

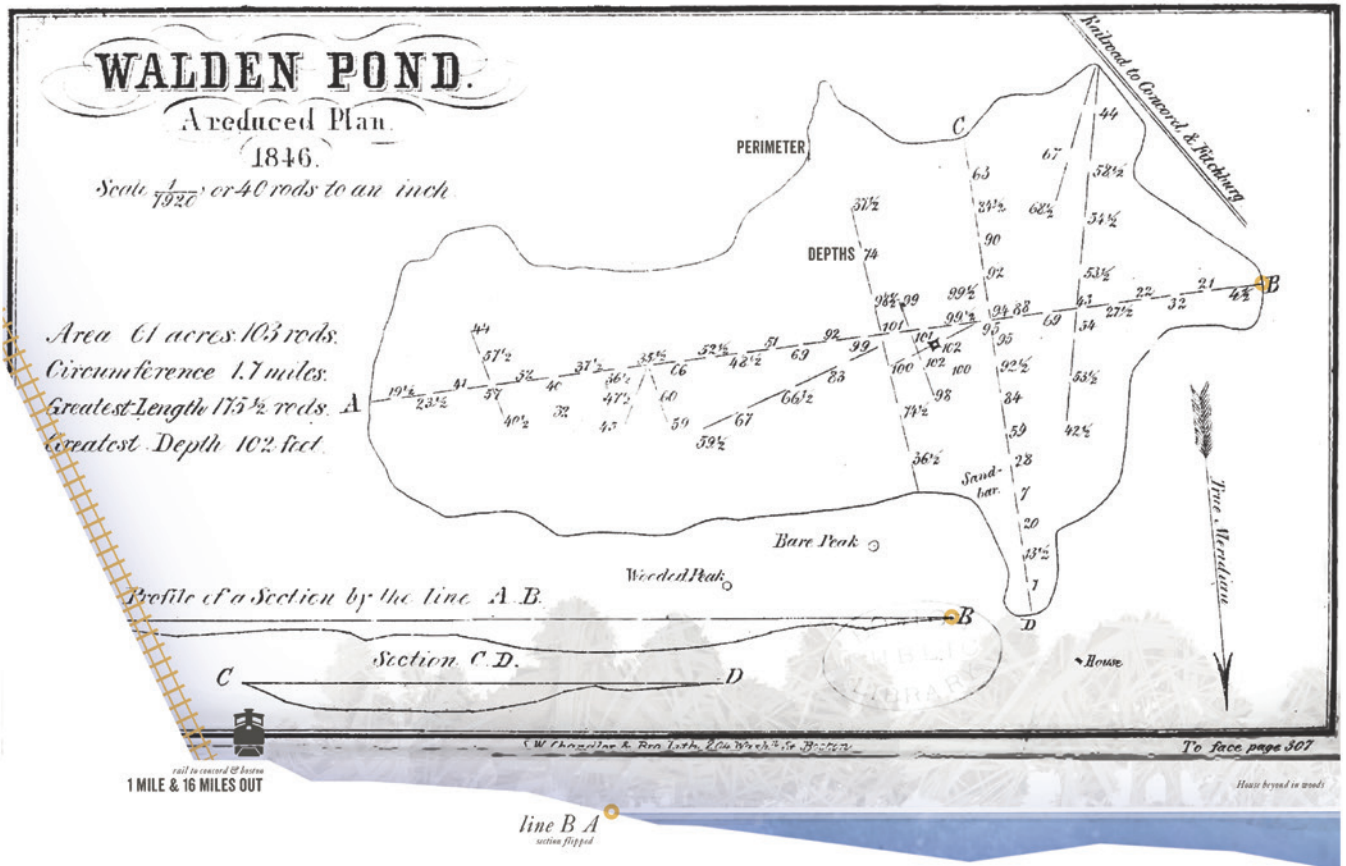
Ground Up: Delineation (forthcoming, May 2016)

Re-Surveying Walden

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author's layout copy

Plots, Plats, & Delineations RE-SURVEYING WALDEN



ECONOMIC ARRAYS *emergent material assemblies* MEDIUM & MESSAGE

Henry David Thoreau's pastoral polemic, *Walden*, was initially published with a single drawing: "Walden Pond: a reduced plan."¹ It is dry and technical, economic and sparse.

In it, we see pond perimeter and plumbing depths; it's a simple plan with two engineering sections. 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.² *Walden Pond* floats free, but is legible only through the cartographic conventions it appropriates, adapts, and erases. By choosing the surveyor's plat, Thoreau foregrounds the embedded-if-invisible material tensions and legal conventions – privation and commodification – driving antebellum 'improvement.'

This visual essay thus seeks to delineate – unpack and expose – the novel forms of property, climate, and consumption underlying Thoreau's sardonic survey. The following graphics return to Thoreau's description of ice harvesting; they re-trace the ephemeral erasures of his "Reduced Plan" to draw out the antecedent Coldscape.³ 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.

Beyond re-thinking Thoreau's hermetic reputation, this series is a stark reminder of the complex, if initially invisible, alliances embedded in our contemporary, consumptive habits. Perhaps, like Thoreau, we ought to seize upon the commercial and regulatory delineations of climate – speak to and through their formats – as one way to challenge their material and social limitations while using their potential for aggregate impact.

