

Australia Meeting:

Title: Life: Past, Present, and Future

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This talk is a plenary talk for the Australian Society for Microbiology
It is not going to be published in any way.
It has no new technology
Most of what will be presented has already been published.

The abstract of the talk is:

In contrast to the study of life on Earth, where we routinely detect single cells of extant life, and microfossils of extinct life, the search for life off of our own planet is at best an inexact science. We use earthly life as our meter stick, and many recent studies of microbial life on Earth have altered our views of the potential existence of life elsewhere – life is tougher and more tenacious than we might have imagined 20 years ago. It is now known to be distributed throughout the crust of our planet in ways that challenge the imagination and widen our anticipation of similar life forms in previously unthought of niches on other planets. This, coupled with the discovery of many new planets around far-off suns has excited the would-be discoverers of alien life. But how do we rationally handle such a problem? Biologists know how to detect life – we have exquisite methods capable of detecting present and even past life through the use of indicator molecules that we routinely use. However, we cannot assume that life will be like our Earthly life, and so our tools must be used with caution, modified, or even discarded. We must define life in its most general features, and develop methods for measuring these features, taking care that they be as non-earthcentric as possible. Such an exercise reduces the search for life to basic physics, chemistry, geology, and statistics, rather than biology. However, having the Earth as a laboratory, we can test our non-earthcentric methods in extreme environments on our own planet, using our tried and true earthcentric methods to ground-truth the new approaches as they are developed.

Dates of the Meeting: September 29 to October 5th., 2001