized in Europe, and most of the MDMA found worldwide is produced in the Netherlands.

Eric showed us a number of clandestine laboratory setups, from small-scale operations working with 20 L round-bottom flasks to large-scale operations working with around 200 L (and up to 800 L) stainless steel reaction vessels. He described the most common synthetic routes for amphetamine and MDMA production in the Netherlands, and commented that most of the setups are the same due to the limited knowledge of chemistry by the manufacturers. In fact, it is a case of the same recipes being passed around from one manufacturer to another.



Dr Eric Lock

Eric then showed us some examples of seizures and the waste dumping that has become so problematic. Some innovative methods of dumping include stealing a truck, filling it with the waste materials from the manufacture process, then dumping the truck somewhere. Another includes creating a hole in the bottom of a van and siphoning off the waste as they drive around.

Tabletting is another aspect of the process that can be used as intelligence. As there are much fewer tabletting resources available than manufacturing labs, many drug manufacturers will use the same tablet making facilities. Most of the time, the tabletting people take many samples, have many different dyes, punches and change the mix proportions, which makes it a challenge for interpretation. Interestingly the tabletting machines used are not always commercial instruments (stolen or otherwise), which indicates that someone is making them for the sole purpose of illicit manufacture.

Eric talked about profiling of the drugs, including visual aspects, odour, packaging (although the police do not always supply this), purity, cutting agents, synthesis impurities, elemental composition, occluded solvents, isotope ratio analysis, etc. He also spoke about the role of strategic and tactical intelligence, as well as national and international collaboration.

We would like to thank Eric for coming to give us this very interesting presentation.

Review by Shaheen Aumeer-Donovan



MEETINGS FOR 2006

This is an updated version of our meeting schedule. Note that unless a firm notice is placed in the newsletter, these dates are **tenta-**

tive. Any change of date or venue will be sent to you through the newsletter ASAP. Hope to see you there!

Wednesday, 17th May	Scholarship Recipients for the 2006 ANZFSS Symposium in Perth
Wednesday, 21st June	"Forensic Psychology in Australia" by Sarah Yule
Saturday, 15th July	Inside the Forensic World (see flyer enclosed with the newsletter)
Wednesday, 16th August	TBA
Friday, 22nd September	Public Night
Wednesday, 18th October	TBA
Friday, 24th November	Annual Dinner & Talk TBA

NEXT MEETING: Scholarship Recipients for the 2006 ANZFSS Symposium

DATE: Wednesday, 17th May 2006

TIME: 6:30 pm for refreshments,
7:00 pm start

VENUE: Department of Forensic Medicine,
50 Parramatta Road, Glebe

COST: Free to members, \$5 for non-members

We will have the pleasure of hearing about some contemporary research from three of the NSW scholarship winners for the ANZFSS Symposium that was held in Fremantle early in April this year.

We have a good cross-section of physical evidence researchers speaking about their work, from trace DNA to fingerprint detection and GSR characterisation.

Michele Franco:

A novel method to recover "trace" DNA



The NSW Forensic Biology Laboratory now examines a significant proportion of the crime scene items received for "trace" DNA. Profiles recovered from "trace" DNA often provide vital intelligence information to police.

Traditional methods of "trace" DNA recovery used in the NSW Forensic Biology Laboratory from items of clothing, specifically, are by direct sampling or tape lifting. Tape lifting normally recovers the highest quantity of DNA but there are disadvantages associated with its use, which include difficulty in manipulating the "sticky" tape.

A novel method of recovering "trace" DNA using a vacuum collecting device was investigated. After preliminary experiments showed that this new method could recover DNA, a concordance study was carried out comparing the new method to the tape lift method. Testing of similar sized target areas commonly recovered greater quantities of DNA by the new method compared to the tape lift method. Increased sensitivity of sampling was also more apparent with the new method as the minor DNA components were often more pronounced. This new method has the advantage of taking less time to conduct and is less tedious as the current tape lifting method.

Investigations, which explore the potential uses and limitations of this new technique, will be discussed.

Mark Tahtouh:

The use of FTIR chemical imaging for latent fingerprint detection



FTIR chemical imaging simultaneously collects thousands of mid-infrared spectra from a sample while maintaining spatial information. This method yields images of fingerprints from backgrounds that traditionally pose problems for current fingerprint detection methods. For example, surfaces that contain a picture or writing can obscure the ridge details of a latent or pre-treated fingerprint. On such surfaces, infrared imaging can provide significantly improved results because the contrast is not based on the response of the surface or print to lighting conditions but rather is based on chemical differences. (PTO)



Scholarship Recipients for the 2006 ANZFSS Symposium, continued...

