

Materials: From discovery to design

This report on Prof S Ranganathan's splendid NAL National Science Day lecture should have appeared at least a month ago. I tried writing this report three times, but always failed to advance beyond the first paragraph.



I have no difficulty in writing good reports about bad lectures. Writing a bad report about good lectures is what really bothers me.

Prof P Balaram recently wrote in *Current Science* about Prof Ranganathan's ability to deliver a 'near perfect' lecture. Many of us realized what he meant after attending Prof Ranganathan's lecture on 28 February 2003 at the S R Valluri Auditorium.

At its simplest level, Prof Ranganathan traced the historical evolution of materials "from discovery to design". He explained how "materials and civilizations intertwine". He talked of materials in the Stone Age ("ceramic"), Copper Age ("metallic") and the Bronze Age ("polymeric"), he talked of how materials changed the face of aviation ... and he spoke of the fascinating options offered by nano materials.

But it was Prof Ranganathan's wonderful felicity to digress (only apparently, because the lecture was actually very tightly knit) that really enhanced the lecture's appeal. There were delightful examples about serendipity in science: how Hsi Ling Shih went on to become the Goddess of Silk after her happy discovery while fishing out the silk thread from her cup of tea in Varanasi ("she took away the silk, and also much of Buddhism"), how bulk metallic glasses -- that would appear to combine the best of steel and plastics, and are now the preferred material for cellphone cases ("that the Koreans manufacture not for themselves, but for the Chinese!") were the outcome of serendipity.

Prof Ranganathan's references to individuals or experiments too were marvellously evocative: The Wright Brothers were the "much maligned bicycle mechanics", Dr P Ramachandra Rao found the theoretical basis for the synthesis of quasi-crystals in a second hand book shop on Kolkata's College Street, "the pentagonal snowflake was a physicist's dream that went on to become a metallurgical reality".

There were phrases (e.g. "dreams in a charcoal fire") and asides (e.g. "being a German, Wilm of course didn't leave things just like that") that were enjoyable and there were homilies uttered, not always in pure jest: e.g., "making a discovery is not enough; recognizing it to be a discovery is more important ... then you must give the discovery a good name (e.g. Fullerenes) and publish it in *Nature*".

In his opening tribute to C V Raman (the National Science Day celebrates the discovery of the Raman Effect), the speaker talked of the great man's "palpable and obvious passion for science". Many of us detected the same passionate fervour in Prof Ranganathan's outstanding lecture at NAL.

Srinivas Bhogle