- 1) Thoreau, Henry D. "The Pond in Winter." *Walden, or Life in the Woods*. (Boston: Ticknor & Fields, 1854), 303–319. Map insert at 306–307.
- 2) Chura, Patrick. *Thoreau the Land Surveyor*. (Gainesville, FL: University Press of Florida, 2011), 22–44, 71–91.
- 3) Twilley, Nicola. "The Coldscape." *Cabinet*. 47 (Fall 2012), 100–105.
Rees, Jonathan. *Refrigeration Nation*. (Baltimore: Johns Hopkins University Press, 2013).
Anderson, Oscar E. *Refrigeration in America*. (Princeton: Princeton U. Press: 1953).
- 4) Thoreau, *Walden*: 314.
For a general introduction to the Boston ice harvest, see:
Weightman, Gavin. *The Frozen Water Trade: A True Story*. (New York: Hachette Books, 2004).

Environmental Engagements

DUAL DEMARCATIONS

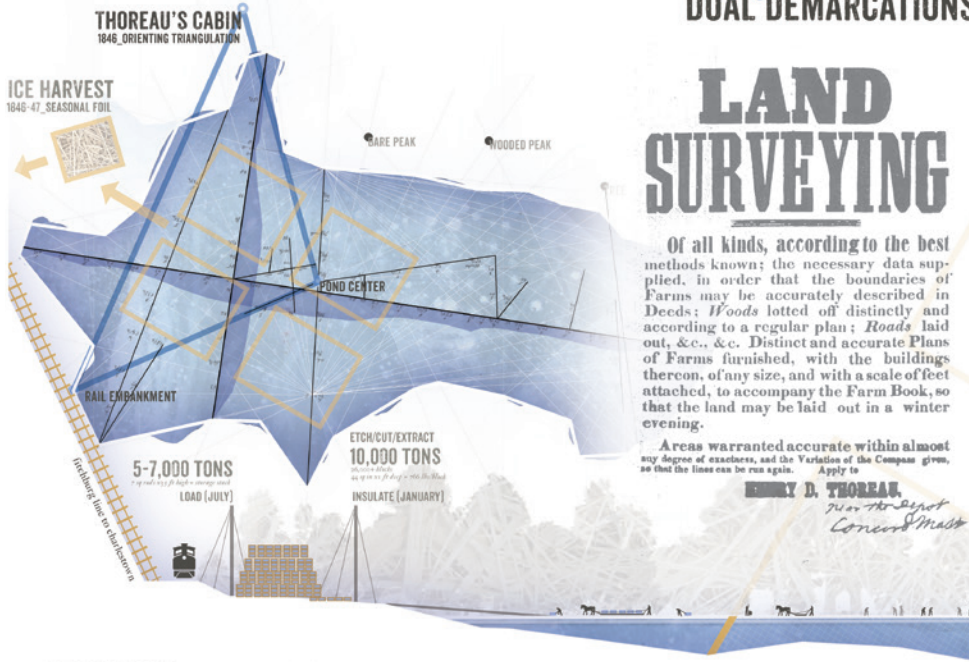
LAND SURVEYING

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 Concord
Concord, Mass.*

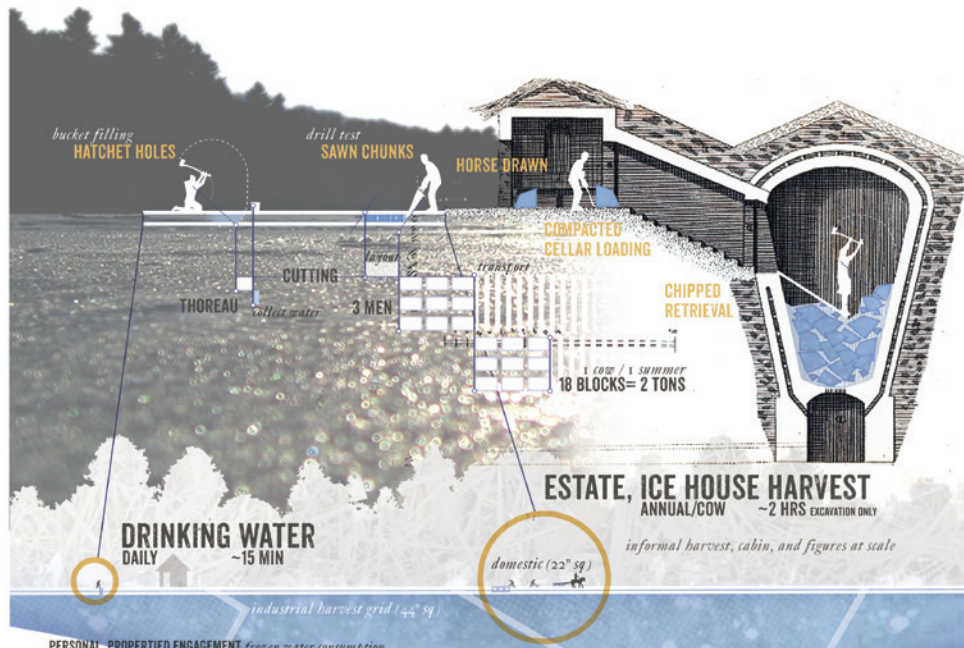