Untreated fingerprints have been imaged on some surfaces which are reflective to infrared light such as bare metal. A number of chemically treated fingerprints on a range of surfaces will be presented including fingerprints on Australian polymer banknotes and aluminium drink cans. The chemical treatments used include both conventional treatments such as cyanoacrylate fuming and some novel fingerprint reagents.

This technique shows enormous potential for the detection and enhancement of latent fingerprints on a range of surfaces and the work is currently being extended so that the true capabilities of infrared chemical imaging may be realised. Part of this ongoing work will focus on the role that FTIR chemical imaging can play in the application to actual casework. A discussion of how this technique may be incorporated into current fingerprint detection sequences will be provided with particular focus given to the movement of FTIR chemical imaging from a research environment to a practical casework setting.

Stephanie Hales:

Characteristics of lead / heavy metal-free ammunition



The importance of GSR analysis in firearm related crime investigations has been well established. However, most of the accepted techniques available for detecting GSR are based on the inorganic heavy

metal primer component of the ammunition. A number of manufacturers have developed new types of ammunition which are heavy metal-free. These developments are in response to indications that a build up of lead and other heavy metals in indoor firing ranges presents a potential health hazard to frequent users of the firing range. Although not currently frequently encountered in crimes, a dramatic increase in the use of these ammunitions over recent times, by law enforcement agencies and gun enthusiasts, will no doubt lead to an increase in the chance that they will be encountered in casework situations.

This paper investigates the physical and chemical characteristics of lead and heavy metal-free ammunitions, describes why they threaten the current methodology for detection and interpretation of GSR, and proposes a novel approach for identifying shootings where these ammunitions have been used (based on a database model).

With the advent of new heavy metal-free ammunition, it has been necessary to develop techniques that detect GSR arising from the organic component of the ammunition. This paper further proposes an original methodology for detection of the resultant residues. The combination of detection of the organic portion of GSR by IMS and LC/MS/MS, and detection of the inorganic portion by SEM/EDX, would be ideal, maximising the chances of detecting GSR where it is present.

ADVANCED NOTICE: "Forensic Psychology in Australia" by Sarah Yule

DATE: Wednesday, 21st June 2006

TIME: 6:30 pm for refreshments,
7:00 pm start

VENUE: Department of Forensic Medicine,
50 Parramatta Road, Glebe

COST: Free to members, \$5 for non-members

Sarah Yule is the A/Senior Forensic psychologist and Team Leader of the Behavioural Science Team, NSW Police. This team provides behavioural analysis for investigations through the combined complementary skills of experienced investigators ('profilers') and forensic psychologists. Sarah has been with this team since its creation in early 2005, prior to which she worked with offenders in the Department of Corrective Services for 6 years followed by 2 years within the NSW Police

Psychology Section. In addition to her psychology qualifications she has completed international training throughout the past five years in behavioural analysis, investigation of violent crimes and the application of psychology to investigations.

She is currently completing a PhD researching the applicability of the FBI profiling approach to the Australian population, including examination of our own offender typologies, crime behaviours, and behavioural linkage.





Member Profile: Forensic Entomologist - Dr James Wallman

This month's profile is of our new Vice-President, Dr James Wallman.

James is a senior lecturer in the School of Biological Sciences at the University of Wollongong. He has been at UOW since 2001, when he also joined the Executive of the NSW Branch of the ANZFSS. He teaches evolutionary biology, especially the biology of invertebrate animals. In addition to his teaching responsibilities, James researches the evolution and biology of flies, with a specific application to forensic science (flies are the earliest invaders of dead bodies, and may help refine the time of death).

Prior to taking up his position at Wollongong, James was on the academic staff of the Departments of Zoology (1994-1998) and Environmental Biology (1999-2001) at the University of Adelaide, where he undertook his BSc (Hons) and PhD degrees. While in Adelaide, he was also an active member of the SA Branch of the ANZFSS, acting as a Committee Member and Editor on the Executive, and assisting with the organisation of the 14th ANZISFS in 1998. He looks forward to reprising this latter role for the 20th conference in Sydney in 2010!

He has been a practising forensic entomologist for over 12 years. He has assisted with the investigation of numerous cases of untimely death for the New South Wales, South Australia and Queensland police services, and has been called to appear as an expert witness for both the Crown and the defence. His entomological expertise has also been used by various non-government agencies.

