

# THE FORENSIC Bulletin

May 2001

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## A Note from the Editor

Welcome to the new look Forensic Bulletin. The decision to change publishers was a direct result of the new publisher being able to produce the Bulletin in both hardcopy and electronic form, with the latter to be placed on the NIFS website.

So pass the word – the Forensic Bulletin is available across the globe to anyone who has access to the Internet.

However, for those of you who are reading this on the web, if you wish to be on our hardcopy mailing list please contact the Editor.

The new look Bulletin uses a watermark and graphics throughout to highlight one of the forensic science disciplines. This edition features the fingerprint. Future editions could feature other forensic graphics such as DNA profiling (a genescan screen grab), drug analysis (a GC trace) or ballistics (lands and grooves on a fired bullet). This list is endless and is only limited by YOUR imagination.

This leads me to the next point. The Forensic Bulletin is YOUR bulletin. If you have something you would like to share – news, case studies, jokes, anecdotes, images – all are welcome (and needed!)

In the last edition of the Bulletin, two new sections were announced – “Letters to the Editor” and “Forensic Funnies”. We did not do too badly with respect to “Forensic Funnies” but received no correspondence to the Editor!

Here's hoping that they will come flooding in for the next edition (November 2001). You can start writing now if you like.

This edition is packed with news and updates from the Australasian forensic science community. It clearly demonstrates the depth and breath of the community.

Happy reading.

Anna Davey

[anna@nifs.com.au](mailto:anna@nifs.com.au)



THE AUSTRALIAN AND NEW ZEALAND  
FORENSIC SCIENCE SOCIETY INC.





## Melbourne September 2001

Planning for the congress continues apace. The secretariat is receiving abstracts and registration inquiries from places far and wide on a regular basis.

The majority of the Plenary Sessions are now finalised with most of the speakers confirmed.

A number of workshops is being held in conjunction with the Congress:

- Austox – developing techniques in clinical toxicology
- Expert evidence
- Drugs and driving
- Pediatric forensic medicine
- Genetics (genes and ethics).

There are also co-joint meetings of the Australian Coroners' Society and the Australian Academy of Forensic Sciences. Senator Natasha Stott Despoja, Leader of the Australian Democrats will be the keynote speaker at the Academy meeting on Friday 21 September. The topic of the Senator's address will be the ethical use of genetic information.

The social side will also be well catered for with a reception at Government House, an Australian barbecue and bushdance and a formal dinner. Tickets will be available for the AFL football finals (preliminary).

Earlybird registrations close on Thursday 31 May, so you are encouraged to register soon.

Updated information is available from the web site at [www.vifp.monash.edu.au/inpalms2001](http://www.vifp.monash.edu.au/inpalms2001)

	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
FRI 14.9.01	AUSTOX WORKSHOP – Developing Techniques in Clinical Toxicology											
SAT 15.9.01	WORKSHOP – Expert Evidence						WORKSHOP – Drugs and Driving					
SUN 16.9.01	REGIONAL DRUG SUMMIT									Registration	WELCOME RECEPTION government house	
MON 17.9.01	PAEDIATRIC FORENSIC MEDICINE						GEN.ETHICS SYMPOSIUM					
	THE PROF CHAO TZEE CHENG PLENARY Forensic Medicine & Human rights	B R E A K	PLENARY Continued Investigating Gross Abuses of human Rights Applying Pathology, Anthropology and the Forensic Sciences	L U N C H	MINOR PLENARY X2 Investigation Medical Misadventure Manufacturing and Trafficking Illicit Drugs Chaired Poster Session	B R E A K	CHAIRED FREE PAPER SESSION Chaired Poster Session	INPALMS Council Meeting	INPALMS Council Reception Town Hall	BBQ and Bush Dance		
	TRADE EXHIBITION											
TUES 18.9.01	PLENARY A New Philosophy for Policing: Law Enforcement Engaging with Forensic science	B R E A K	MINOR PLENARY Evidence based on Opinions in Forensic Science Forensic Education and Training in the Indo – Pacific	L U N C H	MINOR PLENARY X3 What's new in Forensic Science (and not DNA) Use and Abuse of Human Tissue Traffic Medicine and Road Safety Chaired Poster Session	B R E A K	CHAIRED FREE PAPER SESSION Chaired Poster Session	INPALMS General Meeting	Concert/ Opera/ Free Evening			
TRADE EXHIBITION											INPALMS Council Dinner	
WED 19.9.01	RECREATIONAL TOURS IN MELBOURNE AND SURROUNDS & INPALMS STUDENT DAY									PUBLIC SEMINAR Australian Forensic Sciences in Action		
THURS 20.9.01	PLENARY Investigating Sexual Assault	B R E A K	MINOR PLENARY X2 Current Issues in Forensic Mental Health-Quality Management in Forensic Science Chaired Free Paper Session	L U N C H	Visits to Local Forensic Facilities • Victorian Institute of Forensic Medicine • Victorian Forensic Science Centre • Monash Uni. Accident Research Centre • Vic Institute of Forensic Mental Health • Supreme Court-Detective Training • School- Melbourne Uni. Dental School			CONGRESS DINNER				
FRI 21.9.01	PLENARY Applying Forensic Skills to Mass Facilities	B R E A K	MINOR PLENARY X3 The Forensic Scientists in Injury and Death Prevention- Investigation Head injuries	LUNCH & CLOSING CEREMONY	Australian Academy of Forensic Sciences (AAFS) Joint Chapter Meeting			AAFS DINNER- (Non Members Welcome)				

## NEWS FROM NIFS

### Corporate Plan

As a result of the extensive review into its activities that NIFS undertook last year, a new corporate plan has been drafted. This draft corporate plan will be presented to the NIFS Board of Control on 17 May. If endorsed, the plan will direct NIFS activities through to 2004. A draft business plan for 2001-2002 will also be presented to the Board.

The corporate plan includes new vision and mission statements:

#### Vision

To promote excellence in the forensic sciences

#### Mission

To facilitate continuous improvement in the forensic sciences, and to promote awareness of them in the wider community through strategic partnerships. Some of the drivers behind the Mission are that:

The forensic sciences cover a broad range of disciplines that assist in criminal and civil investigations.

There is a significant move towards the use of forensic science as an intelligence tool, rather than just an investigative aid. There is also a critical need for access to and use of forensic services by all elements within the judicial process.

The use of forensic science is increasing and, as a consequence, so too is the importance of forensic awareness both within and outside the scientific and law enforcement communities.

The legal profession, as one of the primary users of forensic science, and the wider community as one of the key beneficiaries, should also have a realistic awareness of both its strengths and its limitations.

The National Institute of Forensic Science has an important role to play in developing and maintaining strategic partnerships aimed at improving the standard and awareness of forensic science, such that it has the respect and confidence of all parties.

#### Values

The corporate values of the institute reflect the thinking and attitude of our people. They are paramount in our endeavour to serve the forensic community and, where appropriate, the

general public in an equitable and effective manner.

We are committed to:

- Responsible resource management
- Courtesy and tolerance
- An open and co-operative approach
- Honesty and integrity
- Timeliness in response.

#### Outputs

Key outputs to be achieved in the life of this corporate plan are:

- Development of a strategic, national approach to forensic science research and development
- A process to enhance the awareness of NIFS activities amongst forensic practitioners
- Provision of relevant education and training programs and opportunities
- Efficient use of resources, including funding positions, for the timely completion of projects and programs
- Facilitation of a comprehensive proficiency testing program
- More effective use of electronic communication
- A stronger voice and identity for forensic science.



## NIFS Awards & Workshops

As indicated in the last edition of the Forensic Bulletin, the NIFS Panel of Advisers met in Brisbane in October to consider applications for the annual NIFS Awards, workshop program and research and development proposals. The NIFS Board of Control subsequently endorsed the panel's recommendations.

The standard of this year's awards was incredibly high and all entrants should be commended for the quality of their work.

Here are the results:

### Michael Duffy Travel Fellowships

- Mr David Tranthim-Fryer, Chemistry Centre, WA
- Ms Kathryn Powell, South Australia Police

### Best Paper in a Refereed Journal

- Mr Lindsay Spence, Queensland Police Service: *'Characterisation of document paper using elemental compositions determined by inductively coupled plasma-mass spectrometry'*

### Two papers were highly commended:

- Dr Bryan Found, Victoria Forensic Science Centre, and Dr Doug Rogers: *'Documentation of forensic handwriting comparison and identification method: A modular approach'*
- Dr Bryan Found, Mr Herman Metz and Dr Doug Rogers: *'The objective static analysis of spatial errors in simulations'*

### Best Technical Article

- Ms Jordana Scharnberg, Mr Ted Silenieks, and Dr Hilton Kobus, Forensic Science Centre, SA: *'The use of Polilight for the detection of semen stains on fabrics'*

### One paper was highly commended in this category:

- Dr Roland van Oorschot, Ms Isabella Szepletowska, Ms Deborah Scott, Ms Rachael Weston and Mr Max Jones, Victoria Forensic Science Centre: *'Retrieval of genetic profiles from touched objects'*

### Best General Article

- Snr Constable Ritchie Callaghan, Queensland Police Service: *'Human remains detection using a police dog'*

### Henry Delaforce Award

(Best Paper by a Police Officer)

- Sgt Gerard Dutton: *'Incapacitation energy - an unusual death confirms this is a meaningless term'*

### One paper was highly commended in this category:

- Snr Constable Ritchie Callaghan, Queensland Police Service: *'Human remains detection using a police dog'*

### Research and Development Proposals

#### One R&D proposal was endorsed:

- Dr Paul Kirkbride, Forensic Science Centre (SA) and R.M. Clarke, Chemistry Centre (WA) *'The Forensic comparison of sandy soils using associated clay and heavy mineral assemblages as indicators of provenance'*



GERARD DUTTON



DEBORAH SCOTT



TED SILENIEKS AND  
JORDANA SHARNBERG



DR HILTON KOBUS



MS RACHAEL WESTON, DR ROLAND VAN OORSCHOT, DR BRYAN FOUND,  
MR HERMAN METZ AND DR DOUG ROGERS



KATHRYN POWELL



ISABELLA SZEPIETOWSKA & ALASTAIR ROSS



## Paint Workshop

10 – 15 February 2001

The first NIFS workshop of 2001 set the tone for all those to come.

On Saturday 10 February, a group of chemists from around Australia and New Zealand gathered at Swinburne University of Technology for a six-day workshop dealing with the finer points of the examination of automotive paint.

Donald MacDougall from the Royal Canadian Mounted Police (RCMP) conducted the first three days. Donald should probably have stuck to his horse for transport, as his flight was delayed and he didn't arrive until very late on the Friday night. Regardless, Donald was up bright and early on the Saturday morning to commence his three day training program, with respect to the international automotive paint database the RCMP have developed and maintain. We were all impressed by his staying power!

Tuesday and Wednesday found the participants benefiting from presentations from representatives from industry and site visits to the Ford Assembly Plant and an automotive repair shop.

On Friday, John Challinor (Chemistry Centre, WA) and Paul Kirkbride (Forensic Science Centre, SA), shared their knowledge and experience with the rest of the group.

All in all it was a very successful workshop and thanks should go to Donald MacDougall and Paul Kirkbride for their organisation.

Here are a few comments from some of the participants.

*'Good course. I feel more confident in obtaining more info from IR spectra. The Ford and paintshop visits were great for background info when giving evidence in court.'*

*'Thankyou for an excellent course'*

*'Really good cover of all necessary areas'*

# 2001 WORKSHOP PROGRAM

A number of planned workshops has been carried over from 2000, a number of new proposals was supported by the Panel of Advisers, and the need for other workshops has arisen since the Panel of Advisers' meeting.

NIFS funds one advanced purchase airfare per jurisdiction and the airfare for the organiser/presenter for each workshop.

Attendance at some workshops is restricted. The program for 2001 is:

## Profiling/Comparison of Drug Seizures Workshop

### Sydney (date to be advised)

This one day workshop will be conducted by the Australian Government Analytical Laboratories.

Contact: National Institute of Forensic Science, 2 Research Avenue, Bundoora, Vic 3083

Telephone: (03) 9459 4299 Fax: (03) 9457 3622  
E-mail: anna@nifs.com.au

## Introduction to Document Examination Workshop

### Melbourne

This three day workshop was postponed due to the unfortunate death of Ian Riebeling, one of the key presenters at this workshop. Please see later in the Bulletin for a tribute to Ian.

For more detail regarding the workshop contact National Institute of Forensic Science, 2 Research Avenue, Bundoora, Vic 3083

Telephone: (03) 9459 4299 Fax: (03) 9457 3622  
E-mail: anna@nifs.com.au

## Cannabis Crop Workshop

### 20 & 21 July 2001 - Brisbane

This workshop will be conducted over two days in sunny Queensland and will focus on issues associated with Cannabis crops grown both outdoors and hydroponically.

