

## LAKE

### COMPOSER'S NOTES

#### THE SONG IN A SENTENCE (or two...)

Speciation (the process of multiple new species evolving from one original species) is thought to occur most frequently when populations of an organism become geographically separated for extended periods of time. In the great African lakes (Victoria, Tanganyika and Malawi) hundreds of species of cichlid fish are thought to have evolved from a single species in the following manner:

1. climate change led to a lowering of the water level so that the one large lake became many smaller lakes
2. which lasted long enough for the isolated populations to evolve and adapt to the local conditions in the small lakes so that
3. when further climate change led to higher water levels and the reconnecting of the small lakes into one large lake again, the various populations had differentiated enough from each other to preclude interbreeding, thus leaving a variety of many different cichlid species inhabiting the single body of water.

#### HISTORY & MAIN POINTS OF THE SONG

I'm not a trained scientist – just an ardent enthusiast. So my sources of information for songwriting tend to be popular science books, the best to my mind being Bill Bryson's *A Short History of Nearly Everything*. When I was writing the *Lifetime* songs in 2004, I used Dr Philip Whitfield's book *The Natural History of Evolution* as a source of inspiration and it was his wonderfully succinct description of speciation in the African lakes that led me to write this song. I found this example of how evolution works so stunningly simple – and beautiful – that I felt moved to create a song that, to those not in the know, sounds more like a love song than anything. My song *Bacteria* is a similarly emotional reaction to a subject that many would expect to arouse a very different response.

I'm trying to convey something more than just the facts in *Lake*. I want to communicate the awe and reverence that scientists – and those like me who are really interested in understanding how the world operates – feel for the workings of the natural world. The idea of a Creator just thinking up a random selection of species to populate the world with seems so dull and limited compared to the astonishing way in which the 'blind watchmaker' (evolution by natural selection) has created the incredible array of interrelated life forms on our fragile planet.

Since I wrote the song, I've learnt that the speciation process happened much more quickly than had originally been thought – in as little as 14,000 years perhaps. So, please take my phrases 'hundred thousand years or so' and 'a million years pass by' as metaphors for 'a very long time' rather than literally!

#### STYLISTIC POINTS

You need to know one thing only – to treat *Lake* as a love song to the amazing phenomenon of evolution by natural selection. Find all the emotion and expressiveness in the music that you would find in any other love song.

#### OTHER ACTIVITIES

- If you have a group of people, try this game. Give each person a fish outline printed on a sheet of paper – all identical. Invent a series of a dozen or so habitat characteristics which can be silly or sensible - eg shallow murky water, scary predators who can't see blue, lots of water weed but no smaller fish to eat, a muddy lake bottom or one covered with white stones – and ask each person to choose a random selection and then 'adapt' their fish to those conditions. They could draw in details such as eyes and fins, colours and patterns and they could change the body shape and size. Then bring all the fish back together to compare the results and discuss the adaptations.
- Extend the game into a piece of physical theatre: divide into small groups and 'send' each group to a different planet with various types of habitat – eg very hot, much brighter sun, low gravity, covered by ocean, subject to frequent meteorite strikes etc. Members of the group need to devise adaptations for how humans might move and behave after inhabiting the planet for a million years. Bring the groups together to see how each plays out its new morphology and discuss the results - amidst the laughter.
- Write a song or poem about another example of speciation, for example the Galapagos finches, mockingbirds or tortoises – or the evolution of hominids.