



Australian and New Zealand FORENSIC SCIENCE SOCIETY



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Our next meeting is on
Wednesday 18th March.

Further details will be sent
shortly.

NSW Branch Newsletter

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ANZFSS News & First Meeting for 2009

Happy New Year!!!

Your NSW Branch Committee hopes that you had a wonderful break over the festive season and are ready for another action-packed year!

Our first meeting for the year will be on Wednesday the 18th March. Dr Denise Donlon will speak on her experiences repatriating the remains of deceased servicemen from Vietnam. Keep an eye out on the website for further details.

I would like to thank all the contributors to this newsletter, in particular Aldo Severino who has made a huge effort to assist me with content for this edition.

If you have any interesting news or would like to share some information about your field of forensic science, please send that to our Secretary Paul (nswbranch@anzfss.org.au).

Just a note: the review of the excellent talk by Megan Rowe last year on the Peter Falconio investigation will be in the next newsletter.

Hope to see you in March!

Shaheen Aumeer-Donovan
Newsletter Editor



Eric Murray Forensic Science Student Award

Melanie Holt, a CIT graduate, has been awarded the inaugural Eric Murray Forensic Science Student Award - our congratulations to Melanie, who will receive her award at the March NSW Branch meeting (stay tuned for photos in the next newsletter!).

Mr Eric Murray, a long-standing member of the NSW Committee and Forensic Scientist, has provided this very generous gift to the ANZFSS for the purpose of assisting students in Forensic Science. The aim of the award is to assist part- or full-time students in financial need. Melanie will receive a voucher for \$500 to be spent at the Co-op Bookshop.



Message from our President

Dear Members,

My colleagues and I on your Committee have started another year full of anticipation. We are busily planning our program of meetings, with plenty to hold your interest. While most of our meetings, as in recent times, will be based in central Sydney, we are planning for some of them to be elsewhere. Stand by for more details!

2008 was a very successful year for your Society, as it contained some considerable highlights. For example, we organised the very successful visit of Superintendent Megan Rowe from the Northern Territory Police to speak about the Falconio case. This was a well attended public night, and Megan did a great job of outlining the details of this callous crime. Megan's visit was kindly supported by the National Executive of the Society, who encouraged other state branches to also host a visit by Megan to hear her speak.

Our annual dinner, at the end of November, was a memorable occasion for those able to be there. It seems that everyone enjoyed themselves. We had the pleasure and good fortune of being addressed by the State's senior crown prosecutor, Mark Tedeschi QC. Mark had just finished prosecuting the Gordon Wood trial. We were indeed lucky that, on the very day of the dinner, the jury returned with their verdict (guilty). This meant that Mark was able to speak openly about this notorious case. We look forward to another splendid evening in November this year.

The Committee responsible for organising the Sydney 2010 Symposium has also been busy. Important steps continue to be taken to prepare for what is sure to be an excellent event. You will shortly receive your membership card for this year, which you will note features the Symposium as its theme. You should also have received a postcard advertising the details. Please spread the word among your colleagues! The Chairman of the Organising Committee, Professor Claude Roux, reports on preparations for the Symposium elsewhere in this newsletter.

The importance and relevance of forensic science is unquestionably as strong as ever. We have been reminded of this just in the last couple of weeks as the terrible toll of the tragic events in Victoria has been revealed. Forensic experts in Melbourne (some of whom have come from interstate) have had the grim task of identifying many of the victims killed in the bushfires. Our thoughts are with them, as they are with our many other friends and colleagues in Victoria.

Let's hope that the rest of 2009 develops well for our Society, enabling us to continue fostering and promoting the many positive outcomes that forensic science delivers.

Dr James Wallman
President

15th February 2009



"Is this really necessary, Your Honor? I'm an expert."



Update on 2010 Symposium



As most of our members would know, the next ANZFSS symposium will be held in Sydney (Darling Harbour), on 5 to 9 September 2010. The Organising Committee is currently working with Tour Hosts (the Conference Organiser) towards making this symposium a successful and memorable event. To this end, we are very pleased to welcome Dr Tony Raymond, A/Chief Scientist, NSW Police Force, and Mrs Tania Prolov, A/Deputy Director Forensics Toxicology, DAL, in the Organising Committee. Tania and Tony are long-serving members of our society, including in the executive, and have considerable experience in the organization of major conferences. They are also well-known and well-respected individuals in the forensic and broader community. Their involvement is undoubtedly a real asset for the Sydney Symposium. I personally thank them for their commitment on behalf of the Committee and the NSW Branch.