For more detail regarding the workshop contact National Institute of Forensic Science, 2 Research Avenue, Bundoora, Vic 3083

Telephone: (03) 9459 4299 Fax: (03) 9457 3622  
E-mail: anna@nifs.com.au

## Firearms and Toolmarks Workshop

### Sydney and possibly one other venue

Mr John Murdoch and Mr Fred Tulleners, from the Bureau of Alcohol, Tobacco and Firearms, Department of Treasury, USA will conduct these four day workshops for Firearm and Toolmark Examiners.

Negotiations regarding the exact timing of the workshop(s) continue.

For more detail regarding the workshop(s) contact National Institute of Forensic Science, 2 Research Avenue, Bundoora, Vic 3083

Telephone: (03) 9459 4299 Fax: (03) 9457 3622  
E-mail: anna@nifs.com.au

## AusTox Clinical Toxicology

### 4 September 2001 - Melbourne

In 2001 the annual AusTox meeting will be held in conjunction with INPALMS. The meeting is normally a clinical toxicology forum for practitioners from Australia and New Zealand to discuss applications and new developments in the field. The 2001 workshop program will include sessions on: a review of proficiency programs (AusTox and others); developing techniques in clinical toxicology; point-of-care-testing; interpretation of urine toxicology (morphine, codeine, cannabinoids); and use of alternative specimens.

More information: Please contact A/Prof Olaf Drummer at olaf@vifp.monash.edu.au or fax 03 9682 7353.

Cost: The cost of the workshop, including lunch, will be \$A110, or \$A72 with a full registration for INPALMS.

## Drugs and Driving Workshop

### Saturday 15 September 2001 (9am – 5pm)

The Victorian Institute of Forensic Medicine will host this full day workshop with local and international experts presenting the latest techniques in roadside drug recognition and drug testing, facilitating discussion and hands-on learning. The topics to be covered over the day include: sweat and saliva as alternative specimens; recent developments in drug recognition techniques and accident risk and prevalence of drug use.

More information: Please contact A/Prof Olaf Drummer at olaf@vifp.monash.edu.au or fax + 03 9682 7353.

Cost: The cost of the workshop including lunch will be \$A110 or \$A72 with a full registration for INPALMS

## Expert Evidence Workshop

### Saturday 15 September

This full day workshop will be run in conjunction with INPALMS, by experienced members of the Australian legal profession, and comprise a series of lectures and demonstrations in effective use of expert evidence in the areas of science and medicine.

More information: Please contact Anna Davey at anna@nifs.com.au or fax 03 9457 3622.

Speakers: Associate Professor David Ranson, Professor Ian Freckelton

Cost: The cost of the workshop including lunch will be \$A110 or \$A72 with a full registration for INPALMS.

*Genius is the ability to put into effect  
what is in your mind – F. SCOTT FITZGERALD*

## Regional Drugs Summit

### Sunday 16 September 2001 (9am – 5pm)

The Australian Federal Police Law Enforcement Co-operation Program and the Australian Forensic Drug Laboratories sponsor this full day summit held in conjunction with INPALMS. The program will provide opportunities for examination and discussion of best practice in analysis and interpretation of illicit drug testing, on a regional basis. It will also allow participants to focus on how to foster regional cooperation and shared understandings of drug law enforcement issues, as a foundation for effective regional initiatives in this area.

Attendance at the summit will be by invitation only to official representatives of countries in the Indo-Pacific region. Expressions of interest should be directed to Dr James Robertson at jim.robertson@afp.gov.au or fax 02 6287 0270.

## Paediatric Forensic Medicine Workshop

### Sunday, 16th September 2001 (9.00 am - 12.00 pm)

This half day workshop will explore the issues around the investigation of childhood injuries and death. The topics to be covered will include diagnostic dilemmas in unexpected childhood death and the medico-legal issues surrounding the investigation of injury and death in childhood.

This workshop is for medical practitioners.

More information:

Please contact Associate Professor David Wells at davidw@vifp.monash.edu.au or fax +61 3 9684 4481.

Cost: The cost of the workshop will be \$A80 or \$A50 with a full registration for INPALMS.

## Genetics Symposium

### Sunday, 16th September 2001 (2pm - 5pm)

This half day workshop has been organised by the Murdoch Children's Research Institute and the Gene CRC.

More Information: Please contact Dr Andrea Douglas at adouglas@cerylid.com.au.

Cost: The cost of the workshop will be \$A80 or \$A50 with a full registration for INPALMS.

*On TV they show you how  
detergents take out blood stains.  
I think if you have got a T-shirt  
with bloodstains all over it  
maybe your laundry isn't your  
biggest problem!*



### Accident Reconstruction Critical Issues Workshop

October 2001 (date to be advised)

This workshop will draw together practitioners who are involved Accident Reconstruction.

Contact: National Institute of Forensic Science, 2 Research Avenue, Bundoora, Vic 3083

Telephone: (03) 9459 4299 Fax: (03) 9457 3622  
E-mail: anna@nifs.com.au

### Fire Accelerant Recovery and Identification Workshop

November 2001 - Brisbane

This workshop will follow a collaborative trail organised by the Criminalistics SAG.

For more detail regarding the collaborative trail, contact Dr Paul Kirkbride, Chair, Criminalistics and Document SAG, phone: 08 8226 7715 or E-mail: kirkbride.paul@saugov.sa.gov.au

For more detail regarding the workshop, contact National Institute of Forensic Science, 2 Research Avenue, Bundoora, Vic 3083

Telephone: (03) 9459 4299 Fax: (03) 9457 3622  
E-mail: anna@nifs.com.au

### Hair Examination

TBA - Perth, Adelaide, Darwin, Hobart & Sydney

These workshops will be organised as a travelling road show so that as many practitioners can participate as possible.

Contact: National Institute of Forensic Science, 2 Research Avenue, Bundoora, Vic 3083

Telephone: (03) 9459 4299 Fax: (03) 9457 3622  
E-mail: anna@nifs.com.au

### Expert Evidence

TBA 2001

These workshops will be conducted in a number of capital cities.

NIFS is currently negotiating with various providers regarding the provision of these workshops

Contact: National Institute of Forensic Science, 2 Research Avenue, Bundoora, Vic 3083

Telephone: (03) 9459 4299 Fax: (03) 9457 3622  
E-mail: anna@nifs.com.au

*You have to stay in shape.*

*My mother started walking five miles a day when she was 60.*

*She's now 97 and we have no idea were she is!*

## National Diploma Program

### Background

During 1993 and 1994, the National Institute of Forensic Science (NIFS) conducted a national skills audit to determine the range of skills required of practitioners working within the forensic science fields. NIFS then worked in conjunction with the forensic science community and the Canberra Institute of Technology (CIT) as project manager to develop module descriptors and assessment packages for a National Diploma in Forensic Investigation.

The Diploma program consisted of core modules and modules specific to five streams:

- Crime scene investigation
- Fingerprint identification
- Firearms and toolmark examination
- Questioned document examination
- Fire and explosion scene investigation.

The course was accredited in the Australian Capital Territory (ACT).

Later stages of the National Diploma Program project involved the development of competency standards and distance learning packages.

### Competency Standards

The competency standards developed were relevant to the core modules and the discipline specific modules for each of the five streams listed above. The development of the standards saw wide industry involvement and consultation.

On completion, the competency standards were submitted to the then National Police Education Standards Council (NPESC) for endorsement. Delays in the endorsement process through the Industry Training and Advisory Board (ITAB) and changes in the format required by the Australian National Training Authority (ANTA) necessitated the competency standards being re-written on two occasions. They became more generic and the level of industry involvement and consultation was reduced.

Finally, the competency standards were incorporated in the Diploma of Public Safety (Forensic Investigation) and in the as yet unaligned second Forensic Investigation qualification.

### Mapping Process

Both the National Diploma Program and the Public Safety Training Package were endorsed by the NIFS Board of Control and the Police Commissioners. Therefore, it was relevant to determine whether the National Diploma could

be used as an appropriate curriculum for the forensic competencies in the Diploma of Public Safety (Forensic Investigation).

NIFS facilitated a mapping exercise to determine the synergy of the two programs. Initially, the mapping was for crime scene investigation and fingerprint identification. These mapping exercises included practitioners familiar with the National Diploma, representatives from educational providers, NIFS and a representative of the Public Safety ITAB.

The mapping exercise revealed significant synergy between the two programs, but did identify some anomalies. For example:

- two units of competency in the Public Safety Training Package given as alternatives should be mandatory for practitioners at that level
- one unit of competency listed in an unaligned Forensic Investigation qualification but not in the Public Safety Diploma should be mandatory for the practitioners at diploma level
- two units of competency listed in the Public Safety Diploma were deemed to be supervisory level and would not be met by many practitioners at Diploma level
- the National Diploma Program did not cover in sufficient detail in its curriculum, issues related to quality management. A module on quality management is required
- industry identified the need for an exit at certificate IV level in the Public Safety Training Package. Currently, there is no exit at this level.

These anomalies have been brought to the attention of the Australasian Police Education Standards Council (APESC) and the Public Safety ITAB.

Subsequently, the mapping exercise has been conducted with respect to the firearms and toolmarks stream with similar findings. The mapping exercise is continuing with respect to Fire and Explosion Scene Investigation and Questioned Document Examination.

Fire scene investigation has additional issues in that separate curricula and competency standards have been developed by police fire investigators and the investigators in the three fire services. The mapping exercise and review for fire scene investigation will take this into account and where practicable, identify common competencies and curriculum. A two day meeting to conduct this mapping was facilitated by NIFS in early May and involved practitioners from the fire services, the police, educational providers and NIFS. This mapping exercise is ongoing.



## An Interview with Nick Cowdery QC

The NIFS Panel of Advisers has six members and is constituted of the following:

- A legal representative not a prosecutor
- A Crown Prosecutor or Director of Public Prosecutions
- A scientist, not a forensic scientist
- An Assistant Commissioner of Crime or equivalent
- A police officer in charge of a forensic facility
- A person not a police officer in charge of a forensic laboratory.

Nick Cowdery QC, the NSW Director of Public Prosecutions joined the NIFS Panel of Advisers in November 2000.

Here Nick is interviewed by one of the Forensic Bulletin's investigative reporters.

### How long have you held the position of the DPP?

I was appointed DPP for NSW on 17 October 1994.

### Did you specialise prior to this appointment? If so in what fields?

After qualifying in 1970 I was a Public Defender in Papua New Guinea, doing exclusively criminal defence work, until 1975. From 1975-1991 I was in private practice at the NSW Bar where (at least after the first few years when I did anything I could get hold of) the large proportion of my work was in criminal defence and prosecuting for the Commonwealth. I did such work in NSW, ACT, Victoria and Queensland. I also practised in common law (personal injuries and some commercial work) and administrative law (chiefly before professional tribunals). The most nationally publicly significant cases in which I appeared were the prosecutions of the late Justice Murphy of the High Court and Sir Joh Bjelke-Petersen.

### Have you prosecuted (or defended) any cases with particular/special/outstanding forensic science/medical involvement?

I prosecuted a large number of drug cases for the Commonwealth, chiefly importations. Drug analysis (and sometimes comparison) played an important role in those cases, as did fingerprint technology and handwriting analysis. The analysis and enhancement of tape recordings also occupied a great deal of time. Pathologists' reports in murder cases were regularly considered. The most interesting case of medical and ballistics evidence that I encountered, including reconstruction and re-enactment, was when I was Counsel Assisting the NSW Police Tribunal inquiring into the shooting of Darren Brennan by members of the Tactical Response Group in 1990.

### Prior to being asked to become a member of the NIFS POA, had you had any dealings with or even heard of NIFS?

I had heard of NIFS, through contact with Damian Bugg (now Commonwealth DPP) and Alastair Ross in other fora. However, I had only a vague idea of what it did..

### From your involvement with the NIFS POA to date what is your impression of NIFS?

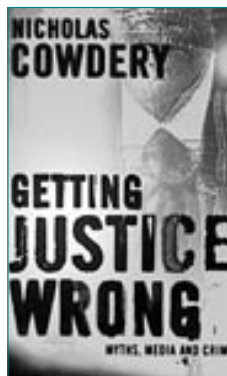
I think NIFS serves a valuable national coordinating role for practitioners of the forensic sciences. As with most worthwhile endeavours, however, it will always be constrained by its limited resources.

### What do you see as the most pressing issues in Forensic Science/Medicine currently?

I am a strong supporter of national harmonisation of disciplines connected with the criminal law in particular. In the forensic science field, I would like to see the establishment of a National body providing expert services in all fields to all requiring them. (Just call me a dreamer!) National coordination of services is a pressing need.

### What do you see as the most pressing issues in presentation of expert evidence currently?

The use of DNA technology has thrown up some challenges in very recent times; but I am confident that when this fuss dies down and the ground rules have been established, it will



## Getting Justice Wrong

An Introduction by the author.

The title above is the title of a book I have written, now in bookshops (Allen & Unwin, paperback, \$19.95, 176 pages), subtitled 'Myths, Media and Crime'. It is a collection of chapters on various aspects of the criminal justice process in which I have attempted to identify in simple terms why it is that policies we are adopting in our society on particular issues are often misplaced or inappropriate and what better courses we might follow in some cases. I am generally critical of talkback and tabloid media commentators on criminal justice issues and the effect they have on the formulation of policy and legislation.

