

# Let's Crank Some Ice Cream!

The history of ice harvesting,  
the ice industry,  
refrigeration, and making ice cream

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## **Ice Storage and Ice Houses:**

1780 BC --- ice house in northern Mesopotamian

1100 BC --- evidence of ice pits in China

By 400 BC --- Persian engineers had mastered techniques of constructing yakhchāl to store ice harvested from nearby mountains.

300 BC --- Alexander the Great (snow pits to hold snow and ice)

200s AD --- Romans (snow shops)

*Cold springs, root cellars*



**Ice Houses:** Yakhchāl (this one at Yazd, Iran) is a Persian ice pit or a type of evaporative cooler. Above ground, the structure had a domed shape, but had a subterranean storage space. It was often used to store ice and food. The subterranean space coupled with the thick heat-resistant construction material insulated the storage space all year.



**Ice Houses:** Ice houses in England/UK.





**Ice Houses:** Croome's thatched ice house, Worcestershire, UK



**Ice Houses:** Botany Bay Icehouse, Edisto Island, SC

**Ice Houses:** Ice house designs usually began as an underground egg-shaped cellar. This ice house, dating from 1780s and designed by architect John Nash, was discovered in 2018 buried under London streets.

In 1822, following a very mild winter, William Leftwich chartered a vessel to Norway to collect 300 tons of ice harvested from crystal-clear frozen lakes. Previous imports had been lost at sea, or melted while baffled customs officials dithered over how to tax such unique cargo.





John Nash designed the Royal Pavilion at Brighton, as well as Buckingham Palace.



## Ice industry in US:

Ice was critical in the fishing industry.

Before 1800, ice was a luxury available only to those who had estates or who could afford to purchase it.

1799 --- Ice was first shipped from NYC to Charleston, SC. Note: ice melt

1820-1840 --- New Englanders Tudor (The “Ice King”) and Wyeth improved insulation (straw, sawdust, burlap) and the efficiency of ice houses (drainage; square vs round), and cutting ice in uniform squares, which decreased ice melt loss from 66% to just 8%.

1840s --- Ice was shipped from U.S. to London.

1840s and 1850s --- Average families wanted to use ice for food storage in the home.



cleaning snow off ice

Feb. 2, 1938

Before ice was harvested, they had to clear the snow off. Sandusky Bay (OH), off Lake Erie.

## **Ice harvesting in action at Pocono Manor in 1919**

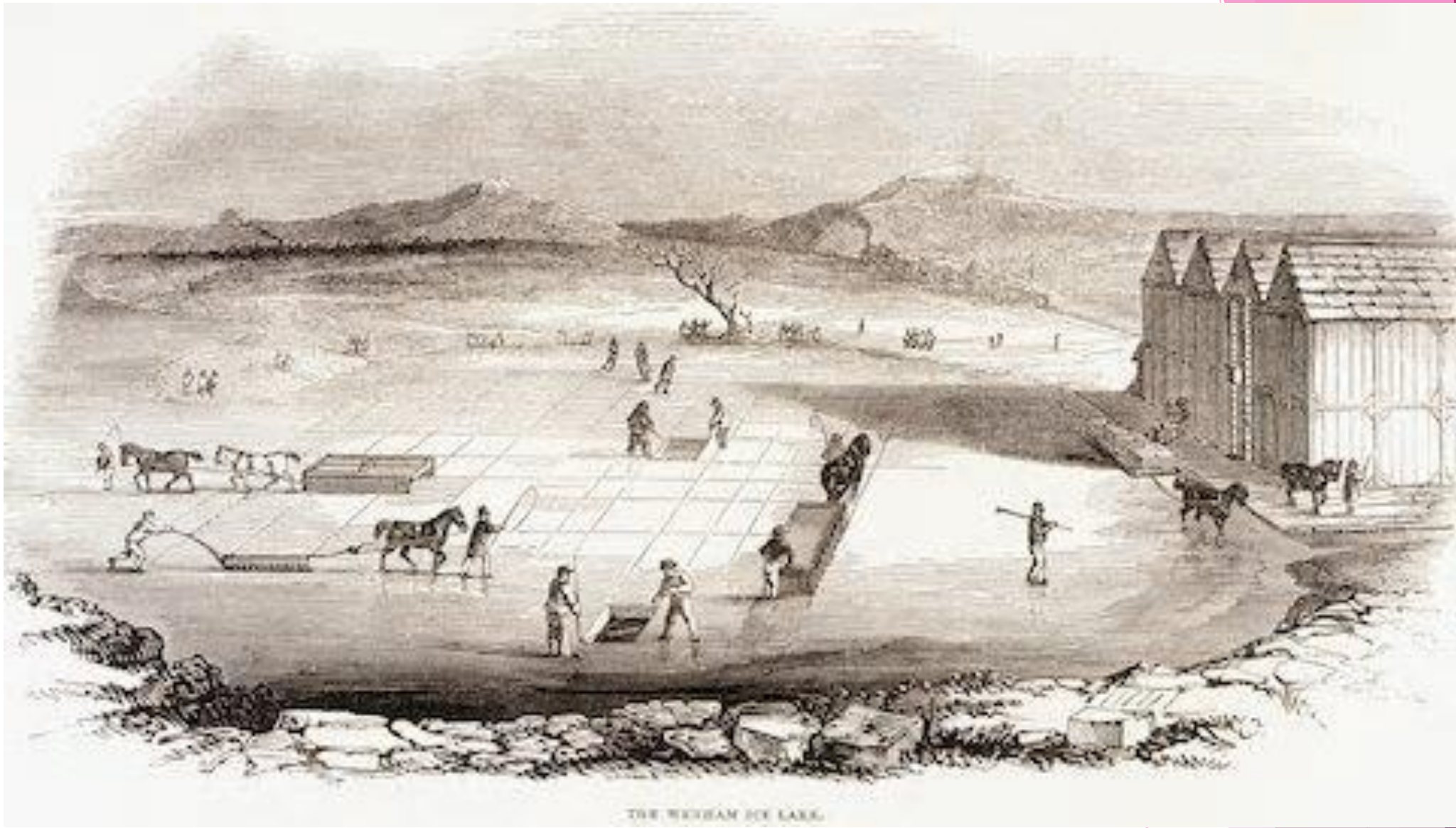
<https://www.youtube.com/watch?v=3x9rc-54s-l>

