

**Non-Fiction**

## Frostbite – a chilling look at food’s frozen empire

Nicola Twilley explores how refrigeration turned the global food supply system into an unsustainable ‘cryosphere’



Workers processing frozen fruit at a factory in Hangzhou, China, last year © VCG via Getty Images

**Tim Hayward** 7 HOURS AGO

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At a point about halfway through Nicola Twilley’s new book, we find the author passing through an airlock to be strapped into a giant crane. She then swoops through the packed aisles of a 12-storey, fully automated frozen warehouse.

This is no thriller or work of fiction. It's part of a deep dive into a vast hidden continent of cold, a "new Arctic". Twilley is a British-born, US-based journalist who presents *Gastropod*, a consistently brilliant podcast about food, its science and history. She is also the co-author (with Geoff Manaugh) of 2021's *Until Proven Safe*, an acclaimed history of quarantine. With her latest, *Frostbite*, she has set her own bar higher.

The book is founded, as good popularising books are, in an entirely novel reframing. There have been many titles on the subjects of globalisation, containerisation, preservation, refrigeration, the "frozen water trade", the "cold chain" and even ice cream — each shining light on a facet of our increasingly depressing global food supply system.

Twilley's insight is what they form together — what she terms the "artificial cryosphere" — a globally distributed empire of cold storage spaces and the network of chilled transport that connects them. Most of what we eat today will have spent time in the cryosphere, impervious to age or decay. To identify and name something that large, that consequential, is arresting, but once Twilley has created the image it sticks.



We've had mass processing and international shipping of food for a long time, but Twilley details how it has grown more pervasive and yet somehow more invisible. We think we're getting a bigger and better choice of fresh food, globally, unaffected by season, but in effect we're becoming increasingly dependent on manmade and unsustainable cold.

She begins by reminding us that artificial cold is a comparatively recent invention. It was in 1834 that Jacob Perkins, an American-born inventor, patented the first vapour-compression system in London, meaning that ice could be made domestically, by machines, rather than harvested from naturally frozen lakes.

But what is most shocking is how, since artificial refrigeration we have effectively re-engineered livestock and produce to better survive it. How and where we rear and slaughter animals is entirely dictated by the cold chain. We have created an entire science of controlling the ripening of fruits and vegetables. Using gassing, climate control and packaging, we suspend ripening before chilling or hasten it afterwards. As Twilley puts it in one of her uncompromising conclusions: "We know more about how to lengthen an apple's life span than a human's" and in doing so have effectively rendered the concept of "fresh" meaningless.

Twilley's style weaves storytelling with a series of well-timed narrative combination punches. You read a string of logical statements: in 1973, France passes legislation restricting the floor area of stores to control the growth of supermarkets, some other European countries follow suit, they maintain vibrant central retail areas. Their shop fridges have smaller average capacity than those in countries where large, out-of-town supermarkets encourage a weekly shop. Having lined you up, Twilley ends with a roundhouse quote from Canadian architect Donald Chong: "Small fridges make good cities."

This is bravura technique. You read through once, not unappreciatively, and then — boom — you go back and read it again, your mind racing to embrace the ramifications.

Twilley knows that the cryosphere is inequitably distributed across the globe; that, while preserving food on one level, it is in a broader sense degrading it; that the energy it consumes is unsustainable. Still, *Frostbite* wears its politics lightly, trusting the reader to conjure their own indignation.

The style is accessible, informative and infectiously readable. Yet all the time, the book is quietly inspiring a desire for change. You will not know you've been evangelised but you will reach a point where you walk into the fruit and veg aisle on your weekly shop, look at a carton of "fresh" orange juice or pick up a vac-packed chicken and feel overcome with a kind of despairing nausea.

**Frostbite: How Refrigeration Changed Our Food, Our Planet, and Ourselves** by Nicola Twilley *Penguin Press £26.99/\$30, 400 pages*

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