In the 'Future Directions' chapter I have written a little on DNA and an extract follows. The data were current at about August 2000.

"... the overstretched NSW Health Department (the priority of which is definitely not testing DNA samples for criminal prosecutions) has three operational DNA scientists working like steam (for a population of about 6.5 million). In South Australia (population 1.5 million) there are five, plus two technicians. In Victoria (population 4.7 million) there are 17. And in the Province of Quebec, Canada (population about the same as NSW) – 58! Ah ... the clever country!

It has been calculated that for an annual expenditure of between \$5 million to \$10 million for a facility testing 25,000 samples per annum, New South Wales could (after an initial operating period of about two years in which a database would be built up) solve an additional 120 to 150 crimes per week by DNA matching. Worth the money?

This is 'stuff' that we have now that can also be the stuff of the future. For a very small investment now, Australia is in the position of being able to make enormous gains in the future, solving crimes by extremely cost-effective methods and providing the satisfaction to victims and the community of knowing that offenders are identified and dealt with and the innocent excluded. DNA matching in most cases means pleas of guilty and the subsequent savings of money, time and anguish that the operation of the criminal justice system entails. It can clear up an enormous number of crimes without any increase in police powers. Intelligence-led policing.

Its use will have some general deterrent effect on offenders. There will be a greater probability of detection for many types of crime. That is what deters, when deterrence is a possibility at all, the expectation of being caught.

The use of DNA matching should be introduced after proper community consultation, with appropriate safeguards in place to ensure that the information is not abused or used for any ulterior purpose. There are privacy concerns here, but these were overcome for fingerprints and they have been overcome elsewhere for DNA. Now is the time for action, including involvement of the community in supporting the initiative."

But then, none of that will be news to readers of this Bulletin.

Nicholas Cowdery QC  
Director of Public Prosecutions, NSW

A desk is a dangerous place from which to watch the world – JOHN LE CARRE

realise its potential as the greatest advance in criminal justice since fingerprints. I am in favour of the Federal Court and South Australian Supreme Court models for the court appointment of expert witnesses, rather than continuing with the traditional system that often has an expert appear to be in the camp of one side or the other.

### Have you any ideas how Forensic Science/Medicine could better engage with the legal profession?

The forensic sciences are of great interest to a large section of the legal profession. Associations that straddle the divide do exist and should be promoted. I am not so confident that forensic scientists have much interest in the law - it may be regarded as just another obstacle for them to overcome.

### Is there anything else you would like to add?

In general, I am in favour of the promotion of scientific method in the search for the truth and the resolution of enigmas and disputes. Perhaps that is why I have been a longtime member of the Australian Skeptics.

## An Outsider's View.

"So you're working for the National Institute of Forensic Science? That sounds fascinating. Do you have to work with dead bodies?" This is one of the most common questions I have been asked since joining NIFS this year. But what am I, a secondary school teacher, doing at NIFS and what have I learnt so far about NIFS and forensic science.

First I should explain how I got to work at NIFS. Each year for the past 11 years the Victorian Education Department, in what ever its current form, has joined with the Victorian Employees Chamber of Commerce and Industry to run a program called Teachers Release to Industry (TRIP). In this program teachers apply to spend a year in industry learning what industry has to offer themselves and education and to promote education. Employers also apply to get a teacher to discover what teachers have to offer them and their industry and to promote their industry in schools. This is generally to the mutual satisfaction of all involved. This year NIFS felt they could take advantage of TRIP to help with their priorities and I was the successful applicant.

So what am I doing at NIFS? Among other things I am helping to update the NIFS website and I hope everyone will take the opportunity to visit and explore the new layout and forward any constructive criticism to [paul@nifs.com.au](mailto:paul@nifs.com.au). Apart from the natural need to keep any website looking fresh, this task is in response to NIFS review of its corporate plan. One part of this review highlighted the need to improve



PAUL MCGLYNN TRIP TEACHER

communication. So the new site has been designed for easier navigation and to contain more information on what is happening in the forensic science community. It will also include more general information for those outside the forensic community, particularly for students interested in forensic science.

So visit our new web site [www.nifs.com.au](http://www.nifs.com.au) and see what we are doing.

Now hopefully not too many people within the forensic science community would have asked me the question with which I started this article. However, it is probably another indication of the need to improve communication about what NIFS is and does as well as what happens in the forensic community. Improving the profile of forensic science in schools is also one of my roles this year, particularly with promoting the INPALMS' students' day and public forum. First step in this has been a series of lectures and articles for teachers conducted through the Science Teachers' Association of Victoria. The INPALMS' student day has also been heavily promoted, with over 250 students expressing interest so far.

The students' day is called "A Day with the Forensic Sciences", and will be held on 19 September. The day is built around investigating a particular crime. Experts in their fields (police, scientists, medical and legal practitioners) will provide information on the investigation of the crime scene, the examination of items from the scene and finally give evidence in a court of law. Topics to be covered during the day will include:

- Details regarding specific disciplines in forensic science
- Details regarding the presentation of expert evidence in a court of law
- Information regarding careers in science, medicine and the law.

The public forum, "Showcasing Forensic Science", will be held in the evening and will invite the public to hear from prominent national and international experts regarding current issues in forensic science. There will then be a panel discussion including questions from the audience.

So I don't get bored during the year, I will also be developing a series of 'Fact Files' which will give information on different areas of

## Wanted...

### Information and Material.

To produce the Fact Files I need the help of the forensic community particularly in supplying information and case studies. If you think you have some suitable material that you think might help and be suitable for the intended audience, please contact NIFS. Because it will be published both in print and electronically by NIFS for distribution you must be willing to waive copyright and may be required to indicate this in writing.

investigation and forensic science to help schools deliver forensic science as part of their curriculum. These 'Fact Files' will contain information on specific topics in forensic science such as fingerprints, DNA profiling and ballistics. For each topic information will be given on what it is, how and why it is used, some specific cases showing how it has been used, plus – for students – some activities on the topics, definitions, references and links. While these will initially be designed for school students, it is hoped that a similar series will be developed to inform the legal and policing community who may not normally be involved with forensic work, but develop a need or interest to find out more. These will be available in print and electronic form. It's a big task, but I'm sure with a little help I can at least get it started. (See Wanted above)

So if there are no dead bodies floating around NIFS, what have I found? Mainly a group of hard working individuals busy wearing several hats. NIFS seems to be part clearing house for information, part coordinator of educational programs for practitioners in the forensic community, part travel agent for the forensic community as they move around, from or to Australia for a range of activities from conferences to head of department meetings, part promotional company for conferences, part careers adviser for students. I'm sure that is more parts than are required for one organisation, particularly when it is really only four people, apart from me. Apart from this there is SMANZFL, SAGs and ANZFSS which, while physically spread all around Australia and New Zealand, all seem to somehow be coordinated or supported by the busy staff at NIFS. Then there are the proficiency testing programs which NIFS oversees. In the case of the After the Fact program it seems to do this with some very impressive cutting edge technology.

I'm sure after I have been at NIFS a bit longer it will become obvious how all this can be done by one small office, but until then I will settle for being overwhelmed by how much is done by so few for so many.

Paul McGlynn TRIP teacher  
[paul@nifs.com.au](mailto:paul@nifs.com.au).

## New SMANZFL Structure

In the last issue of the Forensic Bulletin, the re-structure of the National Executive of SMANZFL was mooted.

Below, the new chairman, Hilton Kobus, outlines the new structure.

At the SMANZFL meeting in Auckland last November it was agreed to consider a new structure for SMANZFL in order to improve the communication at regional level, the support to the SAGS and to attempt to give SMANZFL more political influence.

It was proposed that each state and territory would have two 'regional representatives' who would have voting rights at SMANZFL meetings. Where possible the two representatives should cover the laboratory based sciences and the field based sciences. It was proposed that SMANZFL operate with a an executive of seven members, five elected by the voting members at the SMANZFL meeting, plus the director of NIFS and the immediate past chair. Each executive member would have a responsibility for a SAG. The executive would then elect a chair, vice chair and treasurer.

Wayne Chisnall, as the outgoing chair, was tasked with completing a formal process to obtain approval from all the states and territories for the new structure and, if the outcome was affirmative, to oversee election of the executive. The process was completed by the end of February when the new structure was approved and elections were finalised.

The SMANZFL Regional Representatives are: ACT – James Robertson and Peter Smith, New South Wales – Tony Raymond and Ross Vining, New Zealand – Wayne Chisnall and Bill Bishop, Northern Territory – Peter Thatcher and other rep to be elected, Queensland – Lenore Richards and Paul Stewart, South Australia – Andy Telfer and Hilton Kobus, Tasmania – Steven Dolliver and John Bird, Victoria – David Gidley and Stephen Cordner, Western Australia – Neil Campbell and Dick Milner.

The SMANZFL Executive is Chair, Hilton Kobus, Vice Chair, Paul Stewart, Treasurer, Andy Telfer, Members, Alastair Ross, Wayne Chisnall, Tony Raymond and David Gidley.

The SAG responsibilities are: Biology David Gidley, Criminalistics and Documents, Paul Stewart, Drugs, Wayne Chisnall, Toxicology, Hilton Kobus, Field and Identification, Andy Telfer and Electronic, Tony Raymond. The Pathology SAG is still to be decided.

Under the previous two chairs, James Robertson and Wayne Chisnall, SMANZFL has made significant progress. Linkages with similar organisations in the USA (ASCLD) and Europe (ENFSI) have been established. SMANZFL has played a significant role in the development of accreditation in Australia and with the initiation of processes to obtain a national DNA database.

The new executive is committed to continuing the role of SMANZFL as an important voice in Australasian forensic science issues. In addition we would like to make SMANZFL more visible to the forensic science profession generally. The new executive would be pleased to receive suggestions or view that anyone would like to pass on. The contact details of the SMANZFL executive can be found on the SMANZFL website: [www.nifs.com.au/SMANZFL](http://www.nifs.com.au/SMANZFL).

## Introduction to the Electronic Evidence Specialist Advisory Group. (EESAG)

### Background

The Senior Managers of Australian & New Zealand Forensic Laboratories (SMANZFL) met in October 1999 in Perth. There they resolved to establish an EESAG to advise on the forensic examination classes of audio video signal processing and digital imaging.

The initiatives of the previous NIFS supported Signal Processing and Digital Imaging groups will now be carried out by the new EESAG. Notable initiatives include the preparation of 'National Guidelines for Digital Image Processes' and 'Australian and New Zealand Practice for the Management of Recordings for the Purpose of Forensic Examination' as well as a series of collaborative studies.

EESAG currently represents specialists working in a number of types of forensic examinations. These examinations may be placed into four categories:

- Speech enhancement – including improving speech intelligibility from covert listening devices or overt records of interview
- Image and video enhancement – including improving the clarity of a vehicle licence plate from a surveillance video or de-multiplexing multiple camera information from security videos.
- Audio and video recording analysis – to identify recorded events or assess authenticity.
- Application of digital imaging to forensic science – including the development of guidelines for the use of digital photography.

### First Meeting

The first EESAG meeting was chaired by Sgt Clive Milward (NSW Police Service) and hosted in Brisbane by the Queensland Police Service on 12 and 13 October 2000. Representatives from across Australia and New Zealand attended the meeting. Sgt Troy O'Malley (Queensland Police Service) and Dean Catoggio (Victoria Forensic

Science Centre) were elected deputy chair and chair, respectively.

### Current Issues:

EESAG is concentrating on the following three projects:

- The NATA Forensic Science Accreditation Advisory Committee (FSAAC) have asked EESAG to review and advise on guidelines for digital image processes to be included in ISO/IEC 17025 Application Document: Supplementary Requirements for Accreditation in the Field of Forensic Science.
- A working party has been formed to prepare a draft document titled 'Process for External Proficiency Testing', in order to progress the notion of accreditation in areas relating to electronic evidence. The working party consists of Sgt Clive Milward (NSW Police Service), Graeme Kinraid (Australian Federal Police) and Dean Catoggio (Victoria Forensic Science Centre). Collaborative studies conducted over the last five years will form a basis for this working party.
- The co-ordination of an image-processing workshop to be held in 2001 and an audio signal processing workshop to be held in 2002.

### In Closing

In the field of electronic evidence, it is intended that the EESAG will play a key role in promoting and developing mechanisms of quality management and training. It is also hoped that the EESAG can provide practical advice to SMANZFL, forensic managers, practitioners and other specialist advisory groups on a range of electronic evidence issues, including handling procedures, video conference systems and audio visual presentation of evidence in Courts of Law.

**Dean Catoggio**  
Chair, EESAG

Victoria Forensic Science Centre

## Toxicology SAG Update

The first Toxicology SAG meeting after the separation of the joint Toxicology/Illicit Drug SAG was held in Melbourne at the VIFM on 25-26 July 2000. Many items were discussed but those of major interest or concern were the Quality Assurance Program (QAP), traceability of standards and measurement of uncertainty in forensic toxicology and the drugs module for the National Coronial Information System.