ECONOMIC EXTRACTIONS *January central area 1855-80*

EMPIRICAL EXPERIMENTS

The Pond in Winter

COLLAPSED CONSUMPTION



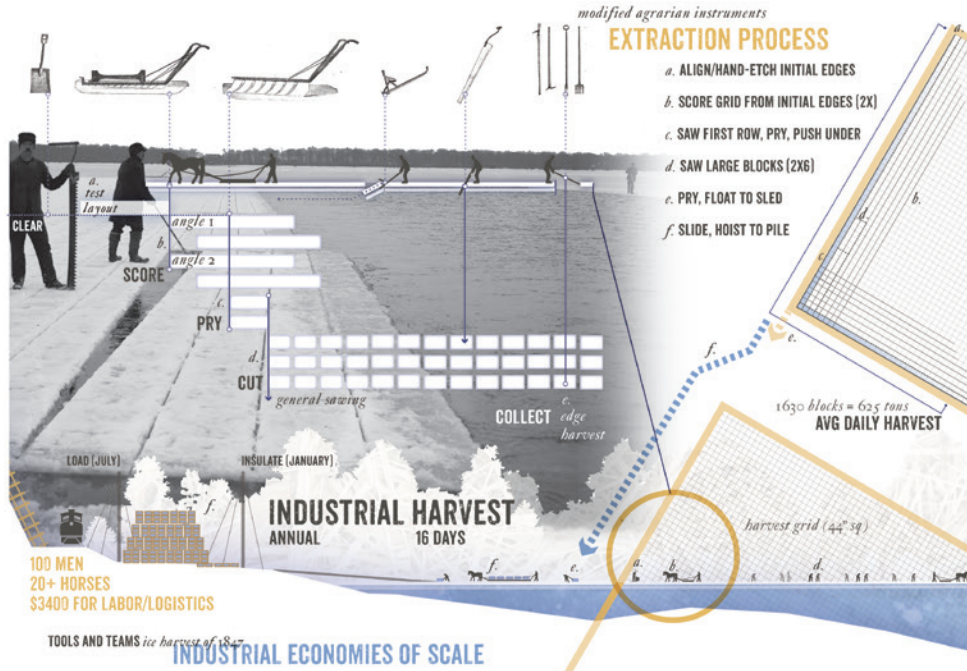
PERSONAL, PROPORTED ENGAGEMENT *frozen water consumption*

ESTATE EXCAVATIONS TO SUBSCRIPTION SALES

In the "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.

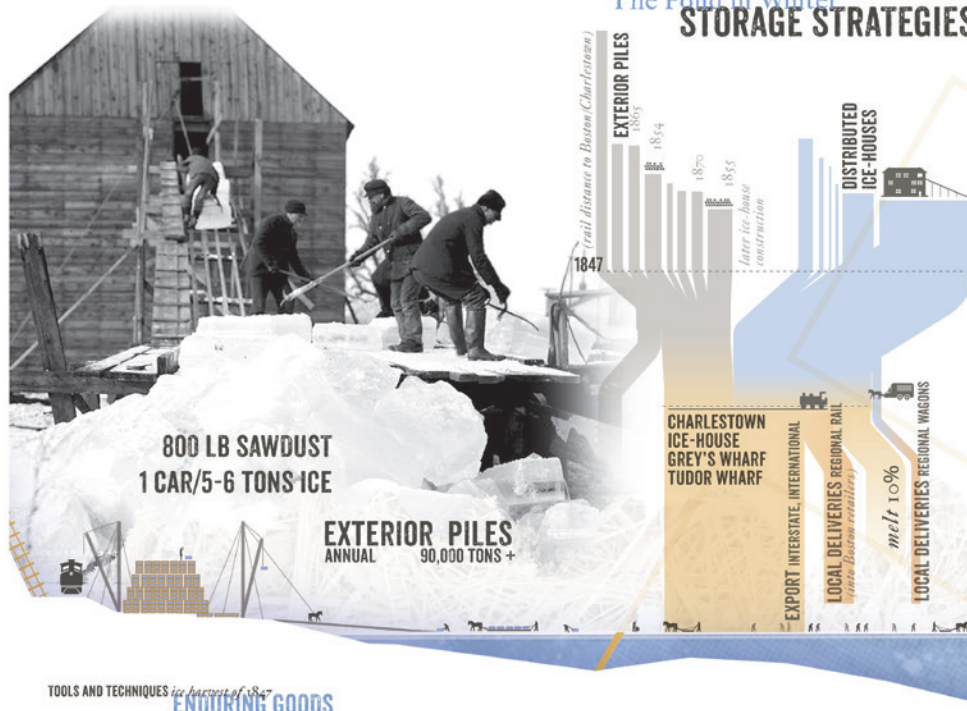
Looking wider, Thoreau's dialectic encompasses a series of nested distinctions, offering a glimpse of the successive scales and impacts of ice harvesting. After his morning excursions, chopping holes for drinking water, Thoreau thus begins the harvest sequence with traditional techniques and the appropriations of adjacent owners: "the prudent landlord comes from the village to get ice . . . He cuts and saws the solid pond, unroofs the house of fishes, and carts off their very element and air... to wintry cellars, to underlie the summer there."⁴

