

The Amazing Earth-changing microbial activities Gallery

Chiefs: Terry McGenity, Eric Boyd, Ricardo Amils,
Bonnie Baxter and Ken Timmis



White Cliffs of Dover. Modified from photo by Bernd Feurich
<https://www.pexels.com/photo/white-cliffs-of-dover-in-england-9692909/>

Microbes are sooooo small – we need a powerful microscope to see them and about 1000 million of them to make a cupful of water just slightly cloudy. But despite their tiny size, they have effected amazing changes in Planet Earth. They changed its atmosphere from one lacking oxygen to the present one with 20% oxygen that allows us to breathe. This is known as the Great Oxidation Event which resulted in a mass extinction of most of the organisms on Earth because for them oxygen was poisonous. They interact with solid minerals to dissolve them, and with dissolved minerals to precipitate them – the process of biomineralization – which created carbonaceous deposits like the White Cliffs of Dover, the iron deposits we see in Banded Iron Formations in rocks, and the soil we now grow our food crops on. Microbes interact and transform more than 50% of the elements of the Periodic Table, mostly in order to obtain energy for their growth. Despite their small size, they were able to create massive geological formations because they did it over millions to billions of years. They are slow but sure. And they continue to produce change in the planet to this day. The reason the powerful Rio Tinto River in Spain is red is because of microbes dissolving iron deep underground in the Iberian Pyrite Belt; microbes producing the gas DMS or ice crystallisation particles promote cloud formation and influence weather. Let's get to know the super-powerful microbes and their processes that have moulded and continue to mould our environment!