The major QAP used by all the toxicology laboratories is that provided by ICPMR/DAL. Due to resource and financial difficulties, DAL could no longer provide the service free of charge and even on a cost recovery basis could not guarantee the continuation of the service. At a subsequent meeting of the FSAAC in February 2001 DAL made a commitment to provide QAPs



for 2001. This item will definitely be on the agenda for our next meeting.

Traceability of standards and measurement of uncertainty is of concern for all areas of forensic science however for toxicology it has a major resource implication due to the large number of compounds that are dealt with. As this has major implications for laboratory accreditation status, the Toxicology SAG is considering how best to approach the issue.

The drugs module for the NCIS (National Coronial Information System) has been developing over a number of years. At the last meeting of the NCIS, standardisation of testing protocols in the areas of specimen type, testing requested in certain case types (eg motor vehicle accident drivers, homicides, suicides, custodial deaths and drugs deaths), range of tests performed (definitions of 'full toxicology' and 'limited toxicology' were agreed), classification of drugs and reporting was achieved.

The agreements made at the SAG meeting were presented at the 2nd National NCIS Drugs Module Workshop on 27&28 July 2000. It was accepted that if these agreements were to be achieved then there is a major resource impact on each laboratory. At the workshop, each laboratory agreed to prepare an accurate costing on the resources required to increase the current level of testing to the agreed minimum standard and this will be coordinated by Monash University National Centre for Coronial Information (MUNCCI). MUNCCI will then coordinate a unified approach to obtain the necessary funds.

Also discussed at the SAG meeting were new technologies being introduced into forensic toxicology and two in particular are being keenly investigated. Enzyme linked immuno sorbent assay (ELISA) is emerging as the best option for drug screening particularly drugs of abuse. Opiates and cannabinoids are two of the most commonly encountered drugs and the technique is proving suitable for the range of samples (in particular blood) submitted for toxicological analysis. Several laboratories are using ELISA and the results are very encouraging.

Another new technique that is available is LC/MS. Unfortunately it is still an expensive piece of equipment (approx \$300K) however it has many advantages in the toxicology laboratory, including the detection of heat labile drugs, metabolites and polar molecules and replaces the need for expensive and sometimes extensive derivatisation techniques. Several laboratories have either purchased or are in the process of purchasing this type of instrument and these laboratories will be liaising in the development of the technique.

**Peter Felgate**  
Chair, Toxicology SAG

## National President's Report

I report to you on a Society enjoying its most productive time in recent history. Membership continues to grow at a steady rate and the society has altered its stance somewhat and has become much more high profile in matters forensic. The national touring lecturer program has had its first full year and has met with great success and popular acclaim. The long awaited Registered Practitioners Scheme is now in full operation, and apart from catching everyone totally unprepared for the flood of paper that descended on the National Executive and creating a massive backlog, is now running smoothly with an expected turn round time of six weeks for completed applications. The secretariat operated within the NIFS office has been a huge success and negotiations are underway to make this a permanent arrangement.

Often the success of a Society such as ours is taken for granted, which belies the extremely hard work put in at all levels of the Society to achieve this success. In order to ensure that we do not lose sight of the efforts involved in maintaining the Society, the National Council approved a President's Award for outstanding or meritorious service to the society to be awarded annually at the President's discretion. The Gold Coast symposium gave me the opportunity to honour two stalwarts of the Society whose long service to their branches and the national body in organising symposia in their respective states has proved to be of inestimable value to the growth of the Society. Graham Cook, of NSW whose service to the NSW branch covered three decades and Neil Raward of the Qld branch who organised our first ever Queensland symposium were presented with their awards at the symposium dinner in March 2000.

The Gold Coast symposium, held in March 2000, defies superlatives and tribute should go to Paul Stewart, Michael Holohan, Darren Pobar, Anjali Egan, Bill Crick and their entire team for a job exceedingly well done. The Gold Coast, for me, had many highlights - the first meeting of the Registration Board for Forensic Practitioners where Alastair Ross and I signed the documents formally creating the register and being able to register our first three practitioners, with pride of place as the first registered practitioner in Australia and New Zealand going, very fittingly, to Ian Riebeling; the sheer vitality and youth of the society on display, although we may need to extend the dance floor in future years unless Ben Kwok slows down a bit; finally finding an audio-visual problem that Bill Crick couldn't fix; surviving the 'corkscrew' at Seaworld; watching Bruce Budowle picking

himself out of a bush during the touch football and seeing all the members who had come so far to share in the fellowship of forensic science, not only with each other but with our overseas guests, who cannot fail to have been impressed with the warm welcome they received, the excellent hospitality and, most importantly, the high quality of Australian and New Zealand forensic science on display.

The symposium made a large profit for the society, with 25percent of that profit being awarded to the Queensland branch for their efforts. The Queensland Police Service gave most generously of their time and personnel, not least of which was their Pipes and Drums to open the symposium.

Conrad Jupiter's was a perfect setting and Cecilia O'Grady and her staff looked after us most completely and I wish to record the society's thanks to Cecilia for making our stay so memorable.

And for the last time for a few years, I want to celebrate the efforts of Paul and his team with a familiar chant - **Queenslander!**

The co-operative spirit which has pervaded forensic science in recent years continues to flourish with the society strengthening its relationship with NIFS and SMANZFL, and the society now has a true voice in the conduct of forensic matters in Australia and New Zealand.

### Canberra 2002

Just when you thought it was safe to emerge from the exhausted state induced by the Gold Coast a new and even more threatening cloud hangs on the horizon. The ACT branch, under the inspired leadership of James Robertson, has set out to show the forensic world what they missed by awarding IAFS 2002 to Montpellier and are planning a symposium to set tongues wagging and livers rebelling. Much of the format is under wraps but I can say that the symposium dinner is in a venue that almost no-one else in the world will ever be allowed to use. Now is the time to plan your escape, the Gold Coast was exciting and vibrant, come and see what Canberra can offer.

### World Police Medical Officers Conference 2002

Dr Bill Ryan, another of our more adventurous members bid for this conference in Vancouver in August 1999. Bill's bid had full ANZFS backing and I congratulate Bill on his success in attracting this conference to Australia. This conference will be held in May 2002 in Sydney. Bill deserves the congratulations of the whole membership for his recognition in the recent honours list for services to forensic science. Try to make it to this exciting world event and support Bill in the way he has supported forensic science.

## INPALMS 2001

ANZFSS has given its full support and backing to this congress, although Stephen Cordner and his team do not appear to be in any need of help. This promises to be an excellent event and members of ANZFSS should give serious thought to attending it.

## Vale

It is with great sadness and a deep sense of personal loss that I report to members the tragic loss of Ian Riebeling in February. Ian was a stalwart of the society having been National Secretary under Hilton Kobus' presidency, South Australian branch president, architect of the 1998 symposium in Glenelg, the first registered forensic practitioner under the ANZFSS scheme he helped build, and a long time member of the National ANZFSS Council. Ian will be remembered as one of the truly great ANZFSS members whose vision helped the society rise to its modern day status. On behalf of all members I offer the society's sympathy to Janine and her family. At Janine's request a memorial fund will be set up to honour Ian's memory in the form of a trust, probably administered by ANZFSS to further forensic science at the practitioner level where much of Ian's hard work took place.

ANZFSS has lost a fine friend and a gallant champion and we bid him a fond, but sad farewell.

## Marketing

The fevered imagination of Keith Howard has produced a winner with the 'Forensic Science chalks up another one!' logo. \$12,000 worth of merchandise was sold at the Gold

Coast symposium and since then the efforts of Denise Ward of the SA branch have led to us producing another run of t-shirts, polo shirts, coffee mugs and two runs of caps.

Plenty of merchandise remains so contact Keith Howard or your branch secretary to place orders.

## National Touring Lecturer Scheme

Andrew Grosse of the NSW Police Service, assisted on occasions, by Gerard Dutton of the Tasmanian Police visited every branch to give a presentation on the Backpacker Murders and the Port Arthur massacre. The presentations were extremely well received and our thanks goes to Andy and Gerard for their time.

## South Pacific Scholarships

The society was pleased to be able to offer two international scholarships to our South Pacific neighbours. These were available on a competitive basis and were won by Mr Apaitia Vagaceku, and Assistant Superintendent Waisea Kau, both of the Fiji Police Force, whose presence greatly enriched the symposium.

## Member's Scholarships

The National Executive invested almost \$30,000 of members' money in providing scholarships for people to attend the Gold Coast symposium. As far as possible this was shared equally between the branches but preference ended up having to be given to those people who got applications in before the closing date. This investment was a worthy one and it is hoped to continue this level of scholarships in future years.

## Registered Forensic Practitioners Scheme

The creation of a register has in no way altered the balance of the society, but merely offers an additional benefit of society membership to those members who wish to avail themselves of it.

The register is administered by a board as approved by the members at the 2000 AGM. The requirements for registration are stringent and it is intended to keep the requirements so. The board has already determined that if the register is to fulfil its perceived role, it must be seen to apply exacting standards.

In its simplest form the scheme requires the society to maintain a register of practitioners in the forensic field and make that register freely available to the legal profession and judiciary and any other persons with a bona fide interest in utilising a forensic practitioner's services.

Interest has been constant since the scheme started and the Register is growing weekly.

Anna Davey, of NIFS, has taken on the onerous job of untangling the paper snarl the scheme created and we are now experiencing a turn around time of six weeks on completed applications and are now actively seeking to complete those less complete applications left over from the paper snarl.

This scheme has attracted attention in both the US and Europe and the Board will be pursuing contacts in these areas.

Lastly, I would like to thank all the members who give so freely of their time to attend and organise meetings, the society could never prosper without your dedication.

Thank you all.  
**David Griffiths**  
National President

## O B I T U A R Y



### Ian Riebeling

The Australian forensic science community was deeply saddened by the sudden death of Ian Riebeling at the age of 42 on 18th February while playing golf.

Ian joined the Forensic Science Centre in Adelaide in January 1984 as a new graduate and spent the early part of his career as a chemist working in toxicology, illicit drugs and accelerant analysis. In 1988 an opportunity presented itself to move into document examination and he seized the moment with the enthusiasm that characterised all he did in forensic science. It soon became obvious that Ian and document examination were a perfect match and that he had discovered the career to which he would devote his life. It was always uplifting to talk to Ian about his job because he exuded such passion for what he did. He would often say how fortunate he was to be paid for something he loved doing and there was never a day when he did not enjoy going to work.

Ian made significant contributions to document examination in Australia being involved with others in the profession in the development of the common methodology approach as a basis for a scientific structure to

document examination. He was the Deputy Chair of the Criminalistics SAG with responsibility for document examination and had been invited with one of his colleagues to run some workshops in the UK. Ian also contributed much to the wider forensic science community. He had significant involvement in ANZFSS, serving on the National Executive from 1992-96, on the SA Branch committee in the 1980s and 1990s and as Branch President in 1998-99. During Ian's term as Branch President, South Australia hosted a very successful ANZFSS symposium. Ian was the first person to be registered under the ANZFSS Registered Practitioner scheme.

Ian was such a good example to those around him and his untimely passing has left a massive void in our organisation. He had a consistently positive attitude to every situation and would never dwell on reasons why things could not be done but focussed on better ways of achieving a result. Typical of Ian's approach to his work and his life was the occasion when he received an



## Australian Police Medal

### PAUL ERIC STEWART

Superintendent, Forensic Services Branch,  
Queensland Police Service



Superintendent Paul Stewart was born in Rockhampton, Queensland, on 17 June 1959. After induction into the Queensland Police Service in 1982, he served for a short period in the Brisbane metropolitan area before being appointed to the Scientific Section, Brisbane.

After obtaining a Bachelor of Science Degree, Superintendent Stewart continued to develop his expertise as a scientific officer. He was an industrious officer who was often praised by senior officers for his professionalism and dedication.

Through hard work and study, Superintendent Stewart rose through the grades of Scientific Officer, being promoted to Sergeant in 1991. He has been involved in crime scene examination, investigation and physical evidence processing for thousands of criminal investigations. His experience and skills have

urgent phone call from Mount Gambier police who needed documents examined in a case that was in progress in the courts. The results were needed the next day or the case would be thrown out. The items arrived in Adelaide after 5pm and Ian worked most of the night on the case. He then drove to Mount Gambier in time to give evidence the next morning.

The attendance at his funeral was testament to his popularity and the esteem in which he was held by the forensic science community. A number of our colleagues travelled from interstate to pay their respects. Ian was a close friend to all of us and we shared many memorable social occasions with him. We will miss him enormously but he left us with a fine example of how to get the most out of our working lives. Our heartfelt sympathies go to his wife Janine and young daughters, Courtney, Shauna and Paris.

Hilton Kobus

contributed to the successful conclusion of many major criminal investigations into serious offenses such as homicide, sexual assault and arson.

Superintendent Stewart was promoted to Senior Sergeant in 1992 and completed the Master of Technology Management program at Griffith University the same year. Many of the recommendations contained in his thesis have been implemented by the Queensland Police Service. Superintendent Stewart is one of only three National Association of Testing Authorities (forensic science accreditation program) assessors within the Queensland Police Service.