At this stage, we can confirm that the symposium will be held over four days, like in Melbourne. The Welcome Night will take place on Sunday, while the Official Dinner will formally close the meeting on Thursday night. We are also in discussion with X-Tek to repeat the well-established X-Tek Extreme Night Out – but in Sydney style (whatever it means...).

Our aim is to organise a symposium of top scientific quality without compromising on the traditional Aussie social program! It is fair to say that the recent financial turmoil created a few additional hurdles. However, we are confident that the Symposium theme “Forensic Science on Trial” will attract significant interest within and outside the forensic science community. It may also assist in attracting more international delegates.

Interestingly, the US National Academies of Sciences has just released its report on “Identifying the Needs of the Forensic Science Community”. In his opening address, The Honorable Harry T. Edwards, Co-Chair, Forensic Science Committee, comments that “*not only does the forensic science community lack adequate resources, talent, and mandatory standards; it also lacks the necessary governance structure to address its current weaknesses.*” The report itself finds serious deficiencies in the American forensic science system and calls for major reforms and new research. Rigorous and mandatory certification programs for forensic scientists are currently lacking, the report says, as are strong standards and protocols for analyzing and reporting on evidence. And there is a dearth of peer-reviewed, published studies establishing the scientific bases and reliability of many forensic methods. Moreover, many forensic science labs are underfunded, understaffed, and have no effective oversight. Well, this is rather blunt!

Some may say that this is the situation in the USA and it not applicable here. However, such a report will have a global effect including in Australia. Many forensic scientists, managers, lawyers, academics and the like will discuss the various arguments and recommendations in the months and probably years to come. In this context, our symposium theme cannot be more timely!

Stay tuned and visit: www.anzfs2010.com for regular updates - and don't forget to block your dates in September 2010!

Prof Claude Roux
Chair, Organising Committee





Society Members



The Society extends a warm welcome to our newly ratified members:

Mohamed Ali ALMAZROOEI
Sharon BISUNA-CARLOS
Mark BLACK
Christopher BOURKE
Lance BROOKER
Melissa CAHILL
Adam CAWLEY
Tony CHARLES
Sarah COLLISON
Hamish COWAN
Alaina FARRELLY
Jae GERHARD
David GODFREY
Jaclyn GRIFFIN
Zoe HITCHCOCK

Cliff HOB DEN
Dominique HOLT
Kassie JAWORSKI
Margaret JOHNSTONE
Peter KENNEDY
Caroline KOOYAN
Amanda KUMAR
Christopher LISICA
Padraig McCAULEY WINTER
Tu NGUYEN
Joanne O'BRIEN
Kate ROBERTSON
Joshua SCWARTZ
Garth SHEEHY
Ankit SRIVASTAVA

Emily STACY
Alice STEVENSON
Jane TAYLOR
Sim TE
Katherine THOMAS
Kaitlyn TOOLE
Mark TOPP
Bruna TROTTA
Kathrin VOGT
Kyla WATERS
Natalie WATSON
Allan WATT
Tanya WONG
Alexis WRAY
Carlene YORK

We also say farewell to Mr Robert (Bob) SHEPHERD, who is a long time member of the society. He writes:

“Dear Secretary, I am in my 80th year and time to put the feet up and the cardigan on. So I will not be renewing my membership. Keep up the good work and initiatives. Regards, Bob Shepherd”

We thank Bob for this note, and wish him all the best in his retirement.

REVIEW: “Drug Seizures at the Australian Border and the Rise of the Super-Labs”, by Dr Michael Collins ANZFSS Meeting, Wednesday 13th August 2008

Michael introduced the Australian Forensic Drugs Laboratory at the National Measurements Institute (NMI). Their routine analyses involve the identification and quantification of seized drugs. They are also responsible for the Australian Illicit Drug Intelligence Program (AIDIP) in conjunction with the Australian Federal Police (AFP). Drug profiling is conducted primarily to gain strategic intelligence, and this program includes heroin, cocaine and amphetamines.

Heroin

Heroin is generally classified as being SE Asian, SW Asian, Mexican or South American, and each have sub-classifications. Australia mainly sees SE and SW Asian heroin. The colour of the heroin can vary from dark brown to an off white colour. While the colour doesn't really mean anything in terms of where it came from, the media likes to make that link. The overall process of signature profiling in-

volves looking at the alkaloids, by-products and solvents, etc. in unknown samples and comparing them to a database of samples of known origin. This requires co-operation with other countries.

