Food in Historical Perspective: Early Technologies — Transportation Refrigeration Canning

Anthropology of Food
University of Minnesota Duluth
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Food in Historical Perspective: Dietary Revolutions

- The Agricultural Revolution
  - The Search for Spices
- The Industrial Revolution
  - Transportation, Refrigeration, and Canning
- The Scientific Revolution
  - Modern-Day Adaptations
  - Summary
  - Highlight: Vegetarian Diets: Then and Now
by 1850 it was becoming clear that the ever-increasing number of urban laborers needed to be supplied with more abundant, cheaper food

if not, they would be unable to continue to provide the labor needed for the new industrialized economy

the situation was first recognized in England, but was soon noted in other European countries and the United States as well
Food and the Industrial Revolution

- technological advancements . . .
- made food cheaper . . .
- expanded the variety of foods available . .
- kept foods fresh longer . .

*The Cultural Feast, 2nd Ed., p. 63*
Food in Historical Perspective: Dietary Revolutions

- **Transportation**
  - Refrigeration
  - Canning
  - Unforeseen Drawbacks of Food Processing

- Summary
- Highlight: Vegetarian Diets: Then and Now
transportation

• **land transport was limited** . . .

• **canals** . . .
  • English, James Brindley, 1761 . . .
  • U.S., Erie, 1825 . . .

• **steamboats** . . .
  • Scottish, James Watt (1736 – 1819)
  • Robert Fulton 1803

• **“edge rail” railroads** . . .
  • English, William Jessop (1745 – 1814), 1803
  • U.S. transcontinental, 1869
transportation

• land transport was limited . . .

• canals

but that all changed . . .

and an excellent example relating to food, including the effects of the change on interconnected cultures, is . . .

• “edge rail” railroads . . .
  • English, William Jessop (1745 – 1814), 1803
  • U.S. transcontinental, 1869
the banana, in a way, tells it all . . .
the banana, in a way, tells it all . . .

. . . all of what was made possible in the late 19th and early- and mid-20th centuries with the arrival of new technologies . . .
including the advances in communications, and in mass marketing through “advances” in advertising technologies . . .
who doesn’t know Chiquita?

http://en.wikipedia.org/wiki/Chiquita
As an aside: How many know the current Chiquita banana — the Cavendish — is about to disappear?

http://en.wikipedia.org/wiki/Chiquita
back to business . . .

http://en.wikipedia.org/wiki/Chiquita
Carmen Miranda (1909-1955) became one of the great advertising legends of all time

http://en.wikipedia.org/wiki/Chiquita
Carmen Miranda

http://en.wikipedia.org/wiki/Chiquita
“Bananas will eternally be grateful for the marketing they got through Carmen Miranda”

“Bananas will eternally be grateful for the marketing they got through Carmen Miranda” and vice versa

... speaking of singers capitalizing on the banana in the non-fruit marketplace...

anyone that knows Harry Belafonte knows “The Banana Boat Song”
(Day-o, Day-ay-ay-o . . .)

and vice versa
The Banana Boat Song: 'Daylight come and me wan' go home ...'

Sunday, November 27, 2005

By Mark Roth, Pittsburgh Post-Gazette

It is probably Harry Belafonte's most famous song.

And the man who wrote it said it came straight from Jamaica's banana-growing culture.

The tune, known formally as "The Banana Boat Song" and informally as "Day-o," was adapted by songwriter Irving Burgie from a Jamaican folk song after World War II.

Mr. Burgie, 81 and living in New York City, said the folk song was slower and had a steadier, non-calypso beat than his version because it
back to business . . .

http://en.wikipedia.org/wiki/Chiquita
fruit companies became powerful players in world food production through their skillful development and integration of communication and advertising with evolving transportation technologies in rail and shipping . . . and with other technologies such as refrigeration . . .
This United Fruit Company banana carrier was built in Ireland in 1909

http://en.wikipedia.org/wiki/United_Fruit_Company
fruit companies became powerful players in world food production through their skillful development and integration of communication and advertising with evolving transportation technologies in rail and shipping... and with other technologies such as refrigeration... and they even combined that with a little pleasure...
PRINCESS OF THE ANTILLES

What more glorious trip than a cruise on a fine steamer from winter into summer? What more complete change for the overworked mind or body?

