

# DELINEATIONS

ISSUE 05

## 22 RE-SURVEYING WALDEN

MEG STUDER

CONNECT the line, ice  
instruments, global trade,  
industrial infrastructure



*This infographic essay, by Meg Studer of Siteations Studio, has been adapted for print. For the full series and a complete bibliography, please visit [groundupjournal.org](http://groundupjournal.org).*

Henry David Thoreau's pastoral polemic, *Walden*, was initially published with a single drawing: "Walden Pond: A Reduced Plan."<sup>1</sup> It is dry and technical, economic and sparse.

In it, we see the pond perimeter and plumbing depths. But township edges are erased; woodlot enclosures are absent; magnetic north is missing. The ephemeral etchings of surveying and ice extraction are nowhere to be found. Thoreau has left out territorial bounds, terrestrial orientation, market traces and labor.<sup>2</sup> By choosing the surveyor's plat, Thoreau foregrounds the embedded, if invisible, material tensions and legal conventions driving antebellum 'improvement.'

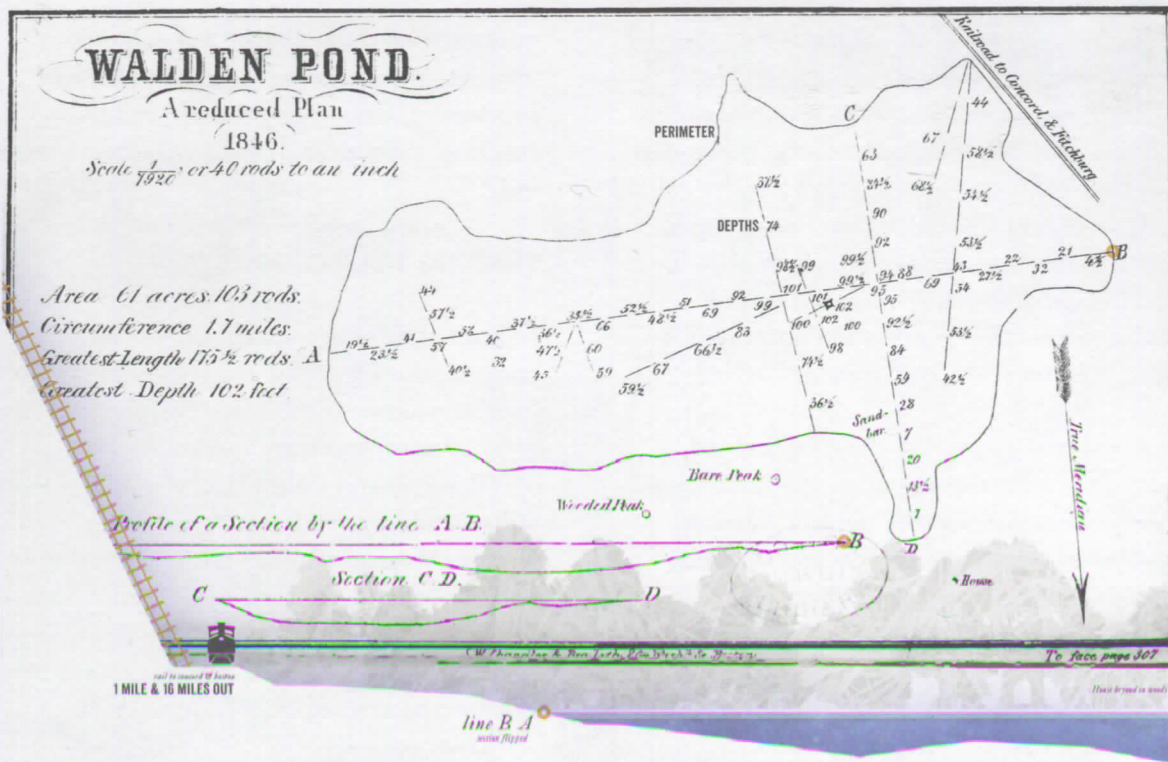
This visual essay thus seeks to unpack and expose the novel forms of property, climate and consumption underlying Thoreau's sardonic survey. These images retrace the intentional erasures of his "Reduced Plan" to draw out the antecedent Coldscape.<sup>3</sup> In excavating Thoreau's layered etchings, this series maps the infrastructural alliances, metabolic relays and antebellum impacts of refrigeration on urban markets and trade triangles.