Following GC/MS confirmation of the identification of the sample as being heroin, its salt form, purity and the presence of adulterants are determined. Profiles of the alkaloids, by-products and occluded solvents are then obtained.

Alkaloids such as morphine, codeine, thebaine, noscapine and papaverine are present in the sample because they are present in the opium extracted from the poppy. This information can already give investigators a good idea of which region the heroin may have come from.

By-products form because the alkaloids also undergo transformation during the chemical reactions

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REVIEW: "Drug Seizures at the Australian Border and the Rise of the Super-Labs", by Dr Michael Collins

ANZFSS Meeting, Wednesday 13th August 2008

involved in converting the opium into its end product. The trace material present in the sample will show up in the profile, and how dirty or clean the spectrum is will indicate the level of purity of the seizure.

Occluded solvents will be present from the process of converting heroin base to its salt form. SW Asian heroin may contain acetone, methyl acetate, or no solvent; SE Asian heroin may contain ethyl ether, ethyl acetate or ethanol; South American heroin may contain methyl ethyl ketone, ethyl acetate, acetone or isopropanol; and Mexican heroin may contain furfural, etc. Michael showed us the changes in where our heroin is coming from and its purity.

Some of the major Australian heroin seizures include Operation Sorbet (103 kg), Operation Drycreek (107 kg), Operation Tabula (260 kg) and Operation Committo (25 kg). Operation Sorbet involved the seizing of heroin on the ship the *Pong Su*. The carbon isotope ratio of the heroin was compared, but the seizure had a strange signature, which didn't really indicate where it came from. It is possible that the heroin originated in North Korea, which is where the ship came from.

Cocaine

Michael described the cocaine origin program, which involves determining the origin of the coca leaf (i.e. where it was cultivated) and where the cocaine base has been processed to its salt form. Again, this is based on the US program.

Few species of coca are capable of producing cocaine. The profile obtained includes both where it was grown (for example, Columbia, Peru, Bolivia, etc.) and also its species (for example, erythroxyllum). Chemical profiling is based on 4 signatures: 14 tropane alkaloids, including cocaine, tropacaine, etc. (note that NMI synthesises the standards of these compounds); truxilline alkaloids, which include truxilline and 11 other stereoisomers; infrared $^{13}\text{C}/^{12}\text{C}$ and $^{15}\text{N}/^{14}\text{N}$ ratios; and processing solvents. All four signatures together can give a good indication of where it came from. Michael showed us the purity and border seizure trends over time.

Amphetamines

Michael then talked about synthesised drugs, and showed us the differences between unrefined methamphetamine, powdered methamphetamine and ice. The perception is that ice is more pure and therefore worth more, but this is not necessarily the case. There are many routes for producing methamphetamine, however only a handful of methods are normally used to produce it. Profiling involves examining organic manufacture by-products (e.g. by GC/MS, LC/MS/MS or LC/FL), elemental analysis to determine catalysts (by ICP/MS), chiral analysis to determine synthetic route (by CE), co-extracted pharmaceuticals and adulterant analysis.

Michael showed us the different synthetic routes used and the percentage of seizures that were produced using that route:

- ephedrine HI reduction (52%)
- Emde method or ephedrine HI reduction (31%)
- Emde method (6%)
- reductive amination (7%)
- unclassified (3%)

The presence of reductive amination as a synthetic route is interesting, and may be a result of ephedrine restrictions.

The Super-Labs

Michael then showed us some of the seizures that his team has been involved with.

Operation Calico involved a seizure in July 2006 in Kedah, Malaysia. Malaysian officials invited Australia to attend this scene. Countries in our local area will often invite Australia to attend, and quite often the DEA from the US will also attend. The clandestine laboratory was a legitimate chemical factory that was manufacturing methamphetamine from P2P at a rate of 1,100 kg per day. Intelligence sources revealed that the product was all intended for the Australian market. Michael showed us the profiles showing the synthetic pathway being used, including making P2P from phenylacetone nitrile. Crime scene photographs included huge drums of ether, as well as evidence that the manufacturers were also experimenting with other drugs

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REVIEW: “Drug Seizures at the Australian Border and the Rise of the Super-Labs”, by Dr Michael Collins

ANZFSS Meeting, Wednesday 13th August 2008

(the presence of camphor may indicate that they were trying to manufacture ecstasy).