The Pond in Winter HYPERBOREAL HARVEST



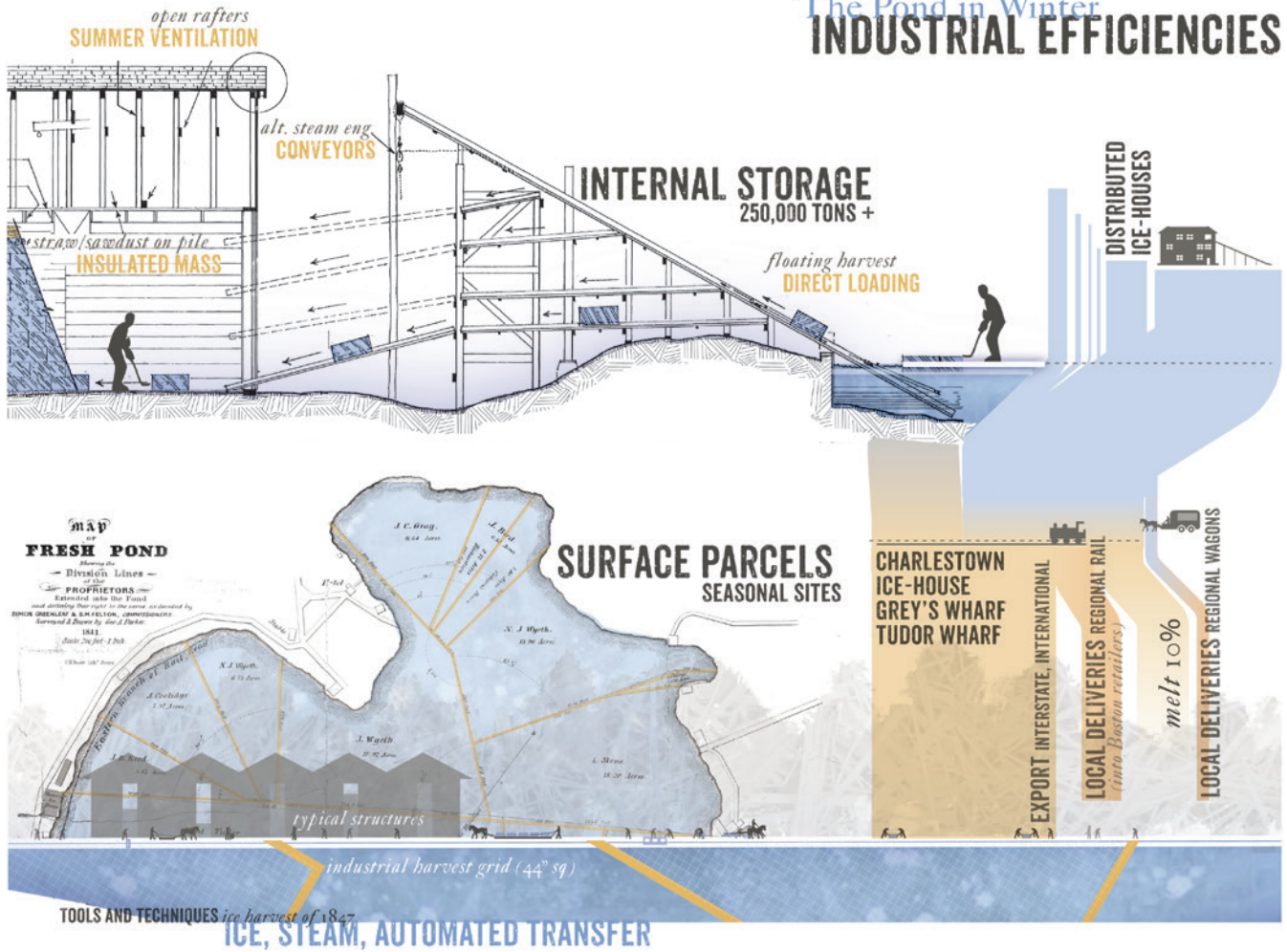
Thoreau continues by describing the industrial techniques and tools of day labor, “there came a hundred men of Hyperborean extraction swoop down on to our pond one morning, with many car-loads of ungainly-looking farming tools, sleds, ploughs...saws, rakes... So they came and went every day, with a peculiar shriek from the locomotive...”⁵ Thoreau jests, wondering what these ‘gentlemen farmers’ might reap, as he cites descriptions of ice harvesting from the American Almanac.⁶

The Pond in Winter STORAGE STRATEGIES



And, after Nordic nodes and 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.”⁷

The Pond in Winter INDUSTRIAL EFFICIENCIES



Thoreau thus gives an amusing, intimate, and very partial critique of Walden Pond's harvest. But, he hints at the larger, urban impacts and industrial alliances of ice.

For instance, in his pragmatic description, Thoreau mentions the "five year old ice" stored at Cambridge's Fresh Pond. Absent in Walden's melted, ephemeral effort, Thoreau thus alludes to the industrial efficiencies and economies of scale that were adopted across the region. 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 saw-dust insulation. Combined with neatly 'cubed' goods, gridded extraction sequences, and a surplus of itinerant, seasonal labor, pond surfaces and shores neatly mirrored the 'rational' factory floor, offering an embryonic glimpse of the assembly line logic and storage capacity key to capitalism.⁸

In addition to these routinized spaces and coupled resource relays, Thoreau also notes the novel territories of harvest. With crews were skimming off "all the terra firma there was," he alludes to Massachusetts's marginal recognition of ponds as legal 'land.'⁹ In 1841, edge parcels ownership had been 'extended' across inland water surfaces during arbitration over harvesting rights at Fresh Pond. Formerly common waters were sliced into leasable lots. A new landscape of refrigeration - with triangular harvest sites and shoreline speculation - blossomed as the water's edge was carved up and commodified.¹⁰

5) Thoreau, *Walden*: 315.

6) Wyeth, Nathaniel. "The Ice Trade of the United States," *The American Almanac* (Boston: Charles Little and James Brown, 1848), 175-180.