**RIGHT** In "The Pond in Winter," Thoreau's lithograph functions as a pivot between what initially appears as dual demarcations of the pond in 1846-47: the extraction of ice for sale, in the later half of the text, mirrors his initial episode of depth surveying. While Thoreau claims a quest for pure knowledge with his pond measurements and map, each etching actually stakes out territory for commerce and, given Thoreau's later profession, competence.

### INDUSTRIAL & URBAN INFRASTRUCTURES

Thoreau's delineations act as an amusing, intimate and partial critique of Walden Pond's harvest, but they also draw attention to the industrial efficiencies, novel territories and economies of scale that were adopted in the ice trade. Boston's ice harvesters had copied the steam-driven belts of the cloth mills and capitalized on the standardization and expansion of the lumber industry; multi-story warehouses were built from thin wooden frames and sawdust insulation. Pond surfaces and shores neatly mirrored the 'rational' factory floor, offering an embryotic glimpse of the assembly line logic and storage capacity key to capitalism.<sup>4</sup>





ECONOMIC ARRAYS emergent material assemblies  
**MEDIUM & MESSAGE**

Environmental Engagements

**DUAL DEMARCATIONS**

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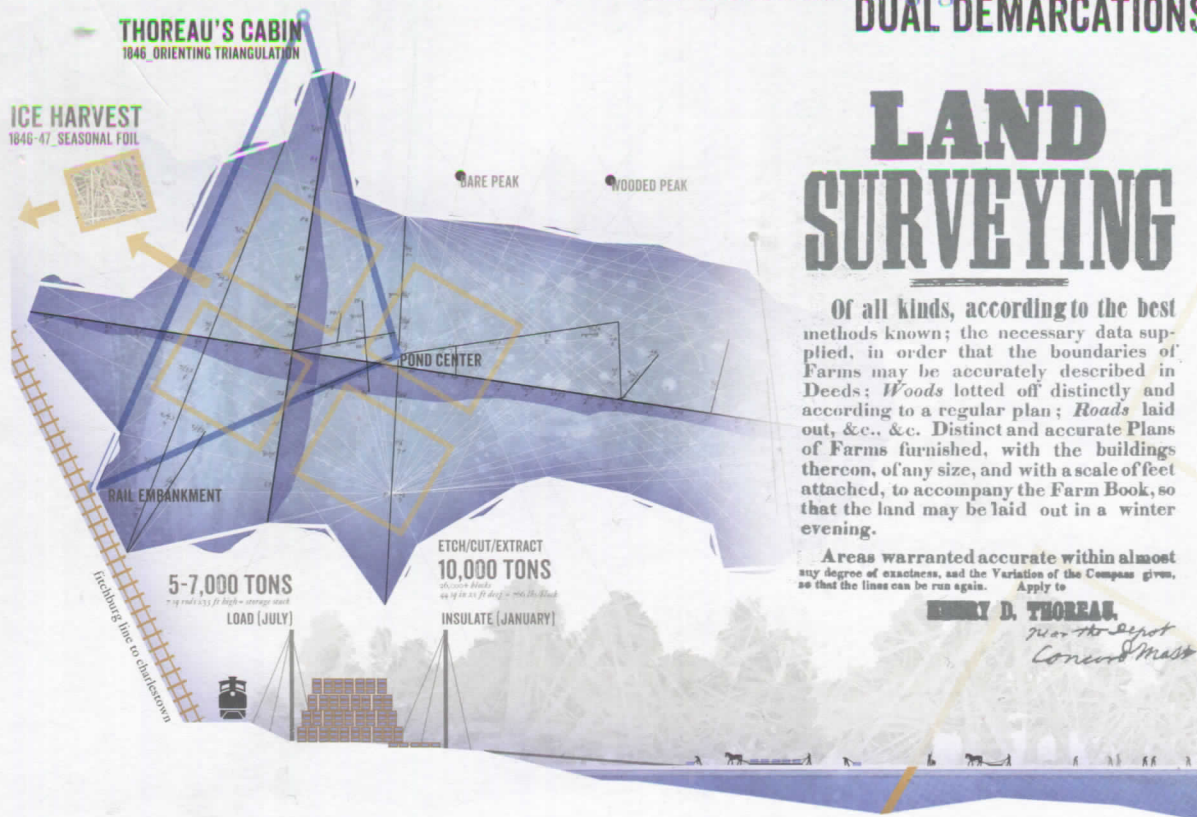
# LAND SURVEYING

