

The Ledger

Federal Reserve Bank of Boston's Economic Education Newsletter

Spring/Summer 2000

Economics in Your Own Backyard

This article focuses on the economic evolution of Worcester, Massachusetts, and the Blackstone River Valley. But on a more general level, it is also about rediscovering the treasures in our own backyards. Every community is rich in undervalued resources – artifacts, photo archives, old work sites, workplace memories passed on to us by neighbors – useful tools for helping students make the connection between economics and the wider world. A good place to learn more about using these tools is the local historical society in your town or county.

Hot Tip

You don't have to spend \$30,000 a year to have a quality educational experience. Here's an alternative:

- head for the Worcester Historical Museum in Worcester, Massachusetts;
- pay the \$3.00 admission; and
- spend an hour going through

In Their Shirtsleeves..., a permanent exhibit that chronicles the industrial innovation and economic diversity that made Worcester one of America's most successful mid-sized cities.

In Their Shirtsleeves... uses artifacts, audio reminiscences, videos, computer displays, and a collection of wonderful old prints and photos to tell a compelling story that spans more than 200 years. And when your visit is over, you'll walk away with a clear understanding of how and why economic conditions change.

For those of you planning a visit . . .

The Worcester Historical Museum

30 Elm Street

Worcester, Massachusetts

Phone: (508) 753-8278

Hours: Tuesday through Saturday,
10 a.m. to 4:00 p.m.

Web site: www.worcesterhistory.org

And for those of you who live too far away to make the trip, below are some of the highlights from *In Their Shirtsleeves...*

Worcester Basics

Worcester, Massachusetts is 44 miles west of Boston. The Blackstone River, which was important to Worcester's early economic development, runs 46 miles to the southeast and drops 438 feet through a series of waterfalls before it empties into the Atlantic Ocean at Providence, Rhode Island.

Worcester provides an ideal vantage point for looking at the process of economic change. The shift from agriculture to industry, a century of industrial prosperity, de-industrialization, and the successful transition to a post-industrial economy – Worcester has been through it all.

Economic opportunity has drawn people to the central Massachusetts city since the early 1700s. They have come to sell their crops, dig the Blackstone Canal, lay track for the Providence and Worcester Railroad, and earn a decent living in mills and factories.

There have been times, especially during the 1970s, when Worcester's best days seemed to be in the past. But as the 21st century begins, the city appears to have found a path to post-industrial prosperity with a new economic mix that includes:

- higher education (Assumption, Clark, Holy Cross, and Worcester Polytechnic Institute);
- health care (the University of Massachusetts Medical Center);
- high tech/biotech (Massachusetts Biotechnology Research Park);
- transportation (a revitalized airport); and
- entertainment/leisure (the Worcester Centrum).

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The Ledger

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1710 1730 1750 1770 1790

1713: After two failed attempts, English colonists establish a permanent settlement on the site of present-day Worcester. For the next 100 years, it remains a relatively small "market town" where farmers from the surrounding countryside come to sell their produce. Many of the farm families supplement their income by producing yarn, homespun cloth, and home-made handicrafts.

1789 – 1793: When Samuel Slater emigrates to the United States in 1789, he carries the secrets of English textile technology in his head. Within four years, he and his American financial backers are operating Slater Mill on a site where the Blackstone River rushes past Pawtucket, Rhode Island. Water power from Pawtucket Falls runs the machinery that spins cotton into yarn. During the next 20 years, a number of other water-powered textile mills open up in the Blackstone Valley.

1814: Worcester lacks sufficient water power to run large-scale textile mills. But in 1814 a Worcester company, Merrifield & Trowbridge, begins to produce machinery for turning cotton into cloth. Many of the company's machines are sold to textile mills in the Blackstone Valley.

1830 1840 1850

1831: Ichabod Washburn opens a factory in Worcester to produce metal wire.

1835: The Boston & Worcester Railroad provides a cheap, efficient way

1847: The Providence and Worcester Railroad provides a cheaper, more reliable alternative to the Blackstone Canal.



to ship finished products from Worcester to Boston. And it's a lot faster than making the trip by oxcart.

1880 1890 1900 1910

1885: Metalworking industries are expanding, and that's creating demand for better grinding wheels. Norton Company, using a process pioneered by Swedish inventor Sven Pulson, begins to produce high-quality grinding wheels made from a ceramic material. (Remember, Franklin Norton and his cousin began as potters in 1858.) The Norton wheels are made from a mixture of clay, emery, and water that is fired in a kiln. The ceramic-based wheels are a big improvement over the old wooden grinding wheels that were coated with glue and embedded with emery.

1899: Washburn & Moen is acquired by American Steel & Wire.