## **Thompson Ice House Harvesting Festival, Bristol, Maine**

<https://www.youtube.com/watch?v=J-phNH6iaM8>

## **Raquette Lake Ice Harvest**

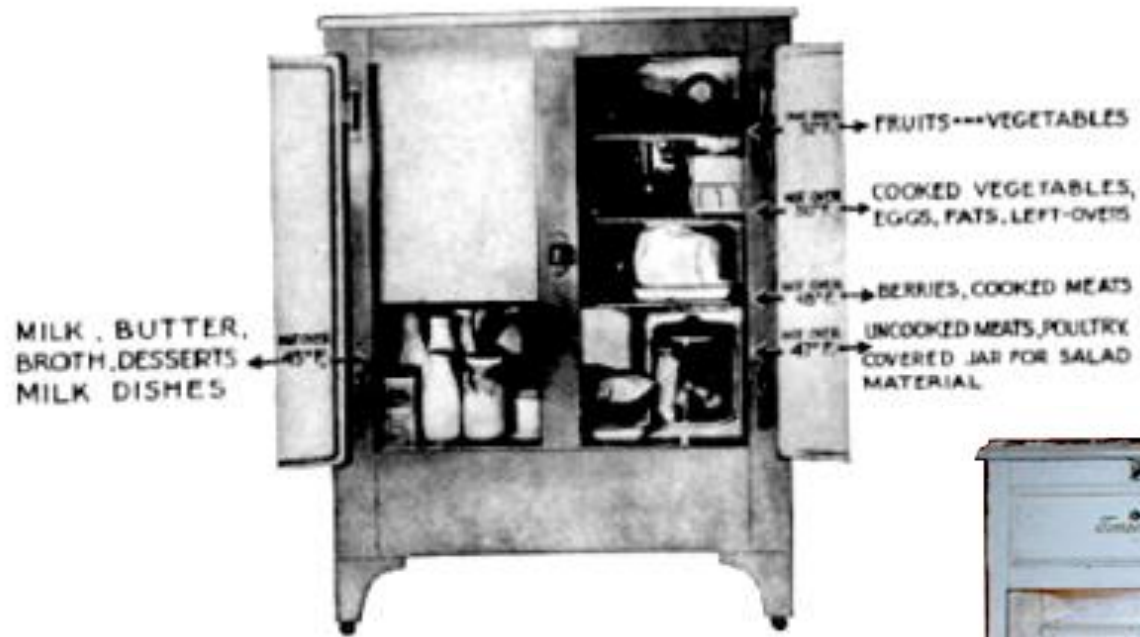
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