Of all kinds, according to the best methods known; the necessary data supplied, in order that the boundaries of Farms may be accurately described in Deeds; Woods lotted off distinctly and according to a regular plan; Roads laid out, &c., &c. Distinct and accurate Plans of Farms furnished, with the buildings thereon, of any size, and with a scale of feet attached, to accompany the Farm Book, so that the land may be laid out in a winter evening.

Areas warranted accurate within almost any degree of exactness, and the Variation of the Compass given, so that the lines can be run again. Apply to

**HENRY D. THOREAU,**

*near the Depot  
Concord Mass*



ECONOMIC EXTRACTIONS climate control circ 1830-80  
**EMPIRICAL EXPERIMENTS**



With crews skimming off "all the terra firma there was," Thoreau alludes to Massachusetts's marginal recognition of ponds as legal 'land.'<sup>5</sup> In 1841, edge parcel ownership had been extended across inland water surfaces during arbitration over harvesting rights. A new landscape of refrigeration—with triangular harvest sites and shoreline speculation—blossomed as the water's edge was carved up and commodified.<sup>6</sup>

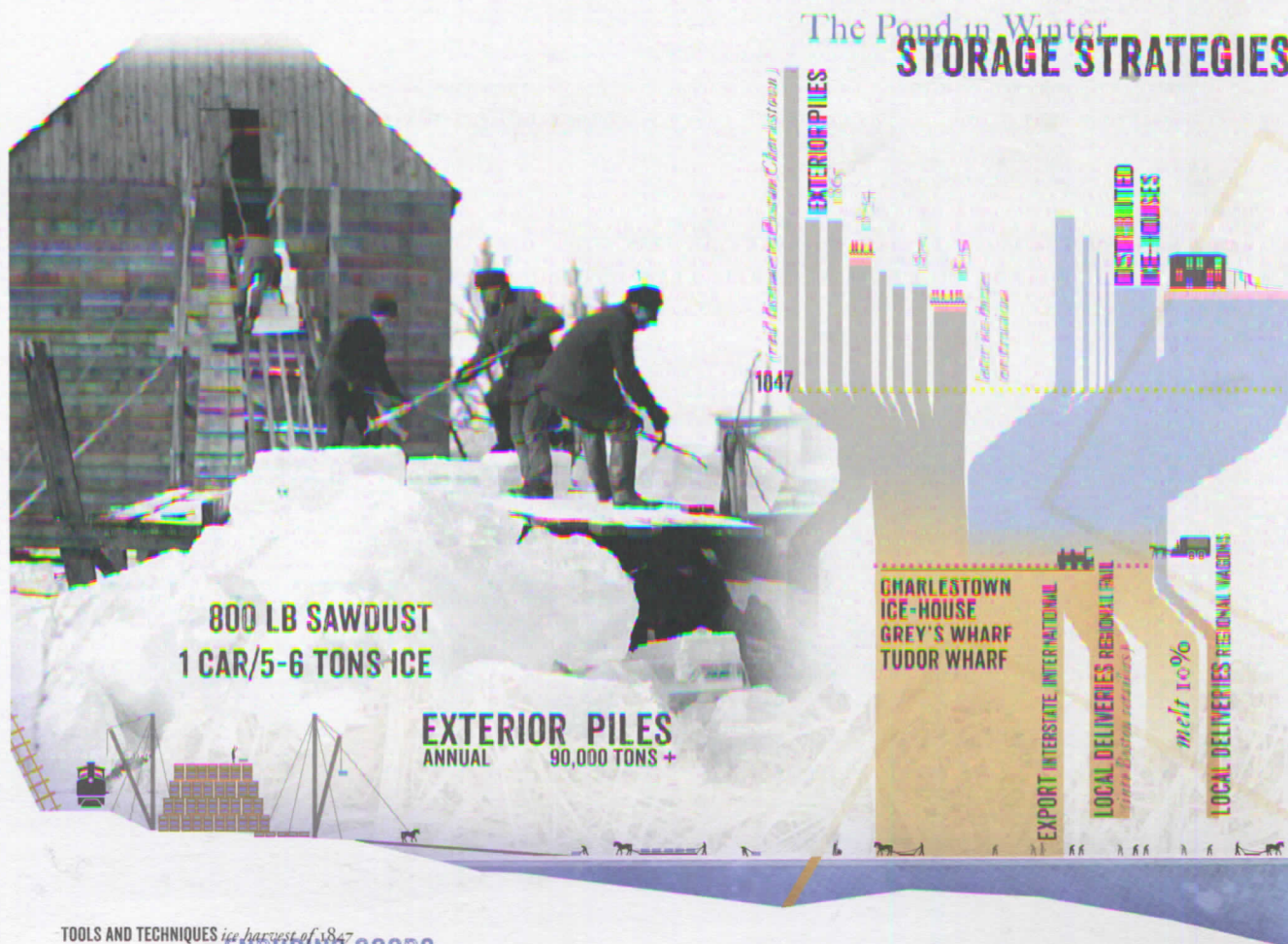
Beyond production sites, the effects of ice were felt in urban refrigeration, distillation and chemical industries across the Northeast. In advance of mechanical refrigeration (1880s), the rise of the 19th century industrial city is unthinkable without ice as climate control. Along with Maine, Hudson and the Great Lakes' ice harvests, Boston's regional and

interstate ice trade altered the extent and intensity of food collection and industrial processing, intensifying the redistribution, stocking, storage and density of urban masses fed.<sup>7</sup>

