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EPREUVE SPECIFIQUE MENTION
«SECTION EUROPEENNE OU DE LANGUE ORIENTALE»**

Académie de Nantes, Binôme : Anglais/SVT – TOUTES SERIES

**Thème 1 - La Terre dans l'Univers, la vie, l'évolution du vivant
1- A-3 - De la diversification des êtres vivants à l'évolution de la
biodiversité**

**The natural wonder that holds the key to the origins of life – and
warns of its destruction**

Using the documents, explain how stromatolites can be used as an ecological indicator of climate change and what consequences of climate change on living organism could be.

Stromatolite-building bacteria once ruled the Earth, then changed its climate so much they nearly became extinct. Just shy of ¹ the westernmost tip of the Australian continent lies a pool that provides an unparalleled window into the origins of life on Earth. In its warm, briny² waters a biological process takes place that began just as the continents were starting to form. It is also a cautionary³ tale about an organism that dominated the Earth and transformed its atmosphere – then found itself unable to live with the result. Hamelin pool (Western Australia) contains the world's largest collection of active stromatolites – stony mounds of sand and calcium carbonate stuck together with a kind of biological glue, which emerge from the water as the tide goes out.

The bacteria that build these stony mounds transformed the planet from a scorching⁴ ball of carbon dioxide into the temperate, oxygen-rich world we enjoy today. The mounds they built around the world reveal that they began the process at least 3.7bn years ago. By about 1.25bn years ago, the bacteria that formed them were the world's dominant lifeform.

These cyanobacteria belong to the family known as blue-green algae – a misnomer⁵ since they are not algae at all. They were among the first organisms to collect their energy from the sun using photosynthesis – breathing in carbon dioxide and breathing out oxygen.

According to current scientific theories, these bacteria – or their ancestors – then donated the genes that let them photosynthesise to other organisms. Those other organisms then evolved into the plants we see on land and on the seafloor.

In the most general terms, it is the extreme nature of the pool – the high salinity, the large tides and the enormous swings in temperature that emulate aspects of early Earth – that makes it possible for these extremophiles to grow.

Adapted from <https://www.theguardian.com/australia-news>, 2016

1. Shy of: a short distance from

3. a cautionary tale= a warning

2. Briny: full of salt

4. Scorching= very hot

5. A misnomer: a wrong name

Fig.1. Stromatolites in Shark Bay, Hamelin pool, Western Australia



From <http://www.abc.net.au/news/2011>