Twenty-four hours from Boston and you are in warm weather, and from that time you enjoy the never ending pleasures of smooth sailing on a southern ocean, the air invigorating, the skies clear, and the climate delightful. You sight the islands of the Bahama group, Hayti and Cuba, and in less than six days from Boston you land on Great Britain's fairest possession, the island of JAMAICA

far famed for its beautiful scenery and comprising every variety of climate of the torrid or temperate zones. Here you find fruits and flowers of every kind in the greatest abundance, fine hotels at $2.50 per day, and the finest walks and drives in the world; on every hand something to interest you.

There is no need of going to New York. Fine steamers leave Boston weekly, and make the round trip in fourteen days.

No better service on any transatlantic liner. American chef. Fresh meats and vegetables.

Every convenience on board for the comfort and luxury of passengers.

ROUND TRIP... $60 FOR EVERYTHING INCLUDED.

Passengers making round trip have the privilege of remaining on ship at $2.00 per day, while visiting various ports (usually two or three days) collecting fruit cargo.

Send for further information and booklet to COMPANY'S OFFICE, LONG WHARF, BOSTON FRUIT COMPANY.
"There the Pirates hid their Gold"—and every voyage, every port, every route of the Great White Fleet through the Golden Caribbean has the romance of buried treasure, pirate ships and deeds of adventure—centuries ago.

Today health and happiness are the treasures sought on the Spanish Main, and Great White Fleet Ships, built especially for tropical travel, bear you luxuriously to scenes of romance.

Cruises from 15 to 25 Days to CUBA, JAMAICA, PANAMA CANAL, CENTRAL and SOUTH AMERICA

Sailing of GREAT WHITE FLEET Ships from New York every Wednesday and Saturday; from New Orleans every Wednesday; Thursday and Saturday. For information write to PASSENGER DEPARTMENT United Fruit Company Steamship Service 17 Battery Place, New York.
and the corporate and industrial history leading up to
“The Banana Republics” is legendary . . .
unfortunately in a negative way
and it was all “made possible” with the development of modern-day technologies, in road building, railroad expansion, the development of modern refrigeration and refrigerated shipping, communications advances, and the like . . .
the banana was a major player in the 19th and 20th centuries with virtually every “unit of analysis” discussed the first week of the semester . . .

(see slide set “Units of Analysis”)
one of the best examples of the role of technology in the development of modern food companies involves the banana industry . . . disgraceful as it is in the eyes of most observers . . .
the industry started off with road building in Costa Rica in 1871 . . .

it grew up around the expansion of the railroad . . .

and became legendary with the establishment of refrigerated shipping . . .
unfortunately the legends are mostly negative . . .

involving what some — probably most — would consider the worst of everything modern food production and distribution has to offer . . .

• exploitation . . .
• disgraceful treatment of employees . . .
• dependence on a limited number of species leading to the disappearance of some . . .
  (and the current species, Cavendish is on the fast track to becoming “extinct” as an international trade product)
• illegalities on virtually every level and degree . . .
• corporate and individual lapses of ethics in many dimensions . . .
• and the list goes on . . .
linguistically, the term “banana republic” might even say it all . . .
For other uses, see Banana republic (disambiguation).

**Banana republic** is a term that refers to a politically unstable country dependent upon limited agriculture (e.g. bananas), and ruled by a small, self-elected, wealthy, and corrupt politico-economic clique.[1] The original concept of *banana republic* was a direct reference to a "servile dictatorship" that abetted (or supported for kickbacks) the exploitation of large-scale plantation agriculture, especially banana cultivation.[1] As a political science term *banana republic* is a descriptor first used by the American writer O. Henry in *Cabbages and Kings* (1904), a book of related short stories derived from his 1896–97 residence in Honduras, where he was hiding from the U.S. law for bank embezzlement in the U.S.[2]
if you are still looking at a class project an anthropological comparison of the banana and sugar industries and their cultural ramifications, could make an excellent one . . .
and you might even be able to put a personal “slant” on the topic by including one or more perspectives relevant to your own major
— from Accounting, to Advertising, to Zoology . . .
Food in Historical Perspective: Dietary Revolutions

- Transportation
- **Refrigeration**
  - Canning
  - Unforeseen Drawbacks of Food Processing

- Summary
- Highlight: Vegetarian Diets: Then and Now
Refrigerated Freight Car ca. 1870

Vicksburg Historical Society
http://en.wikipedia.org/wiki/Refrigerator_car
“The refrigerated railroad car was patented by J. B. Sutherland of Detroit, Michigan in 1867. He designed an insulated car with ice bunkers in each end. Air came in on the top, passed through the bunkers, and circulated through the car by gravity, controlled by the use of hanging flaps that created differences in air temperature. Workers sometimes placed salt in the bunkers to accelerate the melting of the ice and lower the temperature of the load.”
Some suggest that refrigerated railroad cars effectively put an end to the glory days of the cowboy era in America.