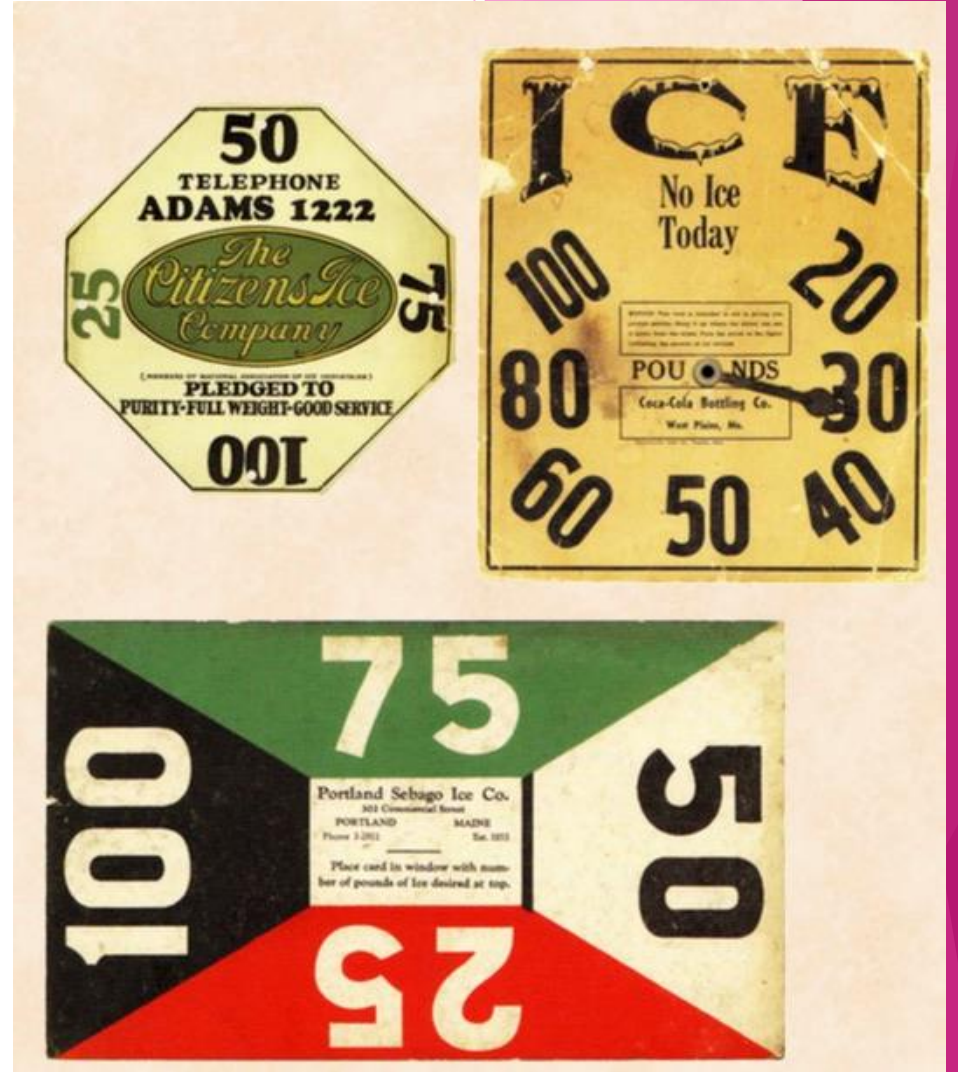
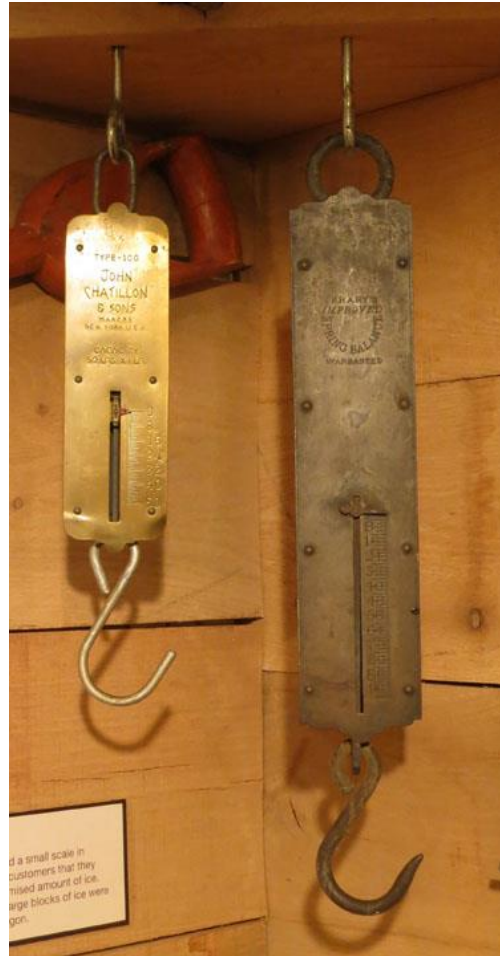
Ice pond at Croome Mansion, Worcestershire, UK. It was shallow just for the purpose of harvesting ice, and the meltwater fed back into the pond.