James is often asked how he became interested in forensic entomology. The answer is rather circui-



Dr James Wallman

tous! When he was a boy he spent holidays on a farm in south-eastern South Australia. This sparked a fascination with dead animals and the invertebrates that call them their home. So he had an early grounding in death and decomposition! When he went to university he studied entomology, but wasn't sure what area to specialise in. Then, by chance, he discovered in the University library the first textbook written on forensic entomology, only just published. He took it home, read it from cover to cover and was hooked.

James has had some interesting cases in his career. While the most notorious is probably the 'Snowtown' case from South Australia, most are much less well known, but no less fascinating from an entomological perspective. Indeed, James finds it easier to cope with the inherent tragedy of a murder by focusing on the lives of the insects, the details of which may be instrumental to solving the crime. He is passionate about forensic entomology because he makes a contribution to society through the study of creatures, which, by any measure, are the most important on the planet; he finds the combination very rewarding.

Web Designer Needed

We still need someone to create an interesting and professional website for our Branch. Please contact us if you are interested. The website url is as follows:

<http://www.anzfss.org.au/nsw/nswdetails.htm>



IDIOM INVESTIGATION: Breaking Down the Lingo

By Donnah Day

Ever had trouble understanding a forensic scientist, police officer or lawyer? Never fear! Donnah is here to analyse the jargon for us.

Hair Morphology:

Hair – a slender, thread-like outgrowth from a follicle in the skin of mammals.

Hair has three morphological regions:

1. **Cuticle** – a translucent outer layer of the hair shaft. It consists of scales that cover the shaft. There are three basic scale structures that make up the cuticle:

coronal = crown like

spinous = petal like

imbricate = flattened

Combinations and variations of these types are possible.

2. **Medulla** – central core of cells

3. **Cortex** – the main body of the hair composed of elongated and spindle-shaped (fusiform) cells.

Coronal scales – found in hairs of very fine diameter and resemble a stack of paper cups. These are commonly found in the hairs of small rodents and bats.

Spinous scales – are triangular in shape and protrude from the hair shaft. They are found at the proximal region of mink hairs and on the fur hairs of seals, cats and some other animals.

Imbricate scales – consist of overlapping scales with narrow margins. They are commonly found in human hairs and many animal hairs.

Guard hairs – form the outer coat of an animal and provide protection.

Fur hairs – also known as wool hairs. Form the inner coat of an animal and provide insulation.

Tactile hairs = vibrissae or whiskers. Found on the head of animals and provide sensory functions.

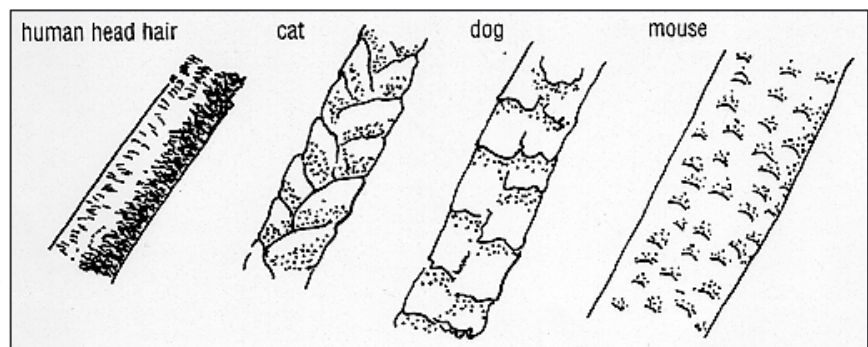
Vellus – fine body hair.

Hair growth – hairs undergo a cyclical growth (anagen) and a resting phase (telogen). The transition period between the anagen and telogen phases is referred to as the catagen phase. Hairs are routinely lost during telogen.

Ovoid bodies – large, solid structures in hairs that are spherical to oval in shape, with very regular margins. They are abundant in some cattle and dog hairs, and also found in human hairs.

Banding – occurs in animal hairs but not in human hair. When animal hairs exhibit radical colour changes in a short distance it is referred to as banding. Human hairs are generally consistent in colour and pigmentation throughout the length of the hair shaft.

Buckling – variation in diameter along the hair shaft – particularly applies to pubic hair.



Scales on hair of different animals



Bizarre Crashes



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Newsletter by Email

If you would like to receive the newsletter by email, please send me an email indicating your name, membership number, and the recipient email address. shaheen.aumeer@uts.edu.au

Contact Details

If you have any query, comment or suggestion about this newsletter or any information contained within, please do not hesitate to contact us. *All correspondence regarding general enquiries, membership renewal, payment etc, can be addressed to:*

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Final Words:

“The investigator whose work is half done has accomplished nothing. Either he has solved the problem and quite finished the work: that means success; or he has done nothing, absolutely nothing.”

Hans Gross, Criminal Investigation (1924)