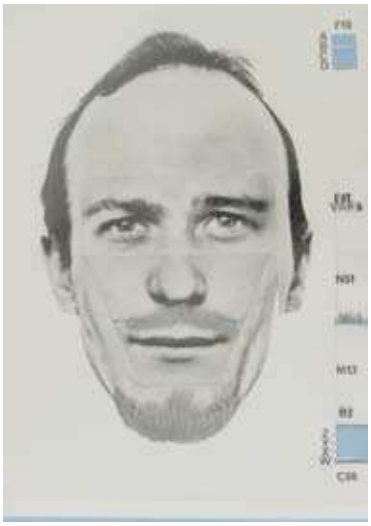
Art meets technology to aid terror investigations

Penry Photo-FIT System



Computer Image

Digital Photograph

Across the page: Senior Forensic Scientist David Royds' face reconstructed using the Penry Photo-FIT cards and the computer-based system compared to a photograph of Mr Royds.

Graeme Kinraid, Team Leader Forensic Imaging responsible for the AFP's Facial Recognition Team, says that improved methods of rendering images of suspects using artists skilled in computer-generated imagery and traditional portraiture will assist national and international investigations in the fight against terrorism.

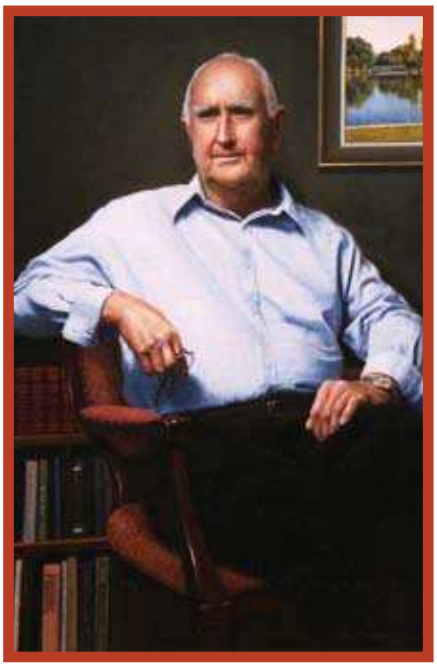
Federal Agent Ross Townsend, a portrait painter, and Melanie Dodd, artist and former art teacher, make up the AFP's Facial Identification team and are breaking new ground in the AFP by merging traditional artistic skills with modern computer-imaging techniques.

The team's main role is to create images from witness interviews of terrorist suspects and facial reconstructions of suicide bombers and deceased persons.

"Both Melanie and I rely on our technical expertise and art knowledge in drawing faces which best reflect what witnesses and victims describe for the public to recognise.

"We are essentially a tool directed by what the witness recalls and produce a final image which assists investigators in their cases," Federal Agent Townsend said.

"Our system allows us to use a combination of the software programs, Adobe Photoshop and iView Media Pro, to create faces which are realistic and recognisable. We construct the face from a head shape and using Photoshop layers are able to select information such as ethnic background, gender, eyes, mouth and nose shape to construct the initial appearance. The artistic enhancements such as reshaping the hairstyle, adding



One of the many portraits painted by Federal Agent Ross Townsend.

As an artist, Melanie Dodd is able to capture likenesses with a minimum of detail.

Team Leader Graeme Kinraid says that technology is assisted by artistic talent.

distinguishing features such as dimples or scarring assist in completing the face."

"So, in essence, our artistic skills become integral to building the image and creating a satisfactory and recognisable likeness of a human face which can be easily identified," Federal Agent Townsend said.

"We have the ability to deploy a mobile Facial Identification System overseas at short notice. The technology provides on-the-ground support to investigations delivering timely facial identification images. It will have an emphasis on the ability to create facial images of a range of nationalities. It is input intensive, requiring

Federal Agent Ross Townsend and Melanie Dodd are enhancing computer-based forensic imaging with traditional artistic skills.

substantial human involvement in the establishment and maintenance of the system. It includes two imaging specialists, equipment and software," he said.

Plans to establish the team began in early 2005 with funding from the Australian Government's *Fighting Terrorism at its Source* program. Funding was provided for technical equipment and two specialists, as well as the implementation of a Facial Identification System based in Canberra.

In the initial stages of setting up the project in early 2005, Federal Agent Townsend visited the WA, NSW and Victoria state police offices to research what processes and systems were being used. The Facial Automated Composition and Editing capability (FACE) was implemented, and by October 2005 Federal Agent Townsend had constructively put his skills to use in his first overseas terrorism event – the 2005 Bali bombings. He was able to construct life-like images of the suspected suicide bombers from the bomb-damaged remains.

"When the AFP provided assistance to the Indonesian National Police (INP), I was able to assist in the identification of terrorist suspects and put the mobile system to the test," Federal Agent Townsend said.

In late 2006, the AFP brought Sergeant Terry Dunnett from WA Police Forensic Imaging Division to Canberra to deliver training and discuss system development. With 27 years experience as a forensic and commercial artist, Sergeant Dunnett was able to provide the AFP team with up-to-date information on software and equipment. The team has since implemented a new Facial Identification System based on the WA Police model.

When not responding to incidents the team continues to build on skills, refining the processes involved with facial recognition. In particular, they have been researching and developing a reliable predictive ageing capability useful for generating images of people who have been missing for an extended period.

In the past 18 months, the team has delivered a number of presentations about its functions. This has included: the Jakarta Centre for Law Enforcement Cooperation; visiting police, forensic experts and overseas delegates from Indonesia, Philippines, Malaysia, Thailand, Solomon Islands, China, Norway, the USA; Counter Terrorism Management; ACT Territory Investigations members; Australian federal departments; and military organisations.

Federal Agent Townsend and Ms Dodd have attended the FBI Forensic Facial Imaging Course, in Quantico Virginia. This course is highly sought after and requires participants to provide an advanced artistic portfolio as part of the selection process.

Recently returned from the FBI course, Ms Dodd said: "The instructors are highly regarded and expect participants to be proficient in drawing. I was shown a range of techniques from facial ageing, to the effects of decomposition on a body and how to present evidence in court. I liaised with like-minded peers from state police across the USA, Canada and South Africa and was impressed with the range of drawing skills each had to offer. The experience was really worthwhile."

Sergeant Terry Dunnett from WA Police Forensic Imaging Division is a former commercial artist who turned his skills to forensic work.

Historically, the methods used for identifying offenders have included freehand drawings, photo fit images using the Penry Photo Facial Identification Technique (FIT) and more recently, computer-generated images.

"We've come so far from the Penry days with advanced technology assisting us in producing images in short timeframes" Federal Agent Townsend explained.

"Our future plan is to expand and develop our component database of ethnic groups to include components from the Philippines, Indonesia, Malaysia and Thailand. This ongoing development will enable the AFP to respond more effectively to major incidents within the Pacific Region and in Australia", he said.