Operation Onager commenced in May 2005 in Cekande, Indonesia, and was concluded on the 14th November 2005. The scene was a huge setup that included a manufacture shed, living quarters and a guard house. The manufacturers had the equipment to produce a ton of methamphetamine if they had wanted to. There were precursor chemicals and reagents on site, as well as final product. There were many chemicals present for manufacture by different synthetic routes. The HAZMAT infrared analysis was able to tell investigators that the final product was methamphetamine, however, it does not reveal which of the many routes was actually taken to produce it. The samples had to be taken back to the Australian laboratory for analysis.

Michael also mentioned several other major drug seizures that his team has been involved in, and in general discussion explained that the MDMA (ecstasy) signatures looked at includes by-products, elemental analysis, dyestuffs and sugars. Two seizures that Michael had seen involved identical looking tablets with the same logo, but in fact they had very different profiles and synthetic routes.

Normally border seizures are uncut, and some interesting additives have been seen from Columbia in some cases, for example, heart arrhythmia medication, working agents and even calming agents!

We would like to thank Michael for this very interesting presentation.

Review by Shaheen Aumeer-Donovan

REVIEW: “Cold Case Murder Investigations - The Reality”

by Detective Superintendent Geoffrey Beresford

ANZFSS Meeting, Wednesday 24th September 2008

Geoffrey Beresford is a Detective Superintendent and the Commander of the Homicide Squad which is part of the State Crime Command in the NSW Police. He kindly agreed to talk to us about the Unsolved Homicide Team.

TV shows have assisted this team by highlighting the importance of cold case investigations and making them “sexy”, even improving political assistance to an extent.

Of course there are some issues. When lobbying began 10 years ago, the first challenge was to decide which cases should be looked at first. The first cases to be considered were those that occurred between 1975 and 2000, which was a load that consisted of 420 cases. Four years ago the team (which then consisted of 8 reviewers), began to review the cases. However, what was initially supposed to be 6 months of reviewing became 2 years, and the process dragged on. What was really needed was a dedicated team rather than farming cases out to the respective local area commands.

Now the team consists of 35 investigators, with the rest of the homicide squad and coronial investiga-

tion team available to assist. The team is located at Newcastle, Wollongong and Tamworth to look at the different regions in NSW.

Out of the initial 419 completed case reviews, 190 cases were identified for further investigation. The team is currently reviewing cases from 2000 to 2004, and has expanded to include suspicious missing persons and unidentified skeletal remains in addition to the homicides. The cases are prioritised based on their degree of solvability as high, medium, low or nil. The team can offer rewards for information.

The team initially looks at whether the case was investigated properly in the first instance, but they must take into consideration the fact that certain technologies were not available 30 years ago. It is always easy to be an “armchair critic”.

Suspects that were originally identified in the case are reinvestigated, and new suspects are identified. Geoffrey explained that the change of relationship over time is a valuable resource. What he means is that things like divorce or even the passage of time changes things, and people are sometimes more

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REVIEW: “Cold Case Murder Investigations - The Reality” by Detective Superintendent Geoffrey Beresford ANZFSS Meeting, Wednesday 24th September 2008

willing to divulge information that they weren't originally forthcoming with. While occasionally the team does get a random call about a case, it is more meritorious to “tug on coattails” to start the ball rolling.

Geoffrey explained to us the solvability factors:

- 1) The availability of original records, exhibits and suspects, etc. These are often hard to retrieve, and some may be contaminated since 30 years ago, investigations weren't conducted with DNA in mind, therefore investigators walked around without protection. Geoffrey commented that will all the procedures, processing the crime scene will take more time, but you benefit so much more by taking those extra precautions.
- 2) Suspects. What was the reason for the suspicion? What is their availability? What options are there for targeting this person?
- 3) Existence of new technology.
- 4) Passage of time. How much to they remember?
- 5) Unexplored leads, changed relationships.

Nil priority cases are those that have no avenues of investigation. These are given to an independent panel for review. Unsolved cases are no longer able to be classified as closed, and so suspended cases return to the case list for further review in the future. Throughout the process, families and secondary victims are informed of the recommendations.

Case allocation is decided by the Commander of the Homicide Squad, who looks at the shortcomings of the previous investigation. There is also ongoing monitoring of the squad for quality assurance, and the Commander is responsible for identifying further resources and obtaining them.

Notifications are made to the case officers, and even to victim support groups for suspended cases.

Some of the initiatives of the Unsolved Homicide Team include:

- internet website rewards, which is currently being evaluated. In the US, whole cases can



Detective Superintendent Geoffrey Beresford

be put onto the internet in some cases, with the victim's permission.