In 1995, Superintendent Stewart was promoted to the rank of Inspector and to the associated position of Officer in Charge of the Scientific Section. He has since comprehensively demonstrated an ability to combine expert knowledge in the scientific field, and successfully manage staff by maintaining a high level of morale in an efficient, productive and participative work environment. In 2000, Superintendent Stewart was promoted to his current rank and appointed to the position of Manager, Forensic Services Branch.

Superintendent Stewart has been the elected President of the Queensland branch of the Australian and New Zealand Forensic Science Society and was the chairman of the Society's international symposium held in March 2000 on the Gold Coast. This symposium was the largest ever held in Australia and was attended by 1200 people. Inspector Stewart managed and led a team of five people who organised every aspect of the conference.

Superintendent Stewart continues to serve in the Forensic Services Branch and consistently shows exceptional ability in forensic science and as a manager. He often represents the Queensland Police Service at local and international forums for forensic science and regularly performs presentations on scientific issues to university students, police and community groups.

Currently, Superintendent Stewart is managing for the Queensland Police Service the introduction of DNA in terms of structured and operational policy and procedures. A \$2million budget has been made available by the State Government for this project.

In response to a request to the Police Service from the Queensland Government, Superintendent Stewart recently provided briefings to the overseas relatives of the victims of the Childers backpackers' fire. He has been commended on the sensitive and professional manner in which he discharged this most difficult task.

Superintendent Paul Stewart has given long and valued service to the State of Queensland. He has performed with distinction and demonstrated outstanding commitment to duty, particularly in the field of forensic science. As such, he is a most worthy recipient of for the award of the Australian Police Medal.

### THEODOOR (TED) MARIA VAN DIJK

Senior Sergeant, Forensic Services,  
South Australian Police



Senior Sergeant Ted Van Dijk joined the South Australia Police as a Cadet in January 1968. Following his training and a short period of service as a patrol officer, he joined the (then) Scientific Section of the Criminal Investigation Branch in November 1971. Apart from a period of 21 months when he served as an Instructor at the Police Academy, his career has been devoted to forensic science.

During his service his primary focus has been in two areas – the examination of serious crime scenes and the comparison of toolmarks. In relation to the former he has been involved in many of South Australia's most complex murder investigations. His attention to detail during the examination of scenes and physical evidence and his ability to interpret these has played a significant role in the conviction of many serious offenders.

His ability to clearly present complex evidence to juries and the courts has also been a feature of his work with acknowledgement of his achievements having been made by staff from the Office of the Director of Public Prosecution.

In relation to the comparison of toolmarks, he is recognised as a leader in his field, both nationally and internationally. His high level of knowledge of the use of tools and the manufacturing processes involved are indicative of the thoroughness of his work and the extensive research he has undertaken in this field. He has been called upon by interstate police to conduct toolmark comparisons and has had papers published in forensic science journals.

He wrote the chapter on Toolmark Identification in the authoritative reference texts 'Expert Evidence' by Freckelton and Selby and also in the 'Encyclopedia of Forensic Science' recently published in the United Kingdom.

Senior Sergeant Van Dijk has been a leader in his field for many years and his achievements have exceeded those expected from the normal performance of his duties.

## Implementation of ISO/IEC 17025

### Change to Assessment Reporting Terminology

Reports on assessments of forensic facilities conducted from 1 September 2000 will adopt a slightly different approach to the classification of comments. Non-compliances with accreditation criteria were called 'Conditions' and other comments included in assessment reports were called either 'Recommendations' or 'Observations'. 'Conditions' are now classified as either 'Conditions' or 'Minor Conditions'. They are both non-compliances with accreditation criteria and both must be addressed by laboratories but 'Minor Conditions' are considered to be less significant ie not to have a direct impact on the quality of test/examination results. 'Recommendations' and 'Observations' will all be classified as 'Observations' in assessment reports from now.

Applicant laboratories will be required to provide a written response that both 'Conditions' and 'Minor Conditions' have been addressed before accreditation will be granted. Accredited laboratories will only be required to provide a response on 'Conditions'. The action taken on 'Minor Conditions' will be checked at the next assessment.

### Changes to Assessment Checklists

In line with the changes to the accreditation criteria due to the introduction of ISO/IEC 17025, two new checklists have been produced, Laboratory Assessment Worksheet - Forensic Science Laboratories (Forensic LAW) and Laboratory Assessment Worksheet - Parentage Testing Laboratories (Parentage Testing LAW). These are multipurpose checklists and are intended for use by laboratories, assessors and NATA staff. (At this stage, the Forensic LAW does not include the DNA requirements as described in Annexes 1 and 2 of section 3A of the Forensic FAD.) These are Word documents and can be obtained by contacting me.

### New Certificates

New accreditation certificates are being issued to laboratories as they are assessed and found to comply with the new NATA Accreditation Requirements. The certificates make reference to both the laboratory's compliance with ISO/IEC 17025 and the equivalence of the management system requirements with ISO 9002.

New certificates are being issued only when NATA verifies that appropriate corrective action has been taken on all non-conformances identified at their next reassessment ie all 'Conditions' and 'Minor Conditions'. Laboratories therefore have two choices as to when new certificates are issued. Laboratories

that would like a new accreditation certificate immediately must respond to all 'Conditions' and 'Minor Conditions' detailed in their next assessment report. Laboratories that are happy to wait for their new certificate need only respond to the 'Conditions' and a certificate will be issued following the subsequent assessment when the corrective action on the 'Minor Conditions' has been verified.

### Accreditation Program for Drug and Property Registries

Following an approach by the Australian Federal Police - Northern Region, NATA has established an accreditation program for drug and property registries. NATA's Board approved the format of the program and the accreditation criteria at its July 2000 meeting.

The working group that established the criteria comprised:

- Mr Alastair Ross – National Institute of Forensic Science
- Ms Jennifer Evans – NATA
- Asst Commissioner Tim Atherton – WA Police Service
- Ms Sue Martinsen – Drug Registrar – AFP Northern Region

The accreditation criteria are based extensively on ISO/IEC 17025 and include registry specific requirements where necessary. It is proposed that assessments will be conducted by a NATA staff member only.

### Forensic Science Accreditation Advisory Committee Meeting

The seventh meeting of the Forensic Science Accreditation Advisory Committee (FSAAC) was held in Melbourne on 18 October 2000. NATA's board ratified the minutes of the meeting at its December 2000 meeting.

### Proficiency Review Committees (PRCs)

A summary of the proficiency tests reviewed for the years 1999 and 2000 (to date) was tabled. The FSAAC agreed that it was time for the process to be reviewed. It was also felt that some other issues need to be discussed such as adequacy of proficiency tests, new/additional tests, SAG-generated proficiency tests, NATA-generated proficiency tests and the NATA approval scheme for proficiency test providers. It was proposed that a meeting of PRCs be held in early 2001.

### Assessors and Assessor Availability

One of the most serious issues now affecting NATA generally is the availability of assessors. The forensic program has not reached the point where finding assessors to conduct assessments is a problem, but it will not be long!!

Currently a full technical assessment of each laboratory, including each site for multi-site laboratories must be conducted every two years. Laboratories such as the Forensic Science Centre

in Adelaide, the Division of Analytical Laboratories in Sydney and Queensland Health in Brisbane take one week to assess and require at least one assessor per discipline. The effort involved in assessing a laboratory such as the Victoria Forensic Science Centre, with its large central laboratory and 11 regional facilities, is considerable. For example, two DNA assessors were required for a week at Macleod, one fingerprint assessor did one week of regional facilities, another did a second week of regional facilities and they and one additional fingerprint assessor assessed the main fingerprint facility at St Kilda Road and a small facility at Macleod in a third week of fingerprint assessments.

Assessments require a large commitment by individual assessors and a large commitment by their employers. Rather than wait for the crisis, the FSAAC has determined that alternatives to the current assessment format for accredited laboratories be investigated. I have been asked to produce a discussion paper by the end March 2001 for the FSAAC.

Issues for consideration include:

- For multi-site laboratories, is it necessary to visit each site at each assessment or can a sampling plan be established so that a statistically significant number of sites (or perhaps disciplines) is visited each assessment?
- For laboratories such as the Forensic Science Centre (SA) and the Chemistry Centre (WA) which are due for their third NATA assessment, would a more beneficial strategy be a technical assessment eg every three or four years interspersed with quality management system assessments every eg year or two years, for example.

The forensic program is faced with another problem that is not an issue in NATA's other fields of testing. There are only 18 organisations that provide 'traditional' forensic science services. In some disciplines eg document examination, the number of organisations is far less. With such small numbers, the perception of an 'old boys club' is a concern.

There is also a danger that the Australian program does not keep up to date with international trends. To counter these issues, the FSAAC would like at least one overseas assessor to participate in every second assessment of a laboratory.

### Uncertainty of Measurement

The FSAAC has agreed that, at this time, emphasis should be given to quantitative measurements and that application of measurement uncertainty to the disciplines of forensic biology, document examination, firearms, fingerprints and crime scene investigation will be considered at a later stage.

The FSAAC has decided that, in order to further this issue, SMANZFL, via the relevant SAGs, will be requested to produce



measurement uncertainty calculations for three measurements: heroin analysis, glass refractive index and blood alcohol, by 30 June 2001. In addition, the FSAAC would like those SAGs to provide advice on the possibility for national consensus uncertainty budgets, how these calculated uncertainties relate to current reporting practices and 'where to from here'.

### NATA Guidelines for Digital Imaging Processes

A draft NATA guidelines document has been produced from the National Guidelines for Digital Imaging Processes. This is specifically aimed at accredited (or potentially accredited) laboratories that are using digital imaging processes. The FSAAC felt that since there is now an Electronic Evidence SAG, the document should be reviewed by the SAG first before receiving its endorsement.

### Submission from the Toxicology SAG

There was one issue raised by the SAG that is of interest to other disciplines and that relates to an extension to calibration intervals for equipment such as POVAs (Piston Operated Volumetric Apparatus) and spectro-photometers where stability of calibration can be demonstrated. The committee did not endorse extensions to the calibration intervals as detailed in Section 4 of the Forensic NAR.

Reasons include:

- variable interpretations of acceptable period of stability
- as instruments age, should they really be calibrated less frequently?

### Communication with Laboratories

NATA is committed to improving its communication with laboratories. The NATA website is currently being upgraded and Technical Policy Circulars are going to be used far more extensively to articulate changes to NATA policy.

With respect to forensic science laboratories, NATA is going to be an occasional contributor to the NIFS Bulletin and significant issues such as FSAAC resolutions will be posted on the NIFS website.

Communication with assessors is to be improved by holding Assessor Forums. These are proposed to be semi-formal meetings at which issues of relevance to assessors can be discussed.

### Proficiency Testing Meeting

The meeting was held in early February 2001 in Melbourne. It was attended by most PRC members and SAG chairpersons and representatives from the FSAAC.

The group endorsed the current proficiency test review process although some concern expressed about perceived conflict of interest. This resulted in the restructuring of three of the four PRCs to ensure that each proficiency test

will now be reviewed by at least two people - the PRC Chairman and the relevant technical committee member.

Membership of the PRCs is now as follows:

#### Illicit Drugs & Toxicology

Chairperson – A/Prof Olaf Drummer,  
Victorian Institute of Forensic Medicine  
Toxicology – Mr Peter Felgate,  
Forensic Science Centre, SA  
Illicit Drugs – Dr Jim Pearson,  
Victoria Forensic Science Centre

#### Criminalistics & Documents

Chairperson – Dr Paul Kirkbride,  
Forensic Science Centre, SA  
Criminalistics – Dr Chris Lennard,  
Australian Federal Police  
Documents – Mr Herman Metz,  
Victoria Forensic Science Centre

#### Biology

Chairperson – Mr Bob Goetz, ICPMR –  
Division of Analytical Laboratories  
Biology – Dr Peta Stringer,  
Victoria Forensic Science Centre  
Ms Kim Williams,  
Forensic Science Centre, SA

#### Field & Identification Sciences

Chairperson – D/Ch Insp Mark Edwards,  
NSW Police Service  
Crime Scene – Supt Andy Telfer,  
SA Police  
Fingerprints – Sgt Peter Pangrazio,  
Victoria Forensic Science Centre  
Firearms – Snr Sgt Michael Keller,  
Queensland Police Service

The group also agreed the PRC Standard Operating Procedures were out of date. I will be drafting a new version in the near future.

A number of other issues were discussed including the absence or limited availability of proficiency tests for some subclasses. These issues were referred to the SAGs for further consideration and advice.

#### Review of the DNA Accreditation Criteria

It is some time since NATA reviewed the DNA Accreditation criteria and I would like to do so prior to the next FSAAC meeting which is scheduled for September 2001. I will be convening a small working group and have asked the Biology SAG to propose the names of SAG members who might be interested in assisting with the review.

