Notice of a **FREE PUBLIC LECTURE**

to be presented by the

Australian Institute of Physics (SA branch)

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At **7:30pm** on **Thursday April 3rd 2003**
in **Union Hall** at the **University of Adelaide**

"THE EARLIEST AUSTRALIANS---A PHYSICIST VISITS AUSTRALIA'S PAST"

by **Emeritus Professor John Prescott**
Dept. of Physics and Mathematical Physics
University of Adelaide

How long is it since people first came to Australia? Or, were they always here? Such questions are very topical among Aboriginal and European Australians alike. Did the first Australians walk here when the sea level was low or did they come by sea? Did they spring from ancestors in Africa, who looked not very different, or did they evolve here or nearby? And, if so, when? Were the first Australians responsible for the demise of the megafauna forty thousand years ago, as Tim Flannery maintains? Did they have to survive the ice age?

The answers to all of these questions are matters for debate, but underpinning all of the discussion is the question of age--how long? how old? Physics is well placed to supply believable ages, or at least a believable range of ages, for most of these events. Carbon-14 dating is familiar to most. Most will recall the Turin Shroud. It is capable of finding the age of almost anything that lived within the past thirty thousand years. Beyond then it becomes increasingly unreliable and few claim that it can be believed beyond about forty thousand years. Fortunately, other physics-based methods can extend the time scale far beyond the carbon-14 limit. In particular, radioactive decay provides a variety of clocks which depend on the transformation of radioactive nuclei. Of particular interest in the Australian scene is luminescence dating. This overlaps the carbon-14 time span but is able to carry on far beyond it. It has been used successfully in Australia back to 500 thousand years and is now widely used in archaeological contexts.

Professor Prescott was one of the pioneers of luminescence dating and his laboratory has found ages in a wide variety of places. He will give a lay-persons' account of the technique and describe how it has been used to find the age of Australian archeological sites, including the Adelaide involvement at the Puritjarra rock shelter in Central Australia and the very recent redating of Mungo man and Mungo woman at forty thousand years.

The 2002 AIP Bronze Bragg medal and certificates of merit will be presented prior to the lecture. These are awarded by the SA branch of the AIP for achievement in the 2002 year-12 Physics examination.