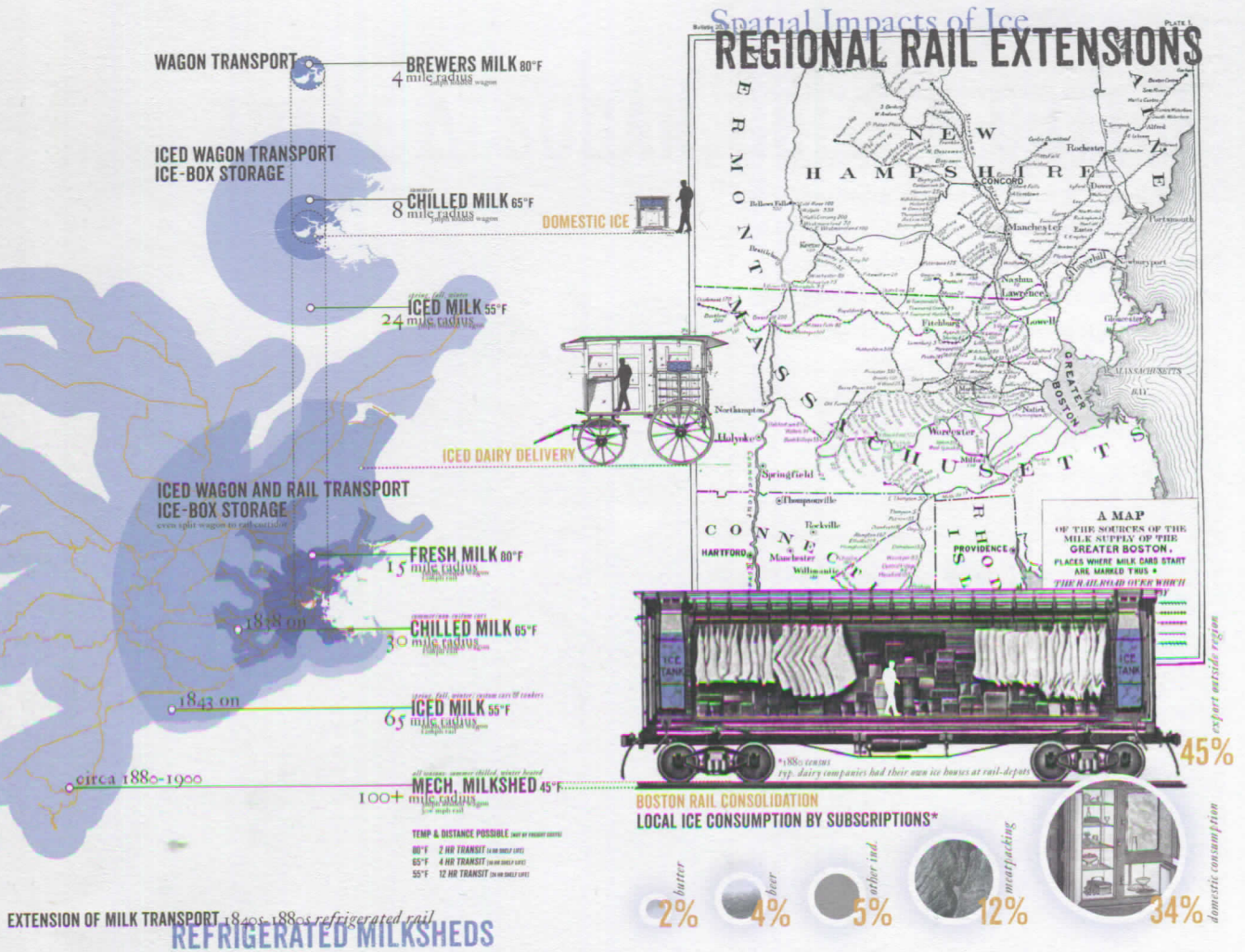
## TRADING TRAJECTORIES

Instead of looking toward Boston's internal ice consumption, Thoreau imagines that Walden's ice is consumed by "the sweltering inhabitants of Charleston and New Orleans, of Madras and Bombay and Calcutta... [where] Walden water is mingled with the sacred water of the Ganges."<sup>8</sup> As an abolitionist, Thoreau likely had in mind the other colonial links of Boston's ice, whether in the East and West Indies or the American South. Indeed, as an inexpensive shipping ballast, 'frozen-water' subsidized the

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northern import of plantation cotton, rice and indigo. By 1855, with rising industrial demand for raw resources, ice constituted Boston's largest annual export tonnage.<sup>9</sup>

As in the Americas, ice also subsidized the importation of a diverse array of materials from 'the East'—graphite, jute, coffee,

saltpeter, tea and palm oils. As early as 1843, Boston companies traded entire shipments of ice for Indian cotton, which was then sold in Liverpool. With the closure of the South during the Civil War, these trade triangles deepened; Boston doubled Indian ice imports between 1847 and 1870.<sup>10</sup>

**TOP** We see the greatest urban impacts of ice in industries like dairy. Raw milk has a four-hour shelf-life, limiting transport. In the 1820s-30s, toll-road improvements and farmer's iced wagons had enlarged Boston's milk-shed from a 4 to 24-mile radius, converging at the milk depot. By the 1840s, refrigerated rail cars with simple, stacked ice blocks enabled milk collection from 65 to 100 miles away.<sup>11</sup> By 1850, this regional reach underpinned sanitation reforms and dairy adulteration laws in Massachusetts. Yet, along with an expanded milkshed, uneven rail access spurred milk monopolies.

