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Review of Mark Lynas 2007 *Six degrees: our future on a hotter planet*. London: Fourth Estate. 358 pp, £12.99.

A rise of one or two degrees in the average global temperature sounds trivial. Mark Lynas shows how it can have immense effects. He summarises reports from hundreds of scientific papers on the likely effects on Earth if average temperatures rise by one, two and up to six degrees. He reviews work on millions of years of geological records, on computer modelling informed by physics, chemistry and repeated experiments, and on climate records over past centuries. Recent predictions are now occurring unexpectedly quickly, and as scientists increasingly communicate across disciplines, instead of each being relatively isolated within their own highly specialised narrow area, they see n new ways how changes trigger one another so that the effects are multiple rather than simply additional, and therefore more rapid. *Six Degrees* is a valuable synthesis in explaining research within and across disciplines, and also crossing the expert-lay borders in its clear highly readable style. .

Chapter one reviews a single degree average increase. The fruitful Great Plains from Texas to Canada are predicted to parch away into their underlying desserts, which will drown towns under sandstorms. Snow and ice caps and glaciers on mountains will retreat, and no longer so reliably feed the great rivers that keep continents fertile. Fiercer winter storms will follow harsher summer droughts. As the oceans warm up, monsoon rain will fall back into the sea before it reaches the land, resulting in more droughts. However, warmer oceans set many more typhoons and hurricanes raging across the lands. Melted ice at the poles is already pouring as freshwater into the oceans, reducing the giant solar mirrors of white snow that reflect back sunlight, and increasing areas of black rock and dark ocean which absorb heat.

At an average two degrees higher, warmer and less salty oceans will become too acidic and toxic in many areas to support marine life. Countless creatures, which absorb half the carbon dioxide we create into their shells, will instead dissolve back into the water, one of many chain reactions that multiply and speed up spirals of global warming. Dead coral reefs will no longer protect shores from tidal waves, and the rising oceans will submerge more islands and low-lying coasts. The Mediterranean lands will begin to turn to dessert and emigration from many areas where people, animals and crops cannot survive will hugely increase. Previous global warmings occurred gradually over thousands of years, allowing time for creatures to adapt, to evolve resistance to heat and drought, and to migrate. Present changes, however, are taking only decades, which reduces the hope that species can adapt and survive. An average three degrees rise would reach heat not known for three million years. The humid Amazon forest will have dried out into a tinderbox, and then to a desert, like almost all Australia and great swathes of the other continents. Storms and cyclones will flood many coastal cities. Four to six degree rises will wipe out almost all life n earth.

Curiously, *Six degrees* is not a depressing read. It celebrates amazing wonders of the world including human cultures and extremely complex scientific research. Today's climate change is unique in that: 1) We are causing it; 2) It will bring untold suffering, famine, disease and war, mainly harming the poorer peoples who are least responsible; 3) We know enough to be able to assess and predict much of the warming; 4) We have enough knowledge, power and time - either to reduce and prevent much future change – or we can massively accelerate it, through dozens of small daily choices we make. We cannot choose to have no effect.

Mark Lynas reviews barriers such as denial and ignorance, and also countless positive ways forward, now promoted so widely in the mass media. When your kitchen is on fire, he advises, don't sit crying until the whole house has burnt down.

People react in three main ways, like North Americans from the 17th century onwards (see www.campaignstrategy.com). ‘Pioneers’ pick up new ideas and lead the way in working to sustain the planet and promote social justice. ‘’Prospectors’ start being eco-friendly when they see how it will benefit them and save money. ‘Settlers’, or the majority, follow along too when it is ‘normal’ to conserve energy, reuse and recycle. Another way to see how the climate of public opinion changes is to see the few pioneers as the A group, the many people who are changing quite a lot towards being more ecological as Bs, the majority who are doing little but would change with some more information and support as Cs, and the few who completely resist and deny as Ds. (From meeting of Quaker Business Group, November 2007). Both these models suggest ways of helping people to move up a group towards the urgently needed changes in public opinions and behaviours. Reading *Six Degrees* could play a key part in this movement of persuasion and change.