Joëlle Gergis
Sunburnt Country: The History and Future of Climate Change in Australia
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Joëlle Gergis' *Sunburnt Country* is an illuminating, although frustratingly incomplete account of Australia's climate history. The title, which emerges from the award-winning SEARCH (South Eastern Australian Recent Climate History) project as well as the author's insights constructs a climate history for the past thousand years of Australia, as well as predicting how this climate will change in the coming century. The book further sets out to try and understand how Australia's widely variable climate has shaped the development of Australian Society.

Gergis draws upon the work of SEARCH as well as her own research, 'to fill a critical gap in Australian climate science, to better understand the range of natural climate variability recorded in our history' (9). The purpose for this investigation is multiple; beyond providing a sometimes fascinating insight into how the early colonists were frequently victims of Australia's unpredictable weather, Gergis sets out to determine what exceeds natural variability in such a diverse climate.

As the book's title alludes, the Australia Gergis depicts resembles the land 'Of droughts and flooding rains' depicted in Dorothea Mackellar's famous poem. In Part I, 'Colonial Calamities', Gergis braids various diary accounts of (mostly NSW) late 18th to mid 19th century colonists to depict a climate in a state of perpetual tantrum, swinging erratically from parched landscapes, to floods, from heat to extreme cold. The historical approach is useful in that it also allows insight into how climate was perceived by the early colonists and there are some genuinely interesting points here; for instance, drawing on the historical analysis of her colleague, Clare Fenby, Gergis recounts how in the absence of quantitative weather records, the memories of the oldest colonist were used by *The Gazette* to gauge the significance of climatic extremes. Although Gergis goes to some lengths to point out how subjective these accounts are, her project here does not engage with some of the more complex cultural questions of colonial representation raised elsewhere by Mike Hulme (*Weathered: Cultures of Climate,* Sage 2017*)* or Tim Sherrat (*A Change in the Weather,* NMA Press 2004*)*. To be fair, this exceeds the thrust of her argument. This section is also woven with some basic explanations for Australia's variable climate, such as El Niño and La Niña events.

Part II: 'Weather Watches', expands on the written weather accounts of the colonists via an uncovering of Australia's early meteorological records. Of particular note is the re-discovery of the records of William Dawes, who kept climate records from 14 September 1788 to 6 December 1791. These accounts confirm the early reports of wide climate variability reported in colonists' diaries. Gergis also discusses what constitutes good and bad meteorologic data; unsurprisingly, a thermometer mounted to the side of a tin shed in a back paddock does not qualify. While this may seem hardly worth mentioning, Gergis has cause to point to these extreme data examples, and does so throughout the text; as someone whose work has been heavily scrutinised by climate sceptics, she is well-versed in the way data anomalies have been used to dismiss legitimate work.

Part III: 'Time Travellers', explains how a variety of palaeo-climate records can be used to build a reliable climate history for the past 1000 years. These methods will be familiar to anybody who has taken an interest in climate science, although Gergis summarises each method and the specific insights they bring with compelling clarity. The second half of Part III is spent pulling these records together, and it is here that the book is at its most profound.

Prior to Gergis' work, palaeo-climate records have been constructed from the available data, most of which has been gathered in the northern hemisphere. In these climate histories, Gergis identifies three familiar major global variations in climate over the past millennia; the Medieval Climate Anomaly (1050-1350), the Little Ice Age (1250-1850) and the 'hockey stick' which coincides with The Great Acceleration (1950 – present). Gergis' paleo-climatic findings are used to question how these variations have manifested in the southern hemisphere. Beyond adding vital nuance to global climate modelling, her research reveals that the northern and southern hemisphere's temperature curves have overlapped only twice in the past 1000 years—for a brief period in the Little Ice Age 1594 to 1677 and from 1974 onwards. The Medieval Climate Anomaly, through this analysis, is not the global event is was presumed previously to be, and manifested at different times for each hemisphere; 1050 to 1250 for the Northern Hemisphere, 1280 1350 for the Southern hemisphere, thus providing a compelling refutation to one of the more stubborn arguments of climate sceptics, as it reveals that the anomaly was a predominantly a Northern Hemisphere event, likely triggered local triggers. Most critically, this research provides further evidence that the present (1974 -- onwards) is the hottest the earth has been in human history.

Part IV 'History Repeating' and Part V 'The Age of Consequences' outline how significant climate changes in the Australian context will be manifested. In a climate that is already naturally variable, Gergis states that climate change will exacerbate these extremes: the continent will be hotter, have less snow, and be subject to more violent firestorms and torrential downpours. The Great Barrier Reef, she states, will likely not survive no matter what action is taken. Gergis explains at length how much of Australian property assets will be lost to rising sea levels, and the magnitude of jobs loss in tourism. Although Gergis does not directly address the frequent claims of conservative politicians that rashly addressing climate change is economically irresponsible, this is evidently the subtext here. There is an urgency to these final chapters, and Gergis' rallying for action evokes familiar arguments of futurity; assets will be lost, the habitability of the planet will diminish for future generations.

While the book does acknowledge Indigenous knowledge of climate history, these instances are fleeting, and are less nuanced than the accounts of early colonial history. This is unfortunate, partially because a deeper investigation could certainly have brought greater finesse to Gergis' analysis. For instance, when discussing bushfires in the twentieth century, the preventative practice of firestick farming is not taken into account in the extreme ferocity of the bushfires.

The chapter 'Wisdom of the Elders', a mere four pages of the 120 dedicated to the subjective accounts of climate history that compose parts I and II, provides the most sustained engagement with Indigenous knowledge. The reader is informed that the Ngoonungi identify up to six different seasons, and is told how the people of the Yarralin region 'believe' in the Rainbow Serpent, although rain Dreamings here are framed as a 'divine creation stor[y]' rather than an ontology (120). Gergis' non-reflexive use of Daisy Bates' ethnography is especially troubling. A Eurocentric worldview permeates the text: Australia's climate is characterised as volatile and dangerous, and the reader is frequently addressed in the plural; 'we', 'us', 'our'. This is especially troubling, when it produces phrases such as: 'we have some much to learn from the First Australians about the natural cycles of our ancient land' (118).

Sunburnt Country is an effective and timely book which constructs an idea of how climate has been understood by the colonists, and how the Australian climate will change dangerously over the next century. The text is written in an accessible style and provides valuable insight into Australia's climate from a scientific standpoint,

but will disappoint those expecting a deeper cultural understanding of Australia's climate history.

Jack Kirne
Deakin University