

New face to ancient history

Resurrecting the dead may be impossible, but Dr George Dias is achieving the next best thing.

He and his multidisciplinary team are breaking new ground in putting flesh on old bones, giving faces to ancient skulls and bringing history to life.

Dias (Department of Anatomy and Structural Biology) hopes his world-leading research may soon help solve modern mysteries too. The aim is to refine techniques of rebuilding faces from skulls to the point where the results may be used as identification in court cases.

Dias has a background in dental and maxillofacial surgery, reconstructing damaged faces. However, he's wary of the term reconstruction when it comes to his archaeological and forensic research on skulls. "I'd prefer to use the term facial approximation – it's nowhere near a reconstruction at this stage."

But the process is certainly a painstaking anatomical construction, layering muscles, blood vessels and skin over bone to reveal a face – and it's one that Dias's team has refined considerably since the first attempts.

Initially Dias responded to colleagues from the University of Coimbra, Portugal, asking for assistance to identify skulls from modern mass graves. They hoped to be able to gain identification if they could put faces to the dead.

Dias realised that the science of facial reconstruction had shortcomings, particularly as measures of soft tissue depths used in rebuilding were just averages, based only on racial groups, gender and body type – whereas every face was individual.

He and Associate Professor I Premachandra (Department of Finance and Qualitative Analysis) together with postgraduate student Charlotte Oskam worked on a mathematical model to predict facial soft tissue depths based on skull measurements.

Work was initially on cadavers, but the latest research – carried out with postgraduate anatomy student Louisa Baillie – involves living people, with the intention of doing a blind reconstruction that the team can compare with reality.

Dias's team's first project, through the University of Applied Sciences, RheinAhrCampus, was to add a face to a skull to help German police try to identify a body. Although it was never identified, the experience helped with the second challenge – with Kunaal Sologar and Steve Swindells of the Faculty of Dentistry – giving life to the skull of a 2,300-year-old Egyptian mummy at the Otago Museum.

Both projects showed inadequacies in the methods used, so the team developed new techniques for their third face – that



From left to right: Professor I Premachandra, Anatomy Museum preparator Shane Soai, Louisa Baillie, Neil Waddell and Dr George Dias with the rebuilt face of a 2,500-year-old Anatolian peasant. They hope their techniques could ultimately have modern-day legal applications.

