

## Dr Phillip Hellman

### What's so special about rare earths?

In introducing Phillip, Geoff McWilliam pointed to his considerable education and experience in rare earths including completing the resource studies leading to the development of the Lynas Mt Weld mining operation in W.A. More recently, he has been engaged in technical evaluations of several potential rare earth projects.

In his opening remarks Phillip referred for interest to a chance meeting he had about 10 years ago with Julie Bishop in which they discussed the differences between rare earths and Lithium.

For many of us the first mention of rare earths may have been in association with the start of the Mt Weld mining operation in 2008. However, the deposit was identified more than 40 years earlier by Australia's Bureau of Mineral Resources using an aircraft fitted with a magnetometer. In the subsequent decades, and particularly the last 15 years, there has been a very considerable growth in the industry with rare earths being used in the electronics (semiconductors), medical (powerful magnets in MRI's) and automotive industries (EV batteries).

Another developing market has been in undersea optic fibre cables where selected rare earths are used to boost the light signals as they travel the long length of undersea cables.

A new type of rare earth mineralisation, known as Ionic Adsorption Deposits, has recently been recognised with Australian exploration companies prominent in new discoveries particularly in Brazil. These deposits are particularly attractive due to their low capital and processing costs.

China now dominates the worldwide industry and have adopted a variety of tactics, including serious misinformation on health and other issues, to counter the Lynas/Mt Weld operation and its Malaysian processing plant.

Demand for rare earths is growing, particularly due to EV's, but prices are volatile and, curiously, have recently fallen during a time of unprecedented demand from EV manufacturers. Recent reports suggest China is processing stockpiles and flooding the market to depress prices and discourage other industry participants.

Some additional points arising during question time:

- A rare earths recycling industry is developing.
- Lynas is currently constructing the first processing facility in Australia at Kalgoorlie and is building, with US investment, a new plant for US domestic supply of rare earths for U.S. commercial and defence manufacturers.
- While China is dominant in downstream processing and manufacturing, Australia has considerable potential to grow rare earths applications but will need government support.