Chapter 2

Paper:

Allwood, Abigail C., Malcolm R. Walter, Balz S. Kamber, Craig P. Marshall, and Ian W. Burch. "Stromatolite reef from the Early Archaean era of Australia."*Nature* 441, no. 7094 (2006): 714-718.

Questions:

1. **The interpretation of some of the oldest evidence for life on Earth is highly controversial. Why?**

2. **Stromatolites have been interpreted as 'biogenic: produced by biological processes' and as 'abiogenic: produced by non-biological processes'. Briefly outline the main argument put forward in support of both hypotheses**

3. **What are the primary aims of this study?**

4. **What is the interpreted palaeoenvironmental setting of the basal member of the Strelley Pool Chert Formation (M1)? What is the evidence for this interpretation?**

5. **The M2 member of the Strelley Pool Chert (SPC) is interpreted as being formed in a marine environment. What evidence is provided to support this interpretation?**

6. **What member are the stromatolites found in? How many stromatolite types are described?**

7. **It is argued that hydrothermal activity was initiated during time of deposition of the M4 member of the SPC. What sedimetological evidence is used to support this?**

8. **Name seven stromatolite facies that are illustrated and described in the paper.**

9. **Name three common stromatolite taxa.**

10. **Are there any modern living analogues of microbial reef communities in shallow marine environments?**

11. **What is your personal opinion of the abiogenic versus biogenic hypotheses? What other lines of evidence could be explored to further our understanding on the origin of stromatolites in general? Do you think the authors have put forward a convincing set of data and arguments which support the biogenic origin of the Strelley Pool Chert stromatolites and rule out that they were formed by non-biological processes?**