

## **FIRST WOMAN IN AUSTRALIA TO BE AWARDED A RESEARCH DIPLOMA IN GEMMOLOGY BY THE GEMMOLOGICAL ASSOCIATION OF AUSTRALIA**

Gayle Webb, a gemmologist working in the Geoscience Unit at the Australian Museum of Natural History in Sydney has become the first woman in Australia to be awarded a Research Diploma in Gemmology by the Gemmological Association of Australia (GAA).

The research diploma is one of the highest accolades given by the GAA recognising outstanding original research in which the applicant must provide a thesis that forms a distinct and original contribution to gemmology. Only five diplomas have been awarded since the GAA was founded in 1945.

Webb's thesis is entitled *Ruby Suites from New South Wales: their chemistry colour and origin*. It is a comprehensive study of ruby suites from seven alluvial gem localities in New South Wales, Australia. Rubies are the red variety of the aluminium oxide mineral, corundum. Particular localities in New South Wales produce a range of pink, red and purple corundum in addition to the more common blue, yellow and green sapphires.

The study was based on trace element analyses of a range of pink to red corundum samples from each locality. The analyses were done on the PIXE (Particle Induced X-ray Emission) probe at the Australian Nuclear Science & Technology Organisation (ANSTO), Lucas Heights, NSW.

The PIXE technique needs no sample preparation and is non-destructive. It works by directing an ion beam to the surface of the sample. The changed particles destabilise electrons in their path, causing them to give off x-rays. Energies of these x-rays are characteristic of an element, thereby enabling trace elements to be identified and also quantified.

Elements with atomic weights between those of aluminium and uranium can be analysed by this method. "This technique was useful for my samples because the chromophores of corundum lie within this range," explains Webb.

The analyses gave trace element concentrations for each individual grain, providing valuable insight into causes of colour. They also helped to assign a magmatic or metamorphic origin to the grains.

The stones were further studied for their gemmological properties and inclusions.

Webb's field work was carried out in localities around NSW where she collected and worked on gem concentrates. She found the project an interesting blend of gemmology and scientific analysis: "It enabled me to understand these limited ruby occurrences more fully."

Bill Sechos, Chairman Board of Studies, GAA says that Webb's thesis is the first in-depth gemmological study of Australian ruby occurrence and provides a welcome addition to information on Australian gemstones, especially the rare ruby of Australian origin.

Gayle Webb's gemmological qualifications include a Fellowship of the GAA, Diploma of Diamond Technology and a Research Diploma in Gemmology. As well, she has a Bachelor of Arts Degree with a post-graduate Diploma in Museum Studies.

## AUSTRALIAN MUSEUM AND GEMSTONES

The Australian Museum holds more than 53,000 mineral specimens, including approximately 600 cut gemstones. Gemstones have been collected, researched and displayed at the Australian Museum since the nineteenth century and the Museum houses Australia's best public collection of gemstones. About half the Museum's gemstone collection is Australian and half is from overseas.

- Ends -

*For more information on the GAA visit [www.gem.org.au](http://www.gem.org.au)*

*For more information on the Australian Museum visit [www.australianmuseum.net.au](http://www.australianmuseum.net.au)*

*Or contact Lisa Bowman, GAA Publicity, on 0419 386 729*

***Gemmology*** is the scientific study and identification of gemstones.

The ***Gemmological Association of Australia*** (GAA) was established as a non-profit organisation in 1945 to educate the jewellery industry and general public about gemstones. The GAA offers a wide range of courses of the highest standard providing the very best up-to-date gemmological information; courses which are recognised world-wide.

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