- constructive use of media. The team had the opportunity to have their profile broadcast on the 7:30 Report. This is a tool which, although is not sought out, can be very useful.
- further expert analyses, for example, geoforensics.
- application of emerging technologies.

Dealing with historical cases also has different considerations to everyday cases.

In an impromptu free discussion with the audience, Geoffrey explained that profiling is very valuable, but there is a risk associated with it, and therefore it is not a priority. The team is very passionate about what they do, and therefore they participate in the wellness checks with a psychologist every 3 months in the same way that the rest of the homicide squad does. There is a point where you have to draw a line on a case. While there is no true limit on a case, you must stop when all the available avenues have been exhausted.

Geoffrey then took us through some very interesting cases he has been involved in, including the murders committed by Neddy Smith (Taskforce Snowy) and the Fenwick murders (Strikeforce Penguin).

Review by Shaheen Aumeer-Donovan



REVIEW: "The Incongruous (Mis)fit Between Science & Law"

by Mark Tedeschi QC

ANZFSS Annual Dinner, Friday 21st November 2008

What another splendid evening put on by the Courtyard by Marriott! My inspiration for the table theme came from those lovely little birds in reed grass, and from there a whole garden of greenery emanated...

After hearing a guilty verdict in the Gordon Wood trial for the murder of Caroline Byrne, Mark Tedeschi QC kindly joined us for our Annual Dinner celebrations. The fact that the verdict was given on the day of our meeting was extremely fortuitous because it meant that Mark could talk to us freely about the details of the case.

Caroline Byrne was an Australian model who was found at the bottom of a cliff called The Gap at Watson's Bay in Sydney on 8th June 1995. While her then boyfriend Gordon Wood claimed that the death was a suicide (The Gap is a notorious suicide location), two inquests into her death by NSW State Coroner John Abernethy resulted in an open finding. In 2000, "Strikeforce Irondale" was instituted to continue investigations, and in 2004 scientific reports by Professor Rod Cross about the physics involved in a body falling, jumping or being projected from a cliff provided new evidence that could contribute to Wood's trial. In April of 2006, Wood was arrested for Byrne's murder, and the trial began in July of 2008 with Mark Tedeschi QC appearing for the Crown and Winston Terracini QC defending Wood. In August 2008 a mistrial was declared because of jury misconduct and the second trial was commenced on 25th August 2008. It concluded on 21st November with a guilty finding.

The major question arising in the case surrounded the defence claims that Wood had not killed Byrne and that Byrne had in fact committed suicide. The



Sharon Tofler & Mark Tedeschi

point of contention was whether it was possible for a person to have jumped from the 4 m platform at the top of the cliff and landed where Byrne's body was found (11.8 m from the cliff). The launch speed required for a body to reach that distance was determined to be 4.5 m/s. Cross conducted experiments at the Goulburn police academy and found that after a 4 m run up, the average female tested could dive and land head first in a swimming pool but only reached a speed of 3.5 m/s. Further tests involving male officers throwing female officers into the pool found that it was possible for a strong man to have thrown a 61 kg female at 4.8 m/s after a run up of only 2 or 3 m.

Another interesting facet of the case is that for the first time in NSW court history, 15 jurors were sworn in instead of the usual 12 to allow for contingency, after more than 50 jurors asked to be excused. A ballot was then used to select the 3 jurors who would stand down before the jury retired to deliberate on the verdict.

Mark also discussed with us some of the most common issues that juries have with court cases, including the meaning of "beyond a reasonable doubt" and the presentation of forensic science evidence.

We would like to thank Mark and his lovely wife Sharon for joining us at our Annual Dinner.

Review by Shaheen Aumeer-Donovan





IDIOM INVESTIGATION: Breaking Down the Lingo

By Aldo Severino

Aldo has kindly agreed to explain to us some of the slang expressions relating to death...

At death's door: if someone looks as if they are at death's door, they look seriously unwell and might actually be dying.

Bite the dust: this is a way of saying that somebody has died, especially if they are killed violently like a soldier in battle.

Breathe your last: when you breathe your last, you die.

Cheat death: if someone cheats death, they narrowly avoid a major problem or accident.

Dancing on someone's grave: if you will dance on someone's grave, you will outlive or outlast them and will celebrate their demise.

Dead and buried: if something is dead and buried, it has all long been settled and is not going to be reconsidered.

Dead as a doornail: this is used to indicate that something is lifeless.

