

Singapore Management University

Institutional Knowledge at Singapore Management University

Research Collection School of Social Sciences

School of Social Sciences

6-2020

The science of stifling heat: Recognising urban climate change in the Straits Settlements

Fiona WILLIAMSON

Singapore Management University, fwilliamson@smu.edu.sg

Follow this and additional works at: https://ink.library.smu.edu.sg/sooss_research



Part of the [Asian Studies Commons](#), [Environmental Sciences Commons](#), and the [Place and Environment Commons](#)

Citation

WILLIAMSON, Fiona, "The science of stifling heat: Recognising urban climate change in the Straits Settlements" (2020). *Research Collection School of Social Sciences*. Paper 3248.

https://ink.library.smu.edu.sg/sooss_research/3248

Available at: https://ink.library.smu.edu.sg/sooss_research/3248

This Blog Post is brought to you for free and open access by the School of Social Sciences at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection School of Social Sciences by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email cherylids@smu.edu.sg.

The Science of Stifling Heat: Recognising Urban Climate Change in the Straits Settlements

Fiona Williamson, Singapore Management University

Published in Historical Climatology, 15 June 2020

<https://www.historicalclimatology.com/projects/the-science-of-stifling-heat-recognising-urban-climate-change-in-the-straits-settlements>

Heat is a ubiquitous part of tropical living. During the nineteenth century consumers and writers of travel literature, explorers and colonists became increasingly familiar with the endless, languid summers of tropical climates where continued, unrelenting heat and humidity created a daunting climate for the European. As botanist Frederick Burbidge wryly noted on his first arrival to Singapore town in 1877:

On you go, and the stuffy little gharry, even if it has no windows, soon becomes hot as an oven, and the perspiration streams from every pore. By the time you reach the hotels the chances are your shirt and collar are in the state best known as "pulpy"; and if you are of a sanguine temperament, your face may be said to resemble "the rising sun".[1]

For the early settlers of the Straits Settlements' towns of Singapore, Georgetown and Malacca, managing heat meant – if you were wealthy enough – getting out of town to a hill station or coastal bungalow for long weekends, holidays or convalescence. On Singapore Island, a popular recreation spot was breezy Tanjong Katong, where Europeans would build beachside bungalows beside nearby native kampong (villages).

Others noted how, if these options were not available, that 'by resorting to the neighbourhood of the jungle a degree at least of reduction in the temperature may be secured' and that 'sea bathing is also a relief within easy reach'.[2] If you had to stay in town, then various methods were suggested to manage the hot days, including avoiding too much strenuous exercise, meat, strong drinks and cold water and eating cooling foods, such as salads.[3]

For inhabitants of tropical regions, these methods of seeking solace from the heat were common-sense yet, from the early 1800s, it had been apparent that there was a scientific basis for the difference in urban and rural temperatures. In the English-speaking world, the first definitive text to explain this 'urban heat island effect' was Luke Howard in *Climate of London*, released in three volumes between 1818 and 1833.[4] In the Straits Settlements, then under British administration, a scientific discourse on how human activities might be impacting temperature had emerged shortly after. Heavily influenced by the contemporary 'science' of desiccation - known for connecting deforestation with greater atmospheric aridity - colonial officers had begun to explore how urban development was affecting the temperature. John Turnbull Thomson, for instance, engineer and surveyor, undertook a study of temperature readings made by military officers of the English East India Company during 1820-25 and 1841-45. Thomson noted how, in the space of these twenty-five years, the temperature of Singapore town and its surrounds had risen by 2.48F. If we ignore for a moment that this is only a very small increase (33f = 1C) and that his datasets had limitations, we can look to the significance of his conclusion. Thomson had argued that 'the cause of this advance of temperature is assigned to the country within 3 miles of the town being now clear of jungle and cultivated, which formerly was covered with primeval forest'.[5] The following year, James Richardson Logan, editor of the *Journal of the Indian Archipelago and Eastern Asia*, penned a damning narrative on the effects of forest

clearances on Penang Island. 'It is not necessary to cite Humboldt or Boussingalt' he wrote 'to prove the great influence in tropical regions of forests ... in ... diminishing local temperature'.[6] Making a connection with urbanisation more explicitly, John Crawford, doctor, amateur scientist and previously British Resident at Singapore, noted in 1855 that the urban and peri-urban temperature increase 'is ascribable no doubt, to the increase of buildings, and to the country having been cleared of forests for several miles inland from town'.[7] These men joined a growing number of contemporaries in attributing an anthropogenic hand behind discernible climatic changes on the Malayan peninsula. Their concerns, as elsewhere in the colonies, grew from witnessing first-hand unchecked deforestation as plantation farming, mining and urbanisation had intensified.