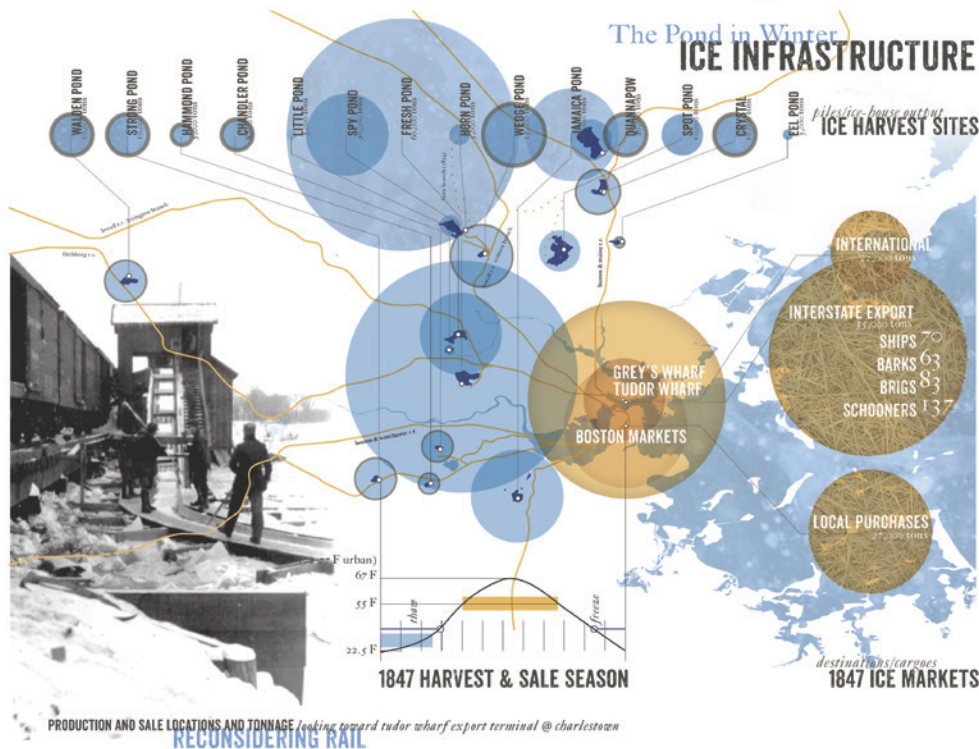
7) Thoreau, *Walden*: 317.

8) See note 4-6 and Weatherall, Leander. "The Ice Trade." *Report of the Commissioner of Agriculture* (Washington D. C.: Congress, 1863), 442-439.

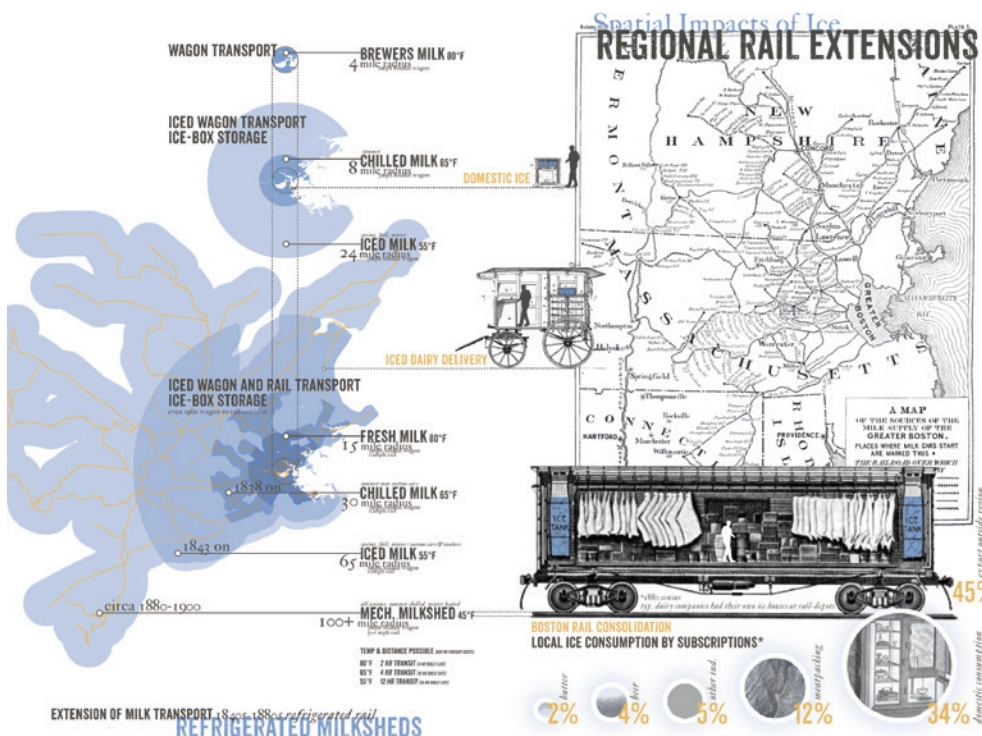
Hall, Henry. "The Ice Industry of the United States." *Tenth Census*. (Washington D.C.: Census Office, 1888), 1-44.

9) Thoreau, *Walden*: 315, 316.