**LEFT** After a pragmatic description of the work crews, Thoreau steps back to survey the larger effort. His tally of Walden's ice harvest, with a touch of derision, paints an image of inevitable melt as much as economic foray. He notes, "This heap, estimated to contain ten thousand tons, was finally covered with hay and boards; [with] a part of it carried off, the rest remaining exposed to the sun... the pond recovered the greater part."<sup>12</sup>

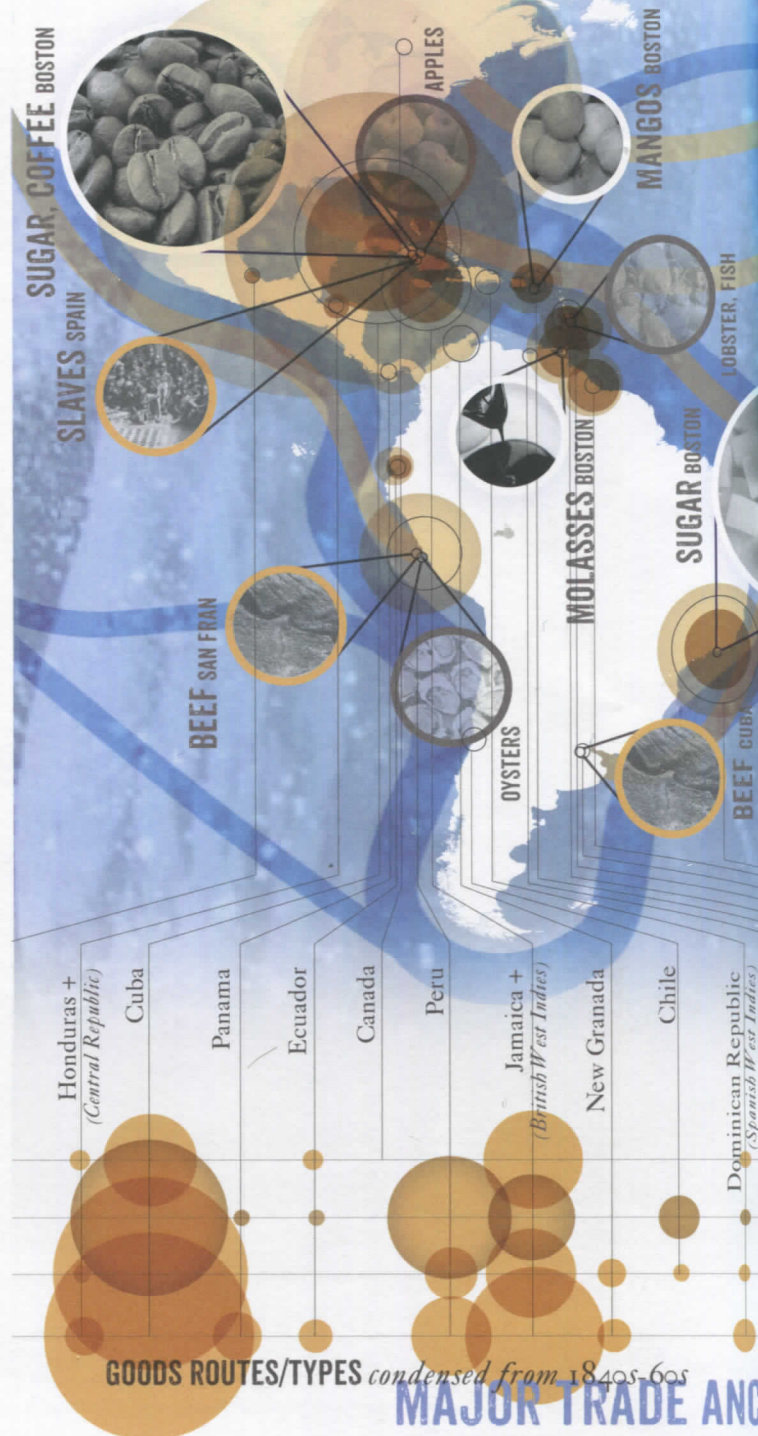


## MEDIUMS & METRICS

While Thoreau imagines mingling Walden's water with the Ganges, his final trajectory for the ice trade is as much symbolic and political as it is poetic and material, weaving "from Carthage to Ternate and Tidore." Here, he alludes to Milton's mercantile critique of the spice trade (Ternate and Tidore) and older, revolutionary symbols of American ambivalence toward becoming, but also being crushed by, empire (Carthage).<sup>13</sup> Thoreau may not have known the exact exchanges that ice subsidized, but he seems to have understood the relative routes, commercial complexities and inevitable culpabilities forged at the scale of global trade.