Refrigerated Freight Car ca. 1870

Vicksburg Historical Society
http://en.wikipedia.org/wiki/Refrigerator_car
"Herd Quitters"
Charles Marion Russell
(1864–1926)

http://en.wikipedia.org/wiki/Cowboy
“Herd Quitters“
Charles Marion Russell
(1864–1926)

http://en.wikipedia.org/wiki/Cowboy
refrigeration

• **the icehouse** . . .

• **the icebox** . . .
  • patented in 1803, but was little used until 1820s
  • cutting ice . . .

• **the mechanical refrigerator** . . .
  • patented as early as 1834
  • but only became commonplace in the U.S.A. more than a century later

*The Cultural Feast, 2nd Ed., p. 64*
ice houses of one form or another have been around for a long time . . .

and even in the mid 1950s they were still wonderful places to sneak away to and play (as most people then still didn’t have air conditioning)
Stocking the Eglinton ice house

the use of ice — and even the making ice cream —
(early on brought in usually for nobility from high altitudes)
has ancient origins . . .

Stocking the Eglinton ice house

About ice cream

Food historians tell us the history of ice cream begins with ancient flavored ices. The Chinese are generally credited for creating the first ice creams, possibly as early as 3000 BC. Marco Polo is popularly cited for introducing these tasty concoctions to Italy. This claim (as well as his introducing pasta to Italy) are questionable. The ice creams we enjoy today are said to have been invented in Italy during the 17th century. They spread northward through Europe via France. "French-style" ice cream (made with egg yolks) and its American counterpart, "Philadelphia-style," are (no eggs, or egg whites only) enriched products made with the finest ingredients. Vanilla is the most popular flavor of this genre. Food historians tell us this type of ice cream originated in the 17th century and proliferated in the early 18th.

As time and technology progressed, ice cream flavors (Pistachio, Rocky Road, Chunky Monkey) complicated confections (19th century Neapolitan
what change the world most profoundly was the commercialization of ice, and the invention of mechanical refrigeration . . .
The Cultural Feast, 2nd Ed., p. 64

refrigeration

• the icehouse . . .

• the icebox . . .
  • was patented in 1803, but was little used until 1820s
  • usually used ice cut from a lake or river . . .

• the mechanical refrigerator . . .
  • patented as early as 1834
  • but only became commonplace in the U.S.A. more than a century later
Ice cutting, Cedar Lake, Minneapolis
1/20/1947

Minnesota Historical Society
Location no. HD7.7 p72
Ice cutting, Cedar Lake, Minneapolis
1/20/1947
Minnesota Historical Society
Location no. HD7.7 p72
Cedar Lake Ice and Fuel Company employee putting ice in to an ice box, Minneapolis
ca. 1930

Minnesota Historical Society
Location no. HD7.7 p77
Negative no. 7941-B
the first job my father had was working for his older brother delivering ice, like you see here

people would put a sign in their window indicating how many pounds of ice they wanted on the day, and the delivery person would carry a big chunk of that size inside with a pair of wrought-iron “ice tongs”
• the icehouse...
• the icebox...
• patented in 1803, but was little used until 1820s
• cutting ice...
• Mark Roufs...
• mechanical refrigerator...
• patented as early as 1834
• more than a century later became commonplace in U.S.A.

1902
cost: $15 to $50

Cost of ice: penny a pound

The Cultural Feast, 2nd Ed., p. 64
A. Old Norwegian icebox.
The ice was placed in the drawer above the door.

B. Typical Victorian icebox highboy model.
Note tin or zinc shelving and door lining.

C. An exclusive oak cabinet icebox that would be found in the well-to-do homes.
Note the fancy hardware and latches. Ice goes in the left upper door.

Wikipedia
refrigeration

• the icehouse . . .

• the icebox . . .
  • patented in 1803, but was little used until 1820s
  • cutting ice . . .