Dead even: if people competing are dead even, they are at exactly the same stage or moving at exactly the same speed.

Dead in the water: if something is dead in the water, it isn't going anywhere or making any progress.

Dead level best: if you try your dead level best, you try as hard as you possibly could to do something.

Dead man walking: a dead man walking is someone who is in great trouble and will certainly get punished, lose their job or position, etc, soon.

Dead meat: this is used as a way of threatening someone: You'll be dead meat if you don't go along.

Dead right: this means that something or someone is absolutely correct, without doubt.

Dead to the world: if somebody's fast asleep and completely unaware of what is happening around them, he or she's dead to the world.

Dead wrong: if someone is dead wrong, they are absolutely in error, absolutely incorrect or of incorrect opinion.

Death of a thousand cuts: if something is suffering the death of a thousand cuts, or death by a thousand cuts, lots of small bad things are happening, none of which are fatal in themselves, but which add up to a slow and painful demise.

Death warmed up: (UK) if someone looks like death warmed up, they look very ill indeed. ('death warmed over' is the American form)

Done to death: if a joke or story has been done to death, it has been told so often that it has stopped being funny.

Fall on your sword: if someone falls on their sword, they resign or accept the consequences of some wrongdoing.

Fate worse than death: describing something as a fate worse than death is a fairly common way of implying that it is unpleasant.

Ghost of a chance: if something or someone hasn't got a ghost of a chance, they have no hope whatsoever of succeeding.

Ghostly presence: you can feel or otherwise sense a ghostly presence, but you cannot do it clearly only vaguely.

Give someone enough rope: if you give someone enough rope, you give them the chance to get themselves into trouble or expose themselves. (The full form is 'give someone enough rope and they'll hang themselves')

Give up the ghost: people give up the ghost when they die. Machines stop working when they give up the ghost.

Grass widow: a grass widow is a woman whose husband is often away on work, leaving her on her own.

Graveyard shift: if you have to work very late at night, it is the graveyard shift.

It's your funeral: the other person has made a decision that you think is bad. However, it is their choice; it is their funeral.

Kiss of death: the kiss of death is an action that means failure or ruin for someone, a scheme, a plan, etc.

Knock 'em dead: 'knock 'em dead' is used as a way of wishing someone luck before they give a performance or have to appear before people, as in an interview, etc. ('em = them)





IDIOM INVESTIGATION: Breaking Down the Lingo (continued)

Know where all the bodies are buried: someone who by virtue of holding a position of trust with an organization for a long period of time has come to know many of the secrets that others in more powerful positions would rather be kept secret knows where the bodies are buried. An implication is that the person knowing these secrets will use that knowledge to secure something of value for him- or herself.

Life and limb: when people risk life and limb, they could be killed or suffer serious injuries.

Matter of life and death: if something is a matter of life and death, it is extremely important.

Meet your Maker: if someone has gone to meet their Maker, they have died.

Murder will out: this idiom means that bad deeds can't be kept secret forever.

Nail in the coffin: a nail in someone or something's coffin is a problem or event that is a clear step towards an inevitable failure.

Over my dead body: if you say that something will happen over your dead body, you will not let it happen.

Pen is mightier than the sword: the idiom 'the pen is mightier than the sword' means that words and communication are more powerful than wars and fighting.

Sick to death: if you are sick to death of something, you have been exposed to so much of it that you cannot take any more.

Skeleton in the closet: if someone has a skeleton in the closet, they have a dark, shameful secret in their past that they want to remain secret.

Sticky end: (UK) if someone comes to a sticky end, they die in an unpleasant way. ('Meet a sticky end' is also used.)

Stone dead: this idiom is a way of emphasizing that there were absolutely no signs of life or movement.

Those who live by the sword die by the sword: this means that violent people will be treated violently themselves.

Watery grave: if someone has gone to a watery grave, they have drowned.

Newsletter by Email

If you would like to receive the newsletter by email, please send an email indicating your name, membership number, and the recipient email address to the Secretary.

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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Newsletter:	Shaheen Aumeer-Donovan
Website:	Philip Maynard
Committee Members:	Shirleyann Gibbs
	Aaron Heagney
	Eric Murray
	Alison Sears
	Meiya Sutisno

Final Words (given our 2010 symposium theme I thought this fitting):

"It is characteristic of science that the full explanations are often seized in their essence by the percipient scientist long in advance of any possible proof"

John Desmond Bernal in *The Origin of Life* (1967)