Read in light of Thoreau's traces and toponymy, *Walden Pond* is far from isolated or insular. Walden's plat is, so to speak, merely the tip of the iceberg. It offers a glimpse of the processes—instruments, labor, legalities and logistics—involved in up-scaling distributed, rural storage strategies to create domestic markets and balanced international trade. Thoreau's attention to the legal and commercial articulations, biased as they may be, ought to be an inspiration. As we, designers, turn to today's terrain—of seasonal cycles, peripheral provisions, emergent patterns, fuzzy risk and intensive materiality—what are the mediums and bureaucratic metrics that we might appropriate to explore and instigate distributed change? ■

**RIGHT** In the old 'Atlantic World, ice markets relied on Caribbean plantation sugar, molasses, coffee and inter-island slave trade to dictate demand.<sup>14</sup> By the late-1840s, enticed by favorable tariffs and raw resources, American ice traders were experimenting with an expanded array of 'frozen' shipping to these markets, offering everything from boiled lobster to chilled fruits and butter. In 1849, the Gold Rush increased passenger and provision shipments around Cape Horn. Increased ice sales were simply the first freight legs for shipping supplies to San Francisco; ice was unloaded to make space for Argentinian and Peruvian meat.<sup>15</sup>



# Ice-Trade Logistics Links

## TRADE Δ: SUGAR, GOLD, & COTTON

TRADE (TYPES 1830-80)

- FROM BOSTON
- LARGER CIRCLES
- INTERMITTENT
- CONSISTENT

1847 (DARK)  
1864 (LIGHT)

- 250
- 1000
- 2000
- 3000

ROUTE/RETURN  
TRIANGULATIONS

### ICE IMPORTING INTERNATIONAL

1847 *the winter at walden*

1855 *peak trade*  
1858 *balanced interstate-*  
*international*

1864 *consolidated markets*  
*civil war shifts*

Dominican Republic  
(Spanish West Indies)

Puerto Rico

St. Thomas  
(Danish West Indies)

Trinidad  
(French West Indies)

Argentina

Guyana  
(British)

Brazil

Cap Verde Islands  
(French)

Algeria

Tunisia

Libya

Egypt & Africa

Reunion, Mauritius  
(French)

Bombay, Madras, Calcutta  
(British East India)

Sri Lanka  
(British, Ceylon)

Indonesia  
(Dutch East Indies)

Hong Kong  
(British)

Phillipines  
(Spanish East Indies)

BEEF

ORANGES BOSTON

WHALE OIL NEW BEDFORD

COTTON LIVERPOOL

JUTE, COFFEE BOSTON

LINSEED OIL BOSTON

APPLES

CHEESE + BUTTER

BEEF - HAM, FISH



ROD BARNETT  
NEERAJ BHATIA  
TIAGO TORRES CAMPOS  
MICHAEL DEAR  
GRNASFCK  
FRITZ HORSTMAN  
MICHAL KAPITULNIK  
NATE KAUFFMAN  
KARL KULLMANN  
PAULA MEIJERINK  
FALON MIHALIC  
THOMAS MURDOCH

N. CLAIRE NAPAWAN + BRETT SNYDER  
JENNY ODELL  
TIM PINAULT  
EFTYCHIOS SAVVIDIS  
ISABELLE SMEALL  
MEG STUDER  
CHIP SULLIVAN  
JANET TORRES  
JESSE VOGLER  
STORY WIGGINS + KATHLEEN O'LEARY  
ELIZABETH YARINA