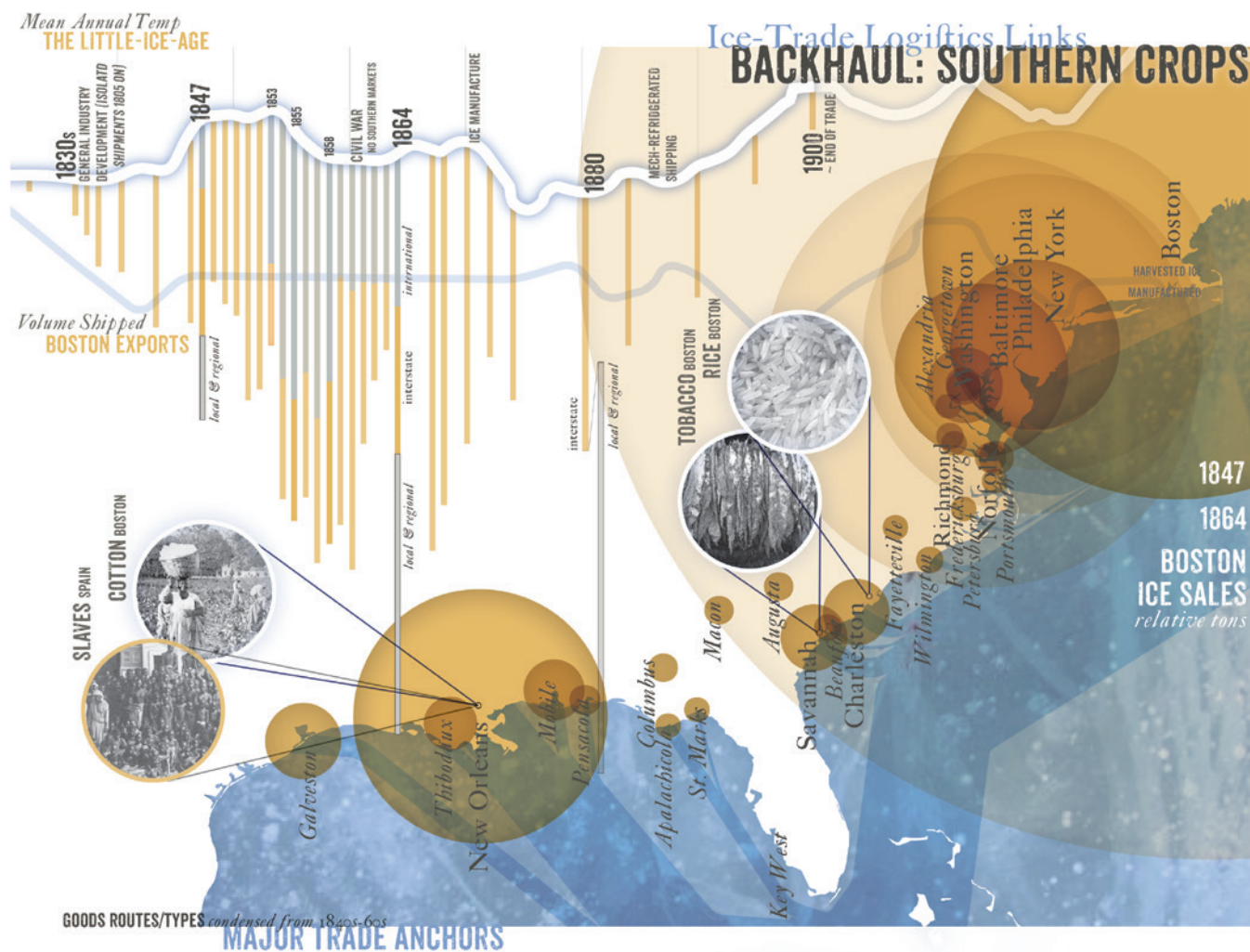
10) Parker, George. "Map of Fresh Pond, Showing the Division Lines of the Proprietors Extended..." (Bouve, Ephraim W., 1841).



While Thoreau explicitly mentions the rail-based transport of Irish laborers, he overlooks the railroad's equal role in regional distribution, competition, and consumption of ice. In 1830 there was only 1 firm in Boston. In 1850, with consistent connections and specialized spur lines, there were 16 competitors, 14 rail-based harvest sites and over 20,000 tons of local consumption.¹¹ For roughly \$2 a month (today's \$56), a retailer or household could subscribe to daily deliveries of ice, radically reworking what they processed and/or how they ate.¹²



We see the greatest, urban impacts of ice in industries like dairy. Raw milk has a four-hour shelf-life, limiting transport. Before the ice trade, urban milk came from brewery cows. 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.¹³ By 1850, this regional reach underpinned sanitation reforms and dairy adulteration laws in Massachusetts. But, along with an expanded milkshed, uneven rail access spurred milk monopolies.



Adjacent effects of ice were found in distillation and chemical industries across the North East. Thus in advance of mechanical and electric refrigeration (1880s, 1940s), the rise of the 19th century industrial city is unthinkable without ice as climate control. Along with Maine, Hudson, and 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.¹⁴

Yet, 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."¹⁵ 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. As Frederick Tudor, owner of the ice company that harvested Walden, told his stockholders, "Ice is taken on freight, not as the foundation of a voyage; but as an incident to the voyage. A vessel would not go to New Orleans or to Calcutta, for the purpose of carrying ice, unless she charged a fair freight. But as she is determined to go (ice or no ice), and as she frequently would go almost in ballast, so she can afford to take the ice at a low freight, provided she can start from a center of general business, such as Boston harbor. This very important circumstance rivets the ice trade to Boston harbor and greatly expands its size."¹⁶ As an inexpensive shipping ballast, 'frozen-water' thus subsidized the northern import of plantation cotton, rice, and indigo. With rising industrial demand for raw resources, by 1855, ice constituted Boston's largest annual export tonnage.¹⁷

11) See notes 4-8 for industry growth.

12) Original price from *Annual Report of the Boston Board of Trade*, Vol. 2 (Boston: Moore & Crosby, 1856), 56. Converted using: Samuel H. Williamson, *Measuring Worth*, 2016.