Jennifer Evans  
Manager, Forensic Science

National Association of Testing  
Authorities, Australia  
7 Leeds Street Rhodes NSW 2138  
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HELMUT WINZLER AND SUPERINTENDENT  
PETER BUTCHER

## National Fingerprint Accreditation Board

In 2000, the National Fingerprint Accreditation Board (NFAB) was established, under the auspices of the Australasian Police Education Standards Council (APESC). The role of the board is to recognise and register individuals who have reached expert status in the field of fingerprints.

To reach this status, fingerprint practitioners now have to have completed the National Diploma in Forensic Investigation (Fingerprints) or its equivalent and undergo a rigorous assessment consisting of written exams, practical exercises and an oral examination/moot court.

The final assessment is conducted in the practitioners home state/territory with an external assessor brought in from another state/territory. To date, five experts have been registered under the new system and it is receiving favourable comment.

The NFAB met in Sydney on Wednesday 2 May and at that time, recognised the New South Wales Forensic Services Group (FSG) for the significant contribution it had made in providing the previous training for fingerprint experts and assisting the professionalism of fingerprint science over a period of 30 years. The Chairman of NFAB, Mr Helmut Winzler, presented a framed acknowledgement to Superintendent Peter Butcher of the FSG.

*The best career advice given to the young is 'Find out what you like doing best and get someone to pay for doing it'*

— KATHERINE WHITEHORN

## [\*Interpol DNA-Monitoring Expert Group]

The 6th DNA-MEG meeting was held in Melbourne, 4-8 December, 2000.

As mentioned in the last NIFS Bulletin article, this group formed out of the European (DNA) Working Party Report and Interpol's decision to extend DNA interests to all 178 Interpol member countries. The DNA-MEG therefore aims to represent all major world regions, that way also representing the member countries.

At the Melbourne meeting the Group was represented as follows:

Dr. Richard Scheithauer – Austria, Chair  
 Mr. Jose Andradas Heranz – Spain  
 Ms. Lyn Fereday – UK  
 Mr. David Gidley – Australia  
 Supt. Paul Hodgson – UK  
 Ms. Anne Leriche – Belgium  
 Supt. Reidar Nilsen – Norway  
 Mr. Ricardo Padula – Argentina  
 Ms. Anne Paleologue – France  
 Ms. Jennifer Smith – USA  
 Ms Adeline Shezi – Rep. of South Africa NEW  
 Mr. Werner Schuller – Interpol GS Secretary  
 Mr. Mark Branchflower – Interpol GS (Fingerprints)

The DNA-MEG Secretary, Mr. Werner Schuller, presented updated charts demonstrating the progress made on the Terms of Reference since the May 2000 Meeting in Lyon.

The main focus of the Melbourne meeting was to finalise the proposed 'Interpol DNA Handbook' the title of which was causing concern within some countries as they had developed an expectation that this publication would avoid their having to address the issue locally. The outcome of this lengthy discussion was that all jurisdictions/member countries needed to provide local advice to their respective police agencies, covering the specifics of how their service worked, while the Interpol DNA booklet would address the Interpol specific needs of DNA data exchange and practices.

The Interpol publication will therefore be re-titled, 'Interpol Handbook on DNA Data Exchange and Practices'. This handbook will also provide a framework for widening co-operation between international law enforcement agencies and forensic service providers and assist countries still developing DNA capability.

The first two days of the meeting were taken up with assessment of progress made with the development of the DNA ASF database at Interpol. This part of the DNA-MEG's agenda is vitally important and is successfully utilising the framework of the Interpol Stolen Motor Vehicles Tracking Database, already operating internationally. Much work has been done at Interpol HQ by Mr. Werner Schuller, the DNA MEG Secretary, Mr Mark Branchflower, the Interpol Fingerprint database manager, and Mr. Patrick Mazet, an IT specialist from Interpol General Secretariat. Their work was demonstrated via

internet link-up to the VFSC and first efforts are promising.

Mr. Mazet will visit several operating DNA databases before he finalises the technical aspects of how the Interpol requirements will be met. It is proposed that the Interpol DNA ASF database will go live at the 2nd Interpol DNA Users' Conference for Investigative Officers, at Interpol HQ Lyon, France, November 2001.

A key part of this proposal, of course, was the agreement on a standard set of forensic DNA loci which has now become the Interpol Standard Set of Loci, or the ISSOL. As would be readily appreciated, the arrival at a set of loci was not easy but has been achieved with Australia's agreed forensic DNA system Profiler Plus sharing six of the seven loci in ISSOL. The rule is that to contribute to the Interpol DNA Database, one must have at least six of the ISSOL, and where possible to also report the amelogenin result. The ISSOL loci are: VWA TH01 D21S11 D18S51 FGA D8S1179 D3S1358.

Each representative also provided information on their country's/region's progress with DNA typing and DNA databasing. Of course the USA and the UK are very advanced with both, and I was able to report the progress with CrimTrac and how that was proposed to work. I also reported the general situation in Australia with adoption of the national Profiler Plus system, and states/territories enacting or amending DNA samples legislation. Just prior to this meeting VFSC had finalised the first draft of a 'DNA Handbook' and this was provided to the members of the DNA-MEG electronically.

I also acknowledged the assistance from the FBI and the FSS in providing material and guidance for this Handbook.

Finally this meeting spent a considerable amount of time on planning for the 2nd Interpol DNA Users' Conference for Investigative Officers. This conference name has changed a little after extensive discussion of just who we were trying to target. This was defined as users of DNA database information such as:

- police, customs and other law enforcement agencies
- representatives from countries still developing or who do not yet have DNA/DNA databasing
- representatives from countries seeking advice on the application of DNA

The conference will likely be divided into two parts, the first covering relevant aspects of DNA databasing and the second, focusing on good practical DNA techniques as a key tool for successful criminal investigation. Further details will be released as the conference agenda firms up.

The outcomes of the next DNA MEG meeting in Buenos Aires will be posted in the next Bulletin, and remember, the latest information re DNA-MEG can be seen on the Interpol web-site: [www.interpol.int/public/forensic/DNA/default.asp](http://www.interpol.int/public/forensic/DNA/default.asp)

Prepared by David Gidley  
 Director, VFSC

## What Does the Military have to do with Forensic Science?

### Rhonda Wheate

For the many forensic scientists whom I have not yet met, let me introduce myself so that when we do meet (over the following two years) there is no confusion. I am a PhD student at the Australian Defence Force Academy in Canberra, working under the supervision of Assoc. Prof. Eric Magnusson.\* I have an honours degree in chemistry and am almost finished a law degree at the Australian National University. My PhD is in the area of forensic evidence. In particular, I am investigating the way that lawyers and jurors cope with forensic evidence.

In September 2000, I was invited to attend the Biology SAG annual meeting in Adelaide. On the basis of the fantastic responses to a survey I conducted there, I will be travelling around Australia over 2001-2 to collect data about what you, the forensic experts, think about the legal system, juries, and how they cope (or don't) with forensic evidence. I look forward to meeting you in the course of my travels.

In the meantime, I am collaborating with NIFS, the Australian Institute of Judicial Administration and Ian Freckelton on a large-scale survey of real jurors. We will monitor trials containing forensic evidence (the more complicated the better), then survey the jurors to determine how well they understood the forensic evidence. In particular, we're looking for trials using biological evidence (especially DNA, hair), medical/pathology evidence, document examination and finally, accounting evidence. We hope to begin the actual research mid-2001 and study up to 30 cases altogether, in NSW, VIC, SA and the ACT. So if you or your colleagues are aware of any pertinent cases coming up, don't hesitate to let me know. (Of course, we are seeking permission from the relevant Attorneys-General to do this research, so I won't have to finish my report from a jail cell.)

I look forward to hearing your views on how things are currently done and how they can be improved. I hope that the results of my work will prove useful for the forensic science community, as well as the legal profession.

Rhonda Wheate - School of Chemistry  
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- The Academy has an academic (non-military) part of the campus, where the undergraduate midshipmen (Navy) and cadets (Airforce and Army) complete university degrees. This is a college of the University of New South Wales and postgraduate, non-military students also study here. That's where I fit in - I'm a civvie, as they say.



## Background

The reason for this short paper is to advise the forensic science community in Australia of the existence of the Institution, provide a brief history, outline its relevance to forensic science as part of an International Body and the way to become a member should any of the forensic science community see that membership would enhance their communications with like minded colleagues, which in 2000 numbered about 11,000 members in 43 branches world-wide.

## The Institution of Fire Engineers Origins

The Institution of Fire Engineers (IFE) was founded on 31 October 1918, when 10 Chief Officers from the UK Fire Services held a meeting for the purpose of setting up an organisation of like-minded members. Initially, the coming together of these minds was to move the fire services to a higher level than had generally been placed upon them as a profession and to accord the fire services with the recognition it deserved from local, national and international authorities.

Work commenced in 1918 to register the institution under the UK Companies Act, and a constitution and regulations were enacted to support this registration. Under the initial constitution, membership grades via an ever-evolving examination system were decided upon and a similar system exists today.

The years 1918 until 1924 were a time of frustration for the IFE as a Royal Commission that was established to look into the whole administration and personnel of the UK Fire Services slowed progress toward incorporation. On 12 February 1924 permission was granted by the Commission for the IFE to be incorporated as a charity, a privilege it still holds today.

There are branches on every continent, and the IFE is considered to be the largest professional body representing fire engineers worldwide.

## The Institution of Fire Engineers in Australia

The IFE was established in Australia in 1930, with a 'colonial council' being established in Victoria. Queensland and Western Australia were allowed into the fold in 1932 and South Australia in 1937. The term 'colonial council' was subsequently replaced with the term overseas branch. New South Wales joined as an overseas branch in 1962 followed in 1973 by Tasmania, 1977 by the Australian Capital Territory and 1983 by the Northern Territory. It took until 1990 for Australia to form a national coordinating committee with one representative from each state and territory to provide an overview as a non-governing body, and 1994 to form all branches into the Australian Branch underpinned by state and territory Groups.

The IFE in Australia aims to provide the international services currently provided to all

members of the IFE and to add value in Australia. To do this we must return to our mission from time-to-time and reflect on how we might achieve this.

The mission of IFE internationally is:

'To promote, encourage and improve the science and practice of fire extinction, fire prevention and fire engineering and all operations and expedients connected therewith, and to give an impulse to the ideas likely to be useful in connection with or in relation to such science and practice to the members of the Institution and to the community at large.'

In Australia, we extrapolate the objective of the IFE further and aim through group activities to:

'Encourage members to meet and correspond; facilitate the interchange of ideas for suggested improvements to the various branches of fire engineering; publish and communicate information regarding the diverse range of subjects which form fire engineering and to co-ordinate, encourage and assist members to gain corporate membership of the institution.'

## What is Fire Engineering?

Fire engineering is the application of scientific and engineering principles, rules or codes and applying expert judgement based on an understanding of the phenomena and effects of fire and of the reaction and behaviour of people to fire.

The application of fire engineering principles aims to protect people, property and the environment from the destructive effects of fire.

These objectives can be achieved by a variety of means including such activities as:

- Risk analysis through the assessment of fire hazards and risks
- Reduction of potential fire damage by proper design, construction, arrangement, and use of buildings, materials, structure, industrial processes, and transportation systems
- Evaluation for the optimum prevention and protection strategies necessary to limit the consequences of fire
- Design, installation, maintenance and/or development of fire detection, fire suppression, fire control and fire communication systems and equipment
- Direction and control of appropriate equipment and manpower in the strategy and function of fire suppression and rescue operations
- Post-fire investigation and analysis, evaluation and feedback.

## What is a Fire Engineer?

A fire engineer is an individual who, in addition to studying one or more of the specialised areas of fire engineering and who by education, training and experience understands:

- The nature and characteristics of fire, the mechanisms of fire spread and the control of fire and associated products of combustion
- How fire originates and spreads within compartments, buildings/structure
- How fire can be detected, controlled, and/or extinguished
- The behaviour of materials, structure, and vehicles
- The processes for the protection of life, property and the environment from fire
- The interactions and integration of fire safety systems and all other systems in buildings, industrial structures and similar facilities
- The investigation processes and the scientific method in determining the origin and cause of fire.

## The Relevance of IFE Australia to Forensic Science

You might ask 'what is the relevance of IFE to forensic science?'

We are all aware the first respondent at a fire scene is the fire fighter. The various fire authorities are empowered to investigate the cause and origin of fires. Only when circumstances are suspicious will the forensic scientist become involved. In the best systems, this interaction is very positive and there is a real sense of a team approach, but, if this is to work at its best, there must be communication. This is the real value and relevance of interaction with IFE.

This is enhanced by being able to expand international networks, being able to publish in an excellent Fire Engineering Journal and being able mix with many of the prominent figures in fire investigation while attending world class annual general meetings and associated conferences.

The professional international fellowship across the entire spectrum of fire engineering is the institution's strongest asset.

Fire investigation, both in the field and laboratory (forensic and materials science), are represented worldwide by membership of the institution.

## What is Required for Membership of IFE Australia

Membership of IFE has been traditionally through an examination regime. A member, in the first instance, becomes a student member and then sits for the examinations.