Conveyor belt used to move ice blocks from pond to ice house. Sandusky Bay (OH) off Lake Erie.



**Iceboxes**---The icebox was invented by an American farmer and cabinetmaker named Thomas Moore in 1802. (A) Norwegian icebox. The ice was placed in the drawer at top. (B) Typical Victorian icebox, of oak with tin or zinc shelving and door lining. (C) An oak cabinet icebox that would be found in well-to-do homes.



The iceman





**The ice and the 7-Eleven connection:** 7-Eleven stores trace their origin to 1927, when several icehouse companies—which primarily sold block ice to households without electric refrigerators—merged to form the Southland Ice Company in Dallas. Employee John Jefferson Green began selling eggs, milk, and bread from one of 16 ice house storefronts in Dallas.

**Ice Boxes:** This is a window ice-box that would fit on your window sill for use in winter. Let Mother Nature do your cooling (and freezing) for you!



## History of ice boxes and refrigerators:

1802 --- The icebox invented by American farmer/cabinetmaker T. Moore.

1834 --- the first working vapor-compression refrigeration system was built.

1854 --- the first commercial ice making machine was invented.

1913 --- refrigerators for home use were invented.

1920s --- “Freon” was first introduced in the closed-cycle systems. Prior to freon, gases used in refrigeration included **diethyl ether, ammonia, sulfur dioxide, methyl chloride, methyl formate** --- all toxic or flammable.

1923 --- Frigidaire introduced the first self-contained refrigerator.

1927 --- The “Monitor-Top” refrigerator was introduced by GE.

1940 --- freezer units were available as part of the refrigerator.

Early refrigerator companies were Frigidaire, Kelvinator, and Electrolux. These early refrigerators may have cost more than a Model-T car. Eventually, their affordability, and the use of safer freon for industrial use, caused the collapse of the natural ice industry.

## Early refrigerators

Refrigerator and freezer units became more common at homes during World War II, going into mass-production in the mid-1940s. Around this time, Albert Einstein had designed his own form of refrigerator.

These are models of the GE Monitor-Top (circa 1930s).



wiseGEEK

# How does a refrigerator or freezer work?

<https://www.youtube.com/watch?v=EIP3pSio7-M>

# Frozen Desserts and Cocktails

## History of Ice Cream (handout)

### THE DIFFERENCE BETWEEN ICE CREAM AND OTHER FROZEN DESSERTS

**Ice cream**  
A frozen treat has to have at **least 10% milkfat** to be labeled ice cream, according to the Food and Drug Administration. Ice cream is also churned as it's frozen to give it a lighter texture.

**Gelato**  
Thanks to using **less cream and more milk**, gelato has a lower fat content than ice cream. It's churned slower to give it a dense and creamy texture.

**Soft serve**  
Soft serve typically has **less milkfat than ice cream** and more air incorporated into it to achieve its fluffy texture.

**Frozen custard**  
Frozen custard contains at **least 1.4% egg yolk solids** and at least 10% milkfat, helping to give it a thicker consistency.

**Sherbet**  
Typically flavored with fruit, sherbet contains a lower milkfat content — **between 1 and 2%**. It also tends to be slightly sweeter than ice cream.

**Sorbet**  
This **nondairy dessert** is typically made using frozen juices, purees, and other flavorings like wine.

**Frozen yogurt**  
The process of making frozen yogurt is quite similar to ice cream, except ingredients **include yogurt cultures**.

SOURCES: Bon Appétit; US Food and Drug Administration; Saveur; Serious Eats; Thrillist

BUSINESS INSIDER

# Industry Standard Labels

## per the International Dairy Foods Association:

- “Reduced fat” ice cream contains at least 25 percent less total fat than the referenced product (either an average of leading brands, or the company’s own brand).
- “Light” or “lite” ice cream contains at least 50 percent less total fat or 33 percent fewer calories than the referenced product (the average of leading regional or national brands).
- “Lowfat” ice cream contains a maximum of 3 grams of total fat per serving (½ cup).
- “Nonfat” ice cream contains less than 0.5 grams of total fat per serving.

## Additives commonly found in ice cream:

acesulfame potassium	dextrose	polydextrose	artificial colors
disodium phosphate	polysorbate 60 or 80		artificial flavors
high fructose corn syrup	hydrogenated oils		carrageenan
modified food starch	potassium sorbate		cellulose gum
mono and diglycerides	sodium benzoate		corn syrup
natural flavors	sucralose		

# Let's crank some ice cream!

## The White Mountain Ice Cream Freezer Recipes

While we are cranking ice cream, please share any stories or memories of times when you made ice cream (Grandpa, parents, Brookie, etc.)

off-the-grid iceharvest: <https://www.youtube.com/watch?v=hb-nY6OpExc>

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