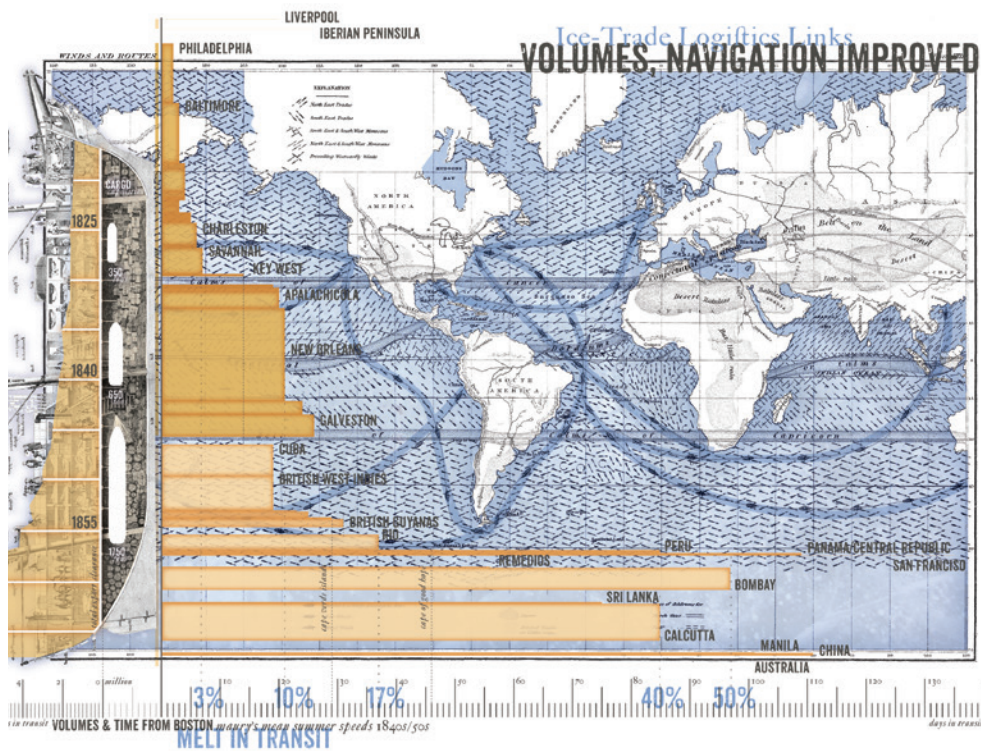
13) Whitaker, George M. *The Milk Supply of Boston and Other New England Cities*. (Washington, D.C. : U.S. Dept. of Agriculture, 1898). Harley, Robert Milham. *Essay on Milk*. (New York: Jonathan Leavitt, 1842), 107-116.

14) Anderson, *Refrigeration*. 30-36.

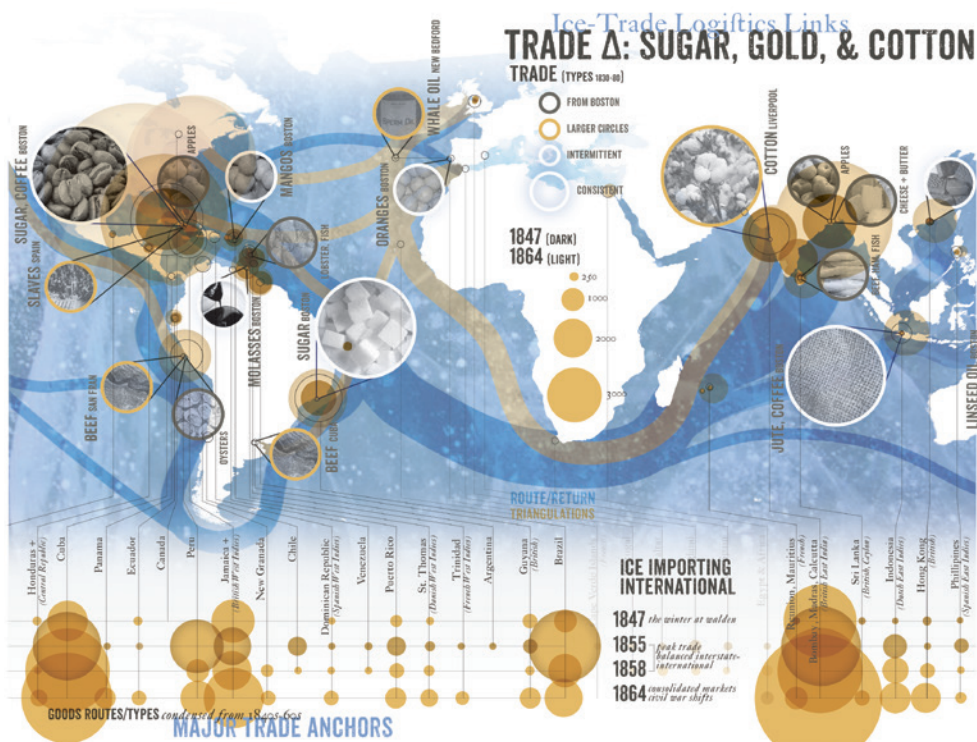
15) Thoreau, *Walden*: 318-19.

16) Dickason, David, "The Nineteenth-Century Indo-America Ice Trade" in *Modern Asian Studies*, Vol. 25, No 1 (Feb. 1991) 64.