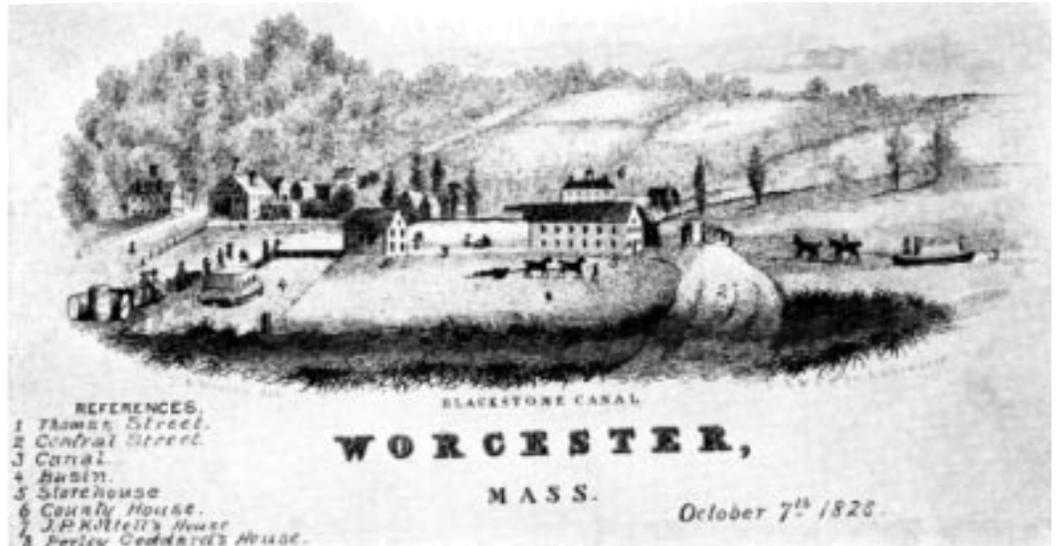
1901: American Steel & Wire becomes a division of U.S. Steel. This reflects two economic trends: 1) American companies are consolidating, and 2) a growing number of factories are no longer run by local owners.

1810

1830

1828: The Blackstone Canal connects Worcester to Providence. The canal runs parallel to the Blackstone River for 90 percent of its length; a series of 49 locks makes it possible for boats to bypass the river's falls.

One of the big economic benefits to Worcester: The cost of shipping freight to Providence via canal is nearly 50 percent less than the overland freight cost from Worcester to Boston.



1860

1870

1880

1849: The Blackstone Canal Company goes out of business. It can't compete with the railroads.

1858: Two cousins, Franklin B. Norton and Frederick Hancock, leave their hometown of Bennington, Vermont to open a Worcester pottery shop, where they make jugs, jars, storage and cooking pots, pitchers, spittoons, and beer bottles. Their shop will eventually evolve into the Norton Company, one of the world's foremost producers of industrial abrasives. (See 1885.)



1880: Ichabod Washburn's wire manufacturing company has become Washburn & Moen, the largest wire producer in the world. Some of its products – telegraph wire, telephone wire, suspension cable for bridges – reflect the growing economic importance of communications and transportation. Another product, barbed wire, provides an inexpensive way to fence in the open range of the American West.

Another product, barbed wire, provides an inexpensive way to fence in the open range of the American West.

1920

1930

1940

1950

1914: Local corset firms employ 1,500 women.

1918: Worcester is declared the most efficient war production zone in the United States. (For those of you who aren't too good with dates, 1918 was the last year of World War I.)

1929-1940: Worcester feels the effects of the Great Depression.

1940-1945: Defense production gives Worcester a temporary economic boost. But when World War II ends, lower-cost foreign and domestic competitors continue to erode the city's traditional manufacturing base.

Worcester Economic Timeline, 1713-1945

Gone But Not (Totally) Forgotten

The names of old-time manufacturing firms had a straightforward, almost tactile quality. They left little doubt as to what a company made or who was in charge. And the companies themselves were such a strong presence that they often seemed like permanent fixtures in places like Worcester.

But nothing lasts forever. New technology and changing tastes make old products obsolete. Or companies pack up and move to distant places where labor is cheaper and more compliant.

And even though new enterprises often replace the old, it's hard not to feel a little nostalgic for the days when you could tell a lot about a company just by reading its sign.

The Loss of Select Worcester Manufacturing Companies, 1950-1992

1950	Royal Worcester Corset Company	corsets and girdles
	Whittall Carpet Company	carpeting
1953	Heywood Boot and Shoe	men's shoes
1955	Bell Company	woolens and worsteds
1958	Reed-Prentice Corporation	machine tools
1960	Pullman Standard	railroad passenger cars
1962	Graton & Knight	industrial belting
1969	Worcester Stamped Metal	metal machine parts
1971	American Steel & Wire	wire mfg. division
1973	Harrington & Richardson	firearms
1974	U. S. Envelope	envelopes
1977	American Steel & Wire	steel and electrical cable
1978	Worcester Molded Plastics	plastic household goods
1980	Crompton & Knowles	looms
1983	Curtis & Marble	textile machines
1984	Rexnord (Baldwin Chain)	industrial chainbelts
1986	Johnson Steel & Wire	wire
1987	Reed & Prince	screws and fasteners
1991	Coes Knife	industrial knife blades
1992	Heald Machine	grinding machines



Worcester "Firsts" and Fast Facts

- 1826 The Coes brothers, of Worcester, obtain a patent for the screw wrench – better known as the monkey wrench.
- 1850 Worcester hosts the first national women's suffrage convention.
- 1855 Joshua Stoddard invents the steam calliope in Worcester.
- 1887 *Scientific American* credits Worcester resident Charles Thurber with the invention of the first American typewriter.
- 1900 The Whitney Valentine Company makes Worcester the center of the American valentine industry.
- 1906 From 1906 to 1961, the Worcester Lunch Car Company manufactures diners, some of which are still serving up pie and coffee to hungry customers throughout the Northeast.
- 1971 Graphic designer Harvey Ball creates the smiley face, a 1970s icon.
- 1972 Worcester's David Clark Company designs and manufactures high altitude flying suits for the U. S. