



Modern refrigeration transformed the food system in ways both expected and unanticipated.

Because different foods required different kinds of refrigeration at different points in the supply chain, the development of refrigeration technology was never a single straight line. Twilley tracks down the many threads of this complicated story, describing everything from the earliest ice houses in Great Britain, to the history of frozen foods, to chemist Mary Engle Pennington's efforts to solve the difficult problem of preserving eggs.

As cold preservation and transportation methods were perfected for everything from lamb to bananas, more food options became available to more people around the world. But the supply chain for any perishable food is only effective when it is complete, and much of the modern web of cold chains that make up the artificial cryosphere are of very recent vintage. Even the modern household refrigerator, which dates from the early 20th century, is still changing lives today as people in developing countries gain access to its benefits.

Although refrigeration has become an object of close study in recent years, there are several sections of this book that break completely new ground for anyone not working directly in the cryosphere. Twilley's account of the life of Fred McKinley Jones—the African American inventor of the portable refrigeration unit that made refrigerated trucking possible—may be well known to engineers, for example, but until now his story has not been featured as part of the broader history of refrigeration.

Twilley explains the multifaceted subject of refrigeration so well because she has visited many parts of the cryosphere herself. For all her mastery of science, history, and issues surrounding food, it is clear that her favorite subject is people. She talks to just about everyone working in this area, from researcher Barbara Pratt, who perfected the refrigerated shipping container, to dating expert Jon Steinberg, who predicts the success of a prospective romantic relationship on the basis of photos of the inside of each person's fridge.

One cannot help but admire Twilley's determination to learn from the people who made and maintain this complex modern marvel and share her enthusiasm for the subject of refrigeration. In her research for this book, she consulted the right sources, talked to the right people, and visited the best archives available, but it is Twilley's first-person experiences that make reading *Frostbite* so much fun. ■

10.1126/science.adp5363

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BOOKS *et al.*

FOOD STUDIES

Food meets fridge

A journalist invites readers on an expansive romp through the artificial cryosphere

By Jonathan Rees

The tagline for *Gastropod*, the podcast cohosted by journalist Nicola Twilley, is “food through the lens of science and history.” Twilley’s new book, *Frostbite: How Refrigeration Changed Our Food, Our Planet, and Ourselves*,

follows a similar organizing principle but may be better described as science through the lens of food and history. Her analysis of the artificial cryosphere—the vast global infrastructure for preserving perishable foods of all kinds—is most accurately summarized as a work of “food studies,” an interdisciplinary topic that emerged about 20 years ago. With close to 15 years of research from this field informing her narrative, Twilley’s *Frostbite* is one of the best-informed and most entertaining examples of food or science journalism published since the emergence of the field.

The scope of the science necessary to explain refrigeration and its effects on

the food system is staggering. Among the subjects that Twilley covers are the effect of cold on the human body, the effect of cold on foods of all kinds, the biology of decay, the effect of refrigeration on global warming, the effect of refrigeration on diet, the effect of a refrigerated diet on human health, and the complicated history of mechanical refrigeration. Even readers who know a little bit about some of this science probably do not know all of it and are likely to learn something new.



Frostbite:
How Refrigeration Changed Our Food, Our Planet, and Ourselves
Nicola Twilley
Penguin Press, 2024.
400 pp.

Breakfast, lunch, dinner, and dessert all make appearances in the book. Meat gets a chapter of its own because making that class of protein more available to consumers through refrigeration was so lucrative and because it spurred other innovations, such as improvements in the preservation of fish and other less-expensive foods. Produce does

not necessarily require refrigeration, but being able to refrigerate fruits and vegetables has made them more available to consumers throughout the world. Ice cream, readers learn, is particularly hard to store and transport because it has so much air in it.

The history of refrigeration and its many applications began with commercial ice harvesting in the early 19th century.

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