The discussion came to public attention in 1865, after a damning report was published by Alexander Maingay, surgeon, magistrate and amateur natural historian, then stationed at Malacca. Like Logan, Maingay claimed that 'the ruin of the forest ... involves a corresponding diminution of the rain fall and a general elevation of the temperature, with an increasing prevalence of long droughts'.[8] The report unleashed an outpouring of opinion in the press over the following months and an acceleration of the discussion in governmental circles. By the late 1870s, plans were afoot to survey the peninsula's forests, with a specific intention to explore their connection to climatic changes.[9] A few years later, a colonial treasurer with a keen interest in all matters meteorological, Allan Skinner, had also explicitly linked a perceived rise in temperature and an increasing prevalence of droughts to 'the spread of buildings' as well as the loss of forest cover.[10]

By the early 1900s, this discourse was firmly entrenched in the public, as well as the more scholarly, consciousness. In 1907, for instance, the press had reproduced a British lecture on the 'effects of civilisation on climate' which, echoing Howard's claims almost a century earlier, noted 'the presence of buildings ... will raise the temperature of the locality, whilst the influence of the warmth arising from a large number of fires must not by any means be overlooked'.[11] Yet, despite this, by the 1930s, the colony was already on a downward spiral in managing urban heat. Reminiscing about how the central Raffles' Place (now heart of Singapore's CBD) had looked in 1901, Edwin Brown noted how it had transformed from an attractive, green spot shaded by 'flame-of-the-forest trees', where men would sit for their lunch and horses and carriages would shelter 'while the "mems" did their shopping', into a 'glaring whiteness ... with its motor cars parked in orderly ranks in the centre ... and wonder if we are any better off now-with all the present day amenities - than we were then?[12]

The thirties were notorious for a loss of urban greenery, impacting on temperatures and creating dusty, unbearably hot streets. This was also the same decade that air-conditioning was mass introduced into Malayan towns for domestic purposes. It was hailed as an invention that would not only provide comfort but better health. Singing the praises of the Trane Air-Conditioning System in 1936, for instance, a Morning Tribune staff writer noted how 'Singapore may be a beauty spot and its strategic position superb, but its climatic conditions have always been a moot point with residents and medical men alike ... the marvels of modern science and invention can transform the air condition of the interior of Singapore's buildings to the most delightful and healthiest obtaining anywhere'.[13] While it would still be decades before anyone except the rich could afford domestic air conditioning units, the introduction of air-conditioning marked a technological tipping point in an age of 'progress', one which, combined with the mass uptake of motorcars, significant expansion and a loss of urban green space was to usher the regions' towns into the age of the Anthropocene.

Funding source acknowledgement:

Research for this feature was kindly supported by a Singapore Ministry of Education grant: MOE2018-T2-2-120 Heat in Urban Asia: Past, Present and Future.

Endnotes

- [1] Burbidge, Frederick W., *The Gardens of the Sun: A Naturalist's Journal of Borneo and the Sulu Archipelago* (1880), p. 15.
- [2] John Cameron, *Our Tropical Possessions in Malayan India &c* (Smith Elder and Co, 1865), p. 158.
- [3] 'Prickly Heat', *The Singapore Free Press and Mercantile Advertiser*, 10 July 1889, p. 43; 'The Prevention of Sunstroke', *The Singapore Free Press and Mercantile Advertiser*, 18 July 1896, p. 2.
- [4] Howard, Luke, *The Climate of London*, 3 Vols. (1818, 1822, 1833).
- [5] Thomson, John T., 'General Report on the Residency of Singapore', *Journal of the Indian Archipelago and Eastern Asia*, 3 (1847): 618-635, 627.
- [6] Logan, J. R., 'The Probable Effects of the Climate of Pinang of the Continued Destruction of its Hill Jungles', *Journal of the Indian Archipelago and Eastern Asia*, 2 (1848): 534-6, 534.
- [7] Quoted in Skinner, Allan M., 'Straits Meteorology', *Journal of the Straits Branch of the Royal Asiatic Society*, 11-12 (1883): 245-259, 253.
- [8] Maingay, A. C., 'Report on the Timber and Forest Conservancy of Malacca, 20 August 1865', published in the *Straits Settlements Government Gazette* 1 September 1865, pp. 387-8, 388.
- [9] CO276-10: *Straits Settlements Government Gazette*, Copy of Colonial Engineers Minute on Survey, dated 27 August 1878, published 3 October 1879, p. 893.
- [10] Skinner, 'Straits Meteorology', 252.
- [11] 'Can man change climate?', *Eastern Daily Mail and Straits Morning Advertiser*, 11 January 1907, p. 6.
- [12] Brown, Edwin A., *Indiscreet Memories: 1901 Singapore through the eyes of a colonial Englishman* (1935), reprinted (Monsoon Books, 2007), 42.
- [13] 'Modern Air-Conditioning System', *Morning Tribune*, 30 March 1936, p. 15.