There are other ways that interested fire investigators can join IFE Australia. Since becoming National President I tasked our education committee to look at the National Forensic Program Diploma delivered by a number of providers around Australia and the

forensic science degree offered by the Canberra Institute of Technology. Programs were not considered close enough to map, however, I have both programs on the books and forensic science is topical among our community. I am assured that members of the fire investigation community, no matter if they are field or laboratory scientists, or a combination of both, will be favourably looked at for membership on a case-by-case basis. What this means is regardless of the membership criteria, the institution will look at the qualifications of the fire investigator in addition to the number of cases that each investigator is involved in. This would not preclude for instance a laboratory scientist who has considerable involvement in laboratory and/or filed investigations.

To further investigate an interest in joining IFE please examine both IFE International or the IFE Australia websites:

<http://www.users.bigpond.com/ifeaust/home>  
<http://www.ife.org.uk>

**What do Your Subscriptions Cover?**

- Recognised community standing
- The International Fire Engineers Journal (FEJ) bi-monthly
- Fire Australia Magazine (FAM) quarterly
- Assessment of past education and training
- Articulation into courses at advanced standing
- Networking – locally, nationally and internationally
- Seminars, Conferences (annual fire conference and exhibition) and technical Sessions
- Website communications
- National in-put to committee work through the provision of advice to a variety of audiences and/or through active participation – the ability to influence and/or make a difference

**Personal Note**

*I have now been a member of the Institution of Fire Engineers for thirteen years and have found my last four, where I have offered honorary service and actively participated in the activities of the Institution through voluntary service, to be the most rewarding.*



**John Horswell FIFireE**  
 National President, IFE Australia

**Letter from Paul Stewart**

**Forensic Services Branch, Queensland Police Service.**

Hi everyone, warm greetings from the United States (or perhaps I should rephrase that as it hasn't been warm over the past few months at all). For those of you who aren't aware, I have been attending the Federal Bureau of Investigation National Academy (FBINA) at Quantico, Virginia for the past 10 weeks. FBINA hosts four national academy sessions every year with about 230 US law enforcement officers and about 30 international students on each session.

I was very honoured to be selected to attend the 204th session from 7 January to 16 March 2001 as the Australian representative. There are approximately 18,000 law enforcement agencies in the US, and it is also considered a great honour for US officers to be selected to attend the FBINA.

The FBINA offers many courses including investigative psychology, crime analysis and futuristics, change management and leadership, forensic science, interview and interrogation, media studies and legal issues. It is affiliated with the University of Virginia and many of the courses are post graduate level and are recognised by other tertiary institutions. Each student selects five or six courses, including a compulsory physical education program. This includes scheduled lectures, gym and general physical training.

All participants in the NA program must take physical education tests including running timed 1.5 mile runs, push ups, sit ups etc. In addition to this there is a challenge run each week which culminates in a 3.2 mile run to the "Yellow Brick Road" obstacle course (where Jodie Foster ran in the Silence of the Lambs), and completion of the 1.8 mile course. There has been a lot of blood, sweat and tears as many people are forced into a healthier lifestyle than they have been living for a long time. Some of the runs were in snow and near freezing temperatures (a bit different to what we are used to in sunny Queensland). There are about 34 contact lecture hours per week, nine-hour days and research, papers and presentations to prepare. As you would imagine it is a really busy course.

FBINA is staffed by FBI agents who are professional and experienced lecturers. They take great pride in the academy and also in their courses. The facilities are excellent, lecture theatres are all equipped with heaps of AV gear - rear projection screens, data projectors etc, and there is a large canteen, coffee shops and recreation areas (all of course with an academy atmosphere). They have full time staff on AV, so if there is a problem it is always fixed in a couple of minutes.

I took courses in investigative psychology, change management, crime analysis and futuristics, interview and interrogation and forensic science. The courses have been really

interesting - learning about psychological analysis, psychopaths, serial killers and how to identify them and analyse their crimes and crime scenes. I believe we should be using investigative psychology more in Australia and enhancing the links between our crime scene investigation processes with analysis, investigation and intelligence. We had a two-hour presentation on the most recent and significant school shootings in the US. This was very interesting and provided many indicators to look out for. The forensic science course is also excellent (at a general level) - we should have the same course at all of our police academies. I'll be bringing home a lot of handouts and training materials.

The change management course was also great and the lecturer excellent. The best part was that everyone in the class was prepared to share their experiences. One Chief of Police on our course was hired as a change agent in a police force in Georgia - he has since jailed nine of his police officers for corrupt and criminal activities. We also studied the New Orleans police department, which was found to be very corrupt and has been transformed over the past five years by their Chief of Police. Some of their police are now doing time for murdering a fellow police officer, protecting drug traffickers and for other narcotic convictions. Amazing but true stories.

The interview and interrogation subject was also excellent. We each had role play exercises interviewing a woman who had just witnessed the daughter of a friend of hers get shot and killed in an armed robbery, and interrogating a man who had burnt his house down. They watch the crime on video and then we interview them. They are all actors and are very good. Some are hysterical, others cry - mine was crying and all she wanted was a brandy. She was so realistic I was nearly crying with her. At the end of the interview they click out of character and start critiquing for you. It was a great exercise.

On the social side everything was also fantastic. All of the police officers were very friendly and supportive. I have established some great networks with police officers throughout the US and also in Canada, Scotland, Italy, Germany, Philippines, Argentina and Mexico, to mention a few.

Some organised events included a visit to the police memorial in Washington for a service for police officers who have been killed in the line of duty. Quite a few US people, of course, have been killed over the years. It is a very impressive memorial and it was a very moving night. Everyone had the opportunity to call out the name of friends or associates from their organisation who have been killed in the line of duty. We also went to the Holocaust Museum in Washington DC as a group. It was an excellent museum. Again, a very moving night, particularly as it highlighted the role of law enforcement officers in this dreadful part of the world's history. We also visited operations centres and specialist areas at the New York Police Department and the Philadelphia Police Department, toured the FBI



building and went on a ride along with a patrol officer from Fairfax County (south of Washington DC).

We went to the Australian Embassy for Australia Day celebrations. It was a great night with lots of pies, sausage sizzle, lamingtons and pavlova. They had a big screen with league, union and aussie rules playing and played Australian music all night. I was able to take seven of the guys from here up to it, so that made it even better.

There was an international night in the seventh week. The international students played a US team in soccer in the afternoon (which we won 6 - 0) and that evening all international students hosted a social evening. We each had to provide drinks, food items and information from our country. Simon from Scotland had haggis, Thomas from Austria had heaps of sausages and cheese etc. We each set up a booth and the US people circulate around trying out the different foods and drinks and getting information on the different countries. It was a very memorable evening which was enjoyed by all. Superintendent Barry Turner from the Australian Federal Police at our embassy in Washington, and other embassy staff were very helpful in providing Aussie goods and information.

If anyone is interested in obtaining any information about the FBI National Academy or any of the courses, please don't hesitate to contact me at [stewart.paul@police.qld.gov.au](mailto:stewart.paul@police.qld.gov.au) or on 07 3364 6564. I look forward to getting back to Australia with lots of new ideas for the future. We can certainly be very proud and hold our heads high, Australia has a great reputation overseas and the quality of our forensic science and law enforcement is very high when compared to other countries.

## Letter from David Tranthim-Fryer

Hi Anna,

Just a quick hello to you all at NIFS.

I had a very successful time in Seattle. The workshop was well attended (42 attendees) and received. There was a 50/50 mix of academy members and non members. They gave very good reviews of the content and delivery by presenters. I was surprised and honoured to receive an award from the AAFS (Toxicology Section) for organising and being chairman at the workshop.

Attendance at the meeting allowed me to maintain existing relationships and gain new contacts in the US and Europe.

I made a visit to the FBI (chemistry, trace and DNA sections). Their equipment base is unbelievable and made me a little envious. I was given unbiased opinion on Frederick Whitehurst. The FBI has raised the standard with their procedures. They gained ASCLD/LAB accreditation in 1998. They are moving in the right direction.

I will be visiting Dr Bob Koons at the FBI research lab in Quantico Virginia.

I am looking forward to my visit at FIU in Miami. While in Miami I will get a chance to meet a few post graduate students and present a seminar on my work (SPME).

Bye for now, with kindest regards,

David Tranthim-Fryer

## John Horswell's Visit to Kuwait



PROFESSOR BRIAN CADDY MIDDLE AND STRATHCLYDE UNIVERSITY ALUMNI.

John Horswell, Coordinator, Quality and Business Services for Forensic Services (AFP) has recently returned from a visit to Kuwait where he gave a presentation to the First Congress on the Forensic Sciences hosted by the Kuwait Government in February 2001. John was one of a handful of senior forensic scientists invited to the congress. Countries represented included Australia, Bahrain, Egypt, Kuwait, Qatar, Saudi Arabia, Sultanate of Oman, United Arab Emirates and the United Kingdom.

John who is AFP Forensic Services' Quality Manager, also chairs the Crime Scene Proficiency Advisory Committee (CSPAC), a National Institute of Forensic Science (NIFS) Standing Committee and an approved proficiency test provider of the National Association of Testing Authorities, Australia (NATA). His paper 'Quality Systems Accreditation for the Field Science: Crime Scene Investigation', dealt with the ground breaking work developed in Australia in the area of training and quality standards for crime scene investigators.

The congress theme of 'New Horizon in Forensic Sciences' was an idea conceptualised and promoted by Colonel Dr Bader Al-Khaligah, Director of the Forensic Science Laboratory and Colonel Dr Fahad Al-Dosari, Director, Crime Scene Department, General Department of Criminal Evidence, Ministry of Interior. Both men are graduates of British universities, Dr Bader, Strathclyde University in Glasgow and Dr Fahad Exeter University in Devon.

John delivered his presentation to the conference on day one and made a further two presentations to Kuwait crime scene Investigators. He also led discussions with staff of the Forensic Science Laboratory on quality issues.

He was pleasantly surprised to meet two of his class colleagues who were at the University of Strathclyde during his postgraduate studies in 1985/86. One of them went on to obtain his PhD and now is the Director of the Forensic Science Laboratory in the Sultanate of Oman and the other is a forensic biologist with the Forensic Science Service Wetherby Laboratory in England. Dr Bader was also a student studying at Strathclyde for his Doctor of Philosophy degree at the time as well.

Professor Brian Caddy, the former Head of Strathclyde University's Forensic Science Unit, was also an invited presenter as were six other Britons. The Strathclyde 'mafia' is alive and well and Strathclyde University's alumni had representatives at the conference from Australia, Bahrain, England, Kuwait and Oman. The strong connection with Strathclyde is important in maintaining and developing research partnerships.

This first congress provided an excellent forum in which to share our Australian experience and leadership in the area of crime scene training and quality standards.

He also visited, as part of the conference, the Forensic Science Laboratory and Crime Scene Department which, together with the Forensic Medicine Department form the Criminal Evidence Department.

In 1990 the military forces of Iraq, Kuwait's neighbour, invaded Kuwait after a disagreement over oil reserve ownership and occupied that country for seven months. Iraq employed more than 100,000 troops to effect the occupation. The Iraq leadership declared that Kuwait was part of Iraq and went about systematically stripping public buildings and private premises, which were unoccupied, returning all the looted goods to Iraq. Having declared Kuwait part of Iraq meant that all Kuwait citizens were now Iraq citizens and anybody who stayed behind occupying their homes were off limits to this treatment. The movement of Kuwait people during the occupation was hindered with constant checkpoints and street stops which interfered with everyday life in Kuwait. The Iraq occupation forces also set about attempting to identify senior government leaders, members of Kuwait's small-armed force and police officers. Many of these Kuwait citizens fled the country; others chose to alter identity documents changing employment particulars and in some cases their names. No mean feat in a country where every person is fingerprinted and all citizens are required to carry identification documents.



JOHN HORSWELL WITH HIS HOST, COLONEL DR FAHAD AND HIS POLICE VEHICLE SOMEWHERE IN THE KUWAIT DESERT NORTH OF KUWAIT CITY.

The Forensic Science Laboratory through this period was unmanned and Iraq forces removed everything, including the wallpaper from the building. Everything in the laboratory today has been acquired since the occupation. The laboratory is now a well-equipped and very well staffed forensic science laboratory. During the past couple of years the Kuwait Government has enlisted the aid of the United Kingdom Forensic Science Service to assist in DNA casework, training, laboratory design and equipping a new DNA laboratory. This laboratory and refurbished premises for both the Forensic Science Laboratory and the Crime Scene Department will be opened in May this year which will be attended by the Director-General of the Forensic Science Service and other Forensic Science Service staff.

The biggest issue facing any reconciliation between Iraq and Kuwait is the missing prisoners of war (POW's). Until 605 men and women who are missing and were taken back into Iraq, by Iraq forces, are accounted for, it seems there will never be reconciliation between the two countries. This issue is alive and a burning one for the Kuwait people, as you can imagine.