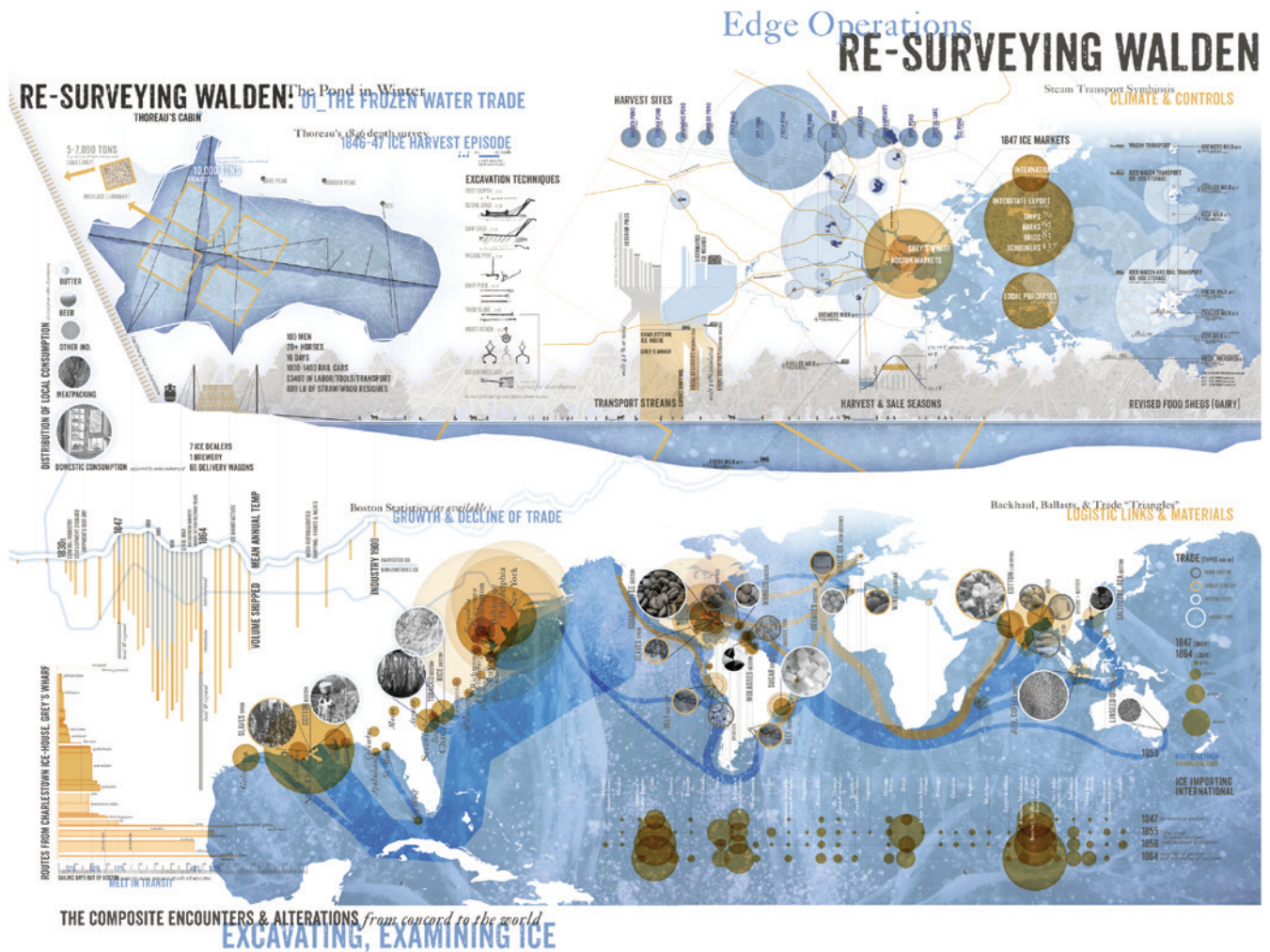
17) Weightman, *Frozen Water Trade*: 207.



As a backhaul good, ice was thus utterly entangled with the global logistics and politics of Thoreau's day. Between 1820 and 1850, ships nearly tripled in size. Schedules standardized.¹⁸ 'Packet routes' emerged and, in feedback with such trade triangulations, the Navy produced standardized oceanic tables and charts by codifying and compiling ships' logs of wind and weather.¹⁹ As ballast, Boston's ice exports, between the 1840s-70s, indexed these larger trade movements.



In the old 'Atlantic World,' ice markets relied on Caribbean plantation sugar, molasses, coffee, and inter-island slave trade to dictate demand.²⁰ Enticed by favorable tariffs and raw resources, by the late 1840s 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 the Cape Horn. Increased ice sales were simply the first freight leg(s) for shipping supplies to San Francisco; ice was unloaded to make space for Argentinian and Peruvian meat.²¹



Moving from 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 1870.²²

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).²³ Thoreau may not have known the exact exchanges 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 plot 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 balance 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?

18) Taylor, George R. *The Transport Revolution*. (New York: Rinehart, 1951), 104-150, 178-198.

19) Maury, Matthew Fontaine. *Explanations and Sailing Directions...* (Washington: W. A. Harris, printer, 1858). Also, *Physical Geography of the Sea*, (New York: Harper's, 1855).

20) Weightman, *Frozen Water Trade*: 164-5.

21) See note 12 and: 'Waste books' (vii.3), *Tudor Company Records*. HBS. Mss: 766 1752-1902 T912.

Herold, "Ice in the Tropics": *Revista Espaço Acadêmico* 11, no. 126 (2011).167.

22) See note 21 and Dickason, "The Nineteenth-Century".

23) Milton, John. *The Paradise Lost*. (London: C. Tilt, 1838), 51.

Winterer, Caroline "Model Empire, Lost City" in *The William and Mary Quarterly*, Vol. 67n1, 10-14.