• the mechanical refrigerator . . .
  • was patented as early as 1834
  • but only became commonplace in the U.S.A. more than a century later
The General Electric Monitor-style refrigerator
more like an icebox with its refrigerating mechanisms on top

antiqueappliances.com
“Hermetically sealed and permanently lubricated, the GE Monitor Top refrigerator remains the most recognized and most dependable refrigerator ever built. Hundreds, if not thousands, of these units remain in service today, offering their owners ‘quiet’, ‘dependable’ and ‘service free’ refrigeration.”

The General Electric Monitor-style refrigerator more like an icebox with its refrigerating mechanisms on top

http://homefront.yuku.com/topic/1115
antiqueappliances.com
The GE Monitor top refrigerator is perhaps the most recognized of vintage refrigerators. Built on the principal of a French industrialist concept for a hermetically sealed refrigeration system, the first models available to the general public, for residential use, were introduced in 1927, with the design remaining the same through 1936.

“With a price tag of only $300, these first models were considered “the first affordable refrigeration units for the average family”

antiqueappliances.com
refrigeration

• improved refrigeration plus faster transportation expanded available foodstuffs . . .

• vitamin deficiencies declined

• incidences of food poisoning decreased

*The Cultural Feast, 2nd Ed.*, pp. 64-65
refrigeration

• improved refrigeration plus faster transportation expanded available foodstuffs . . .

• vitamin deficiencies declined

• incidences of food poisoning decreased
• but food produced far from home “is not without its problems” . . .

cf., Ch. 6

“Food Technologies: How People Get Their Food in Industrial Societies”

*The Cultural Feast, 2nd Ed.*, pp. 64-65
Food in Historical Perspective: Dietary Revolutions

- Transportation
- Refrigeration
- Canning
  - Unforeseen Drawbacks of Food Processing

- Summary
- Highlight: Vegetarian Diets: Then and Now
canning

- older methods of preserving food included . . .
  - salting . . .
  - fermenting . . .
  - burying . . .
  - dehydrating . . .
  - smoking . . .
  - freezing . . .
  - dry freezing . . .

The Cultural Feast, 2nd Ed., p. 65
• vacuum-packed, airtight glass bottles for food . . .
  • invented by Nicholas Appert
  • 1809
  • for Napoleon, to supply food for his armies
  • treated the process as a military secret
  • French monopoly

The Cultural Feast, 2nd Ed., p. 65
• canning using tin cans . . .

• started in England

• in 1810 the Frenchman Peter Durand (also known as Pierre Durand) was granted a patent by King George III of England

• based his work on Nicolas Appert’s experiments

http://en.wikipedia.org/wiki/Canning
canning

• canning using tin cans . . .
  
• started in England
  
• Peter Durand (also known as Pierre Durand) did not actually can foods himself but sold his patent to two other Englishmen who set up a commercial canning factory and by 1813 were producing their first canned goods for the British army

http://en.wikipedia.org/wiki/Canning
canning

- canning using tin cans . . .
  - by 1818 a canning factory was turning out corned and boiled beef, veal, carrots, and vegetable soup
  - cheap
  - convenient
  - “didn’t get high marks for taste”

*The Cultural Feast, 2nd Ed.*, p. 65
canning

• canning using tin cans . . .
  
  • by 1818 a canning factory was turning out corned and boiled beef, veal, carrots, and vegetable soup
  
  • cheap
  
  • convenient
  
  • “didn’t get high marks for taste”

• safety was a problem
canning

- canning using tin cans . . .
- in the initial stages of the canning industry, sterilization processes were poorly understood
  - larger cans of meat were often contaminated

*The Cultural Feast, 2nd Ed.*, p. 65
canning

• canning using tin cans . . .

• by the end of the 19\textsuperscript{th} century, canned foods were providing industrialized populations with a diversity of fruits, vegetables, and meats not previously obtainable

\textit{The Cultural Feast, 2\textsuperscript{nd} Ed., p. 65}
Paul Buffalo’s mother, an Indian medicine woman from Leech Lake, refused to eat canned goods . . .

http://www.d.umn.edu/cla/faculty/troufs/Buffalo/pbwww.html#title
One of the first large canned food factories
Weiss brothers
Csepel-Budapest, 1885
http://en.wikipedia.org/wiki/Canning
• canning using canning jars . . .