## Cambodia – Justice Assistance Program, Phase 2

### Part 1: Introduction and Travelogue

Cambodia, or Kampuchea as many people still refer to it, has a violent and varied history. After lengthy periods of occupation by the French and the Vietnamese, the country and its people were subjected to the Pol Pot regime between 1975 and 1979. It is against this background that the Australian Government overseas aid organisation AUSAid, has conducted the first phase (three years) of the Cambodian Justice Assistance Program, 1998 to 2000.

The French 'occupation' while not fully acceptable to the local population, provided a considerable level of development infrastructure, resulting in many construction projects and many French villa style buildings

still utilised today. This is particularly so in the southern and coastal regions where many French travellers spent holidays in the 'exotic east'. The spice trade was attractive generally to Europeans so several other nationalities also spent time in this region adding a quite unique influence to the buildings, the people and the lifestyle at that time.

War in Vietnam (commonly known to Australians as the Vietnam War, but quite differently viewed by the Vietnamese as the 'American War'), greatly affected Cambodia with frequent incursions into Cambodian territory by both sides of the conflict. Cambodia became a retreat for many Viet Cong and Viet Cong supporters, thus attracting raids from the US troops and allied forces. Such was the extent of Vietnamese intrusion into Cambodia that it eventuated as another 'occupation' of Cambodia by another people, and consequently there is a significant dislike by Cambodians of Vietnamese. Add to this mix the continual influence and pressures of communism from eastern European bloc countries over several decades and we have a country attempting to cope with major contradictions and continual conflict.

The emergence of Pol Pot and followers can therefore be understood. Here is a country with extensive history and achievement, continually raided/occupied/influenced by a wide variety of cultures and ideologies, the more recent of which was communism in various forms and at various times. In 1975 the country was in some form of recovery, but the tension from the divide between the peasants as the majority of the population, and those seen as academic or professional people, boiled over. In 1975 Pol Pot's regime, which had been active in the country-side for some years, took Phnom Penh and what followed is generally known, but the specifics are terrifyingly gruesome.

Educated and professional people were singled out and either killed or sent to the furthest and remotest corners of Kampuchea, to work as labourers mainly in rice fields. University lecturers, government officials, and persons in positions of authority were frequently executed; many after undergoing horrific torture



aimed at humiliation and submission to the new order of Pol Pot. Men, women and children were all involved and the barbaric nature of their internment and treatment can only be comprehended through visiting Khmer Rouge detention centres. Some of these centres remain as 'Genocide Museums', a gruesome and disturbing fact in itself.

Pol Pot dispersed those remaining 'elite' as far from their home regions as possible, thus dislocating the countries education, legal, health, communication, defence, banking, transport, and utility services systems almost totally. While many professional people were executed, many medically trained people were spared, and continued providing such services as essential to the Khmer Rouge leaders. The number of people who died in this process has been estimated at 2 million +, and the concept was apparently to return the country to feudal subsistence levels with the peasants having power and control of the country. After the first wave of people movement, Pol Pot repeated the exercise again between 1976 and 1978, when most dislocated people were again moved in various directions, aimed at stopping resistance groups forming from like-minded people being together for any period.

During Pol Pot's time the canals in the southern part of Cambodia, which act very much as a water-road system, were greatly expanded and improved so that all available land in that area could be turned over to rice farming, the idea being that Kampuchea could become totally self-sufficient in rice. Unfortunately the basic calculation of available production volume and population consumption was not done, which would have indicated the folly of this idea.

To this day, many dislocated people remain where they or their parents and families were sent and still more than 80 percent of the population is involved in agriculture. Around the southern province of Takeo, the canals provide the main transport routes and people/families live on small plots of land only half a metre (one to two feet) above the surrounding water level. Of course, monsoonal rains normally cause these land plots to become submerged so their 'houses' are all built a metre or so off the ground. Severe monsoons sweep



everything away and the people return later to re-build. Houses are more like shelters as generally walls; windows and doors are not necessary due to the constant and warm climate.

To finish this first part of two on Cambodia, and the proposal for a Phase 2 Justice Assistance program, I will briefly mention the visit to Siem Reap province toward the north of Cambodia and the engineering marvel of Angkor Wat. This huge temple with surrounding buildings, terraced areas and man-made lakes was apparently constructed between the ninth and eleventh centuries. At this time 'Cambodia' was a far larger country and the main influence in that region bordered by then Siam, Vietnam, Malaya and Laos. Over the centuries the balance of power and country's borders changed significantly and relatively often as one group then another gained ascendancy.

The amazing Angkor Wat was eventually overrun by forces from the east including Afghanis and others who were vigorous and brutal war mongers. The abandoned Angkor city was relatively quickly reclaimed by the jungle and not really re-discovered until the 19th century by French explorers following old records of the purported existence of such a place. Many efforts have been made, and continue today, to restore large areas of the site which have been badly affected by jungle tree roots and undergrowth. Even the massive causeway across the man-made lakes to the main temple has badly subsided and is being repaired now. In other areas the massive stone blocks that have collapsed from their original positions are laid out in order for restoration at some time. Several such efforts have been mounted over the decades with little result – most of these blocks are still laid out, without any sign of returning to their original places.

Cambodia is generally a flat, low lying country with a huge lake, Tonle Sap fed by the Tonle Sap river. This river joins the Mekong at Phnom Penh and together these rivers carry a massive volume of water with some startling facts. The monsoons deliver such a volume of water out to sea that after a time of high outflow there is a reactionary backflow of water into the river causing it to flow in the opposite direction for several months. It is this phenomenon that was utilised by the builders of Angkor Wat (and those before), to devise a means to store this reverse flowing water for those times when the inland was without rain for crops. This is the source of filling the huge man-made lakes developed as part of the Angkor Wat site, which has in the past few years become an increasingly visited area, as Cambodia appears to be in a period of stability and reasonable safety for tourists.

In Part 2 I will actually talk about the Criminal Justice Assistance Project.

David N. Gidley.

## FORENSIC DNA DATABASING

### SOLVING CRIME IN NEW ZEALAND

Simon Walsh and Delia Moss

As Australian forensic jurisdictions begin to implement a national DNA database, it may help to consider the experiences of the New Zealand criminal justice community who have had a functional forensic DNA Database in operation since 1996.

#### Some background...

In 1995, the New Zealand Police and the Institute of Environmental Science and Research Ltd. (ESR) combined resources with the intention of creating a national DNA databank in New Zealand. The DNA databank concept involves the collation of DNA profiles from convicted offenders and volunteer donors on a central database. This database is periodically challenged with DNA profiles obtained from unsolved crimes, aiming to identify any biological link between an unsolved crime and an individual or crime already present on the DNA databank. The New Zealand DNA databank was the second national database of this kind in the world, the first being established in the United Kingdom in April 1995.

#### Relevant legislation...

Specific legislation was required for the creation of such a database and the Criminal Investigations (Blood Samples) Act, 1995 (the Act) was drafted for this purpose and enacted in August 1996. The Act focuses strongly on the rights of the individual and places rigorous requirements on Police investigators obtaining blood samples. This ensures the respondent provides informed consent. Only DNA profiles obtained from blood samples are able to be entered on the DNA databank. This stipulation is different to many other countries, such as the United Kingdom and Australia, who utilise the simpler method of acquiring a buccal (mouth) swab. At the time the New Zealand legislation

was drafted, however, there was a realistic concern that the failure rate of buccal swabs as a template for DNA profiling would be unacceptably high and that blood was a more reliable source of DNA. A proposed amendment to the Act allowing for the use of buccal swabs is due to come before parliament this year.

The Act requires that any person convicted of a relevant offence (any crime carrying an equivalent or more serious penalty than entering with intent) must provide a DNA databank blood sample upon order by a judge. The order can be made at sentencing or within six months post-conviction. Individuals may also provide DNA databank samples voluntarily.

Issues such as security, confidentiality, disclosure of information, sample storage and destruction and deletion of samples and DNA profiles are also addressed in detail in the Act.

#### Databank operations...

The New Zealand DNA databank encompasses two separate databases of DNA profiles. The National DNA database contains reference DNA profiles from individuals. Since 1996 over 16,600 individual DNA profiles have been added to the National DNA database. At present this figure increases by over 400 samples per month and currently represents 0.5 percent of the New Zealand population.

DNA profiles associated with unsolved crimes are stored on the Crime Sample Database. The analysis of unsolved crimes for this purpose began in June 1998. Since this time DNA profiles from almost 2,000 unsolved cases have been added to the Crime Sample database. Of all DNA profiles loaded from unsolved crimes, 34 percent match an individual whose DNA profile is present on the National DNA database. In addition, 42 percent of unsolved crimes loaded match another crime present on the Crime Sample database. Some figures illustrating the development and success of the New Zealand DNA databank are summarised in Table 1.

Time Period	1996-97	1997-98	1998-99	1999-00	2000-*
Total of individuals on DNA databank	1,131	4,937	8,654	13,288	16,638
Total of crimes on DNA databank	–	21	664	1,197	1,928
'Hit' rate- (crime to individual)	9.5%	30.3%	32.0%	34.4%	
'Hit' rate- (crime to crime)	–	–	30.5%	44.28%	42.7%
*Figures for current financial year up to 1 March 2001					

TABLE 1: This data represents the development of the New Zealand DNA databank since 1996. As the overall numbers have increased the relative success, measured by the 'hit' rates has also improved.



FIGURE 1: Some of the items which have been recovered from burglary scenes from which DNA profiles have been used to obtain DNA evidence. The DNA profiles were compared to the DNA Databank identifying other crimes and individuals related to each offence.

### Solving 'unsolved' crimes

The New Zealand DNA Databank has provided the Police service with criminal intelligence for over 1,400 cases. In more than 600 cases the DNA analysis has linked an unsolved crime to an individual and more than 800 crimes have been linked to other investigations through corresponding DNA profiles. This intelligence is often vital information for police investigators.

The success of the New Zealand DNA Databank spans the entire spectrum of criminal investigations and incorporates analytical results from a variety of biological templates. As the DNA profiling technology improves, its applicability in the forensic context also expands. When high-sensitivity DNA methods are combined with the effectiveness of the DNA databank it is possible to obtain solutions to puzzling and eccentric investigations. A selection of case examples presented here illustrate the impact of DNA databasing for forensic purposes in New Zealand.

### Case 1 – Unsolved Murder

The DNA databank has been utilised in several murder investigations. The most notable example was during the investigation into the brutal death of a young mother in her home in Auckland. This crime remained unsolved until a male DNA profile was detected under the deceased woman's fingernails and loaded to the Crime Sample Database. The DNA profile

matched a man who had lived nearby and had been one of numerous police suspects. His DNA profile had been entered onto the National DNA database as a voluntary sample in 1997. He was found guilty of murder following a lengthy trial in which the DNA evidence was crucial.

### Case 2 – Intruder Rape

Approximately 10 percent of all DNA Databank 'hits' originate from crimes of a sexual nature. Late last year a 67 year old woman disturbed a burglar in her Auckland home who then attacked and sexually assaulted her. Such a random offence meant the police had very few leads or suspects. A male DNA profile obtained from the victims clothing and from saliva on the footpath outside the house was compared to the DNA databank. The DNA profile hit a man who was not a police suspect at that stage. The man was arrested and pleaded guilty at a preliminary court hearing. This is a further example of how the DNA databank has helped solve a violent crime quickly and comprehensively, saving time and resources.

### Case 3 – Historic Crime

The re-analysis of samples from unsolved cases dating back many years has been aided by the implementation of the DNA Databank. There have been several hits from a small number of historic cases analysed. Two rapes from the South Island were linked to a common offender by DNA, one of these offenses occurred in 1988.

Another rape from the South Island involving a 88 year old victim had been unsolved since 1993. This case was solved once the male DNA profile was loaded to the DNA databank.

### Case 4 – Volume Crime

A primary aim of the DNA databank was to increase the clearance rate of volume crimes such as burglary, robbery and car theft. Over 75 percent of all DNA Databank 'hits' relate to these types of offenses. Most commonly the DNA is obtained from bloodstains associated with the offence, however other more eccentric types of biological evidence have recently been used. These include discarded clothing, face and forehead prints, ear-wax, sunglasses, saliva from bottles and cans, partially eaten food and food wrappers (figure 1).

### Case 5 – Serial Crime

The potential for the DNA databank to link offenses together as well as to an individual has demonstrated the well-documented recidivism of burglars. Recently, a spate of 11 burglaries from three major cities were linked to a common suspect as DNA evidence was obtained from samples of blood, nasal mucous, chewing gum and cigarette butts located at the various scenes.

The development of the DNA databank over the past four years has been a complex process involving the drafting of specified legislation, customised design and ongoing modification of specific database software, and the implementation and use of sophisticated DNA methods. The DNA databank is now succeeding in its primary aim of providing a large volume of valuable intelligence to the New Zealand criminal justice community. The formation of an operational DNA databank in New Zealand also provides a large resource of forensic case data which is utilised to establish and monitor crime trends. The information is collated and used in the development of crime reduction strategies in New Zealand. Ongoing development of the DNA profiling technology and the legislative framework associated with the DNA databank ensure that its contribution will continue to increase.