• a final innovation, the mass production of canning jars in the second half of the 19th century, allowed for the economical home canning of food

*The Cultural Feast, 2nd Ed.*, p. 65
John Landis Mason
(1832–1902)

a native of Philadelphia,
a tinsmith,
patented the metal screw-on lid for
fruit jars that have come to be known
as “Mason jars”

"Patent Nov 30th 1858"

http://en.wikipedia.org/wiki/Mason_jars
Food in Historical Perspective: Dietary Revolutions

- Transportation
- Refrigeration
- Canning

**Unforeseen Drawbacks of Food Processing**

- Summary
- Highlight: Vegetarian Diets: Then and Now
Condensed milk...

- Original canned condensed milk provided a safe supply of nutrients to American Civil War soldiers.
- But later brands made from skimmed milk lacked the fat-soluble vitamins A and D, causing rickets in infants and children raised on canned skimmed milk.
- Poor families especially continued to use it because it was cheaper, in spite of warning labels.

*The Cultural Feast, 2nd Ed., p. 65*
Food in Historical Perspective: Dietary Revolutions

Unforeseen Drawbacks of Food Processing
also include . . .

• Summary
• Highlight: Vegetarian Diets: Then and Now
Unforeseen Drawbacks of Food Processing

• white bread . . .
Unforeseen Drawbacks of Food Processing

• white bread . . .

• from 1840 on nutrients, especially Vitamin B, were removed with iron roller milling

• the old mills removed the bran, but not the germ, from the wheat kernel

• the new iron roller mills removed both germ and bran
Unforeseen Drawbacks of Food Processing

• **white bread . . .**

  • white “bleached” flour became socially preferred because its higher status

  • white flour did not become rancid as quickly as wheat flours containing the oil of the germ
Unforeseen Drawbacks of Food Processing

• white bread . . .

• wheat eaters often had other foods available which supplied the missing vitamins, so the nutrient problems were not immediately evident.
• rice . . .

http://en.wikipedia.org/wiki/Rice
• rice

http://en.wikipedia.org/wiki/Rice
• rice . . .

• new milling techniques removed most of the essential B vitamins

• as people switched to polished rice, *beriberi* swept through the population
  
  • Vitamin B-1 deficiency disease that affects the nerves, heart and digestive tract

http://en.wikipedia.org/wiki/Rice
• rice . . .

• rice eaters in Southeast Asia and other places had more limited variety of foods available than the wheat eaters elsewhere, hence the negative health effects were “swift and corrosive”

http://en.wikipedia.org/wiki/Rice
The 19th century pursuit for colonies was, in part, a search for overseas markets for the products of the expanding industrial revolution.
Unforeseen Drawbacks of Food Processing

The 19th century pursuit for colonies was, in part, a search for overseas markets for the products of the expanding industrial revolution.

- in order for European and North American nations to maintain their own markets, industrial development in overseas countries was retarded.
  - in part, colonies were denied the technical and managerial skills necessary for industrialization.
  - “As a result, large sections of Africa and Asia remained hundreds of years behind Western countries in terms of economic growth.”

*The Cultural Feast, 2nd Ed., p. 66*
by the close of the 19th century, the social, economic, and dietary distinctions between “developed” and “underdeveloped” countries were clear the relationship between the developed and underdeveloped worlds, and its consequences for diet and disease in the modern world, is discussed in greater detail in Chs. 9 and 10 “Hunger in Global Perspective” “Addressing Global Food Issues”
Food in Historical Perspective: Dietary Revolutions

- The Agricultural Revolution of the Neolithic Era
- The Search for Spices
- The Industrial Revolution
- Transportation, Refrigeration, and Canning

**The Scientific Revolution**

- Modern-Day Adaptations
- Summary
- Highlight: Vegetarian Diets: Then and Now
“The scientific revolution ultimately led to our current level of knowledge about human nutrition and enabled us to exert an unprecedented control over food supply, health, and physical well-being”
“The scientific revolution ultimately led to the modern adaptation of vegetarian diets...”
Food in Historical Perspective: Dietary Revolutions

- The Agricultural Revolution of the Neolithic Era

“The scientific revolution ultimately led to our current level of knowledge about food supply, health, and physical well-being”

- Summary

- Highlight: Vegetarian Diets: Then and Now
Food in Historical Perspective: Dietary Revolutions

• The Agricultural Revolution of the Neolithic Era

“The scientific revolution ultimately led to our current level of knowledge about an unprecedented control over food supply, health, and physical well-being”

and for now . . .

• Summary

• Highlight: Vegetarian Diets: Then and Now
Day, me say day, me say day, me say day
Me say day, me say day-ay-ay-o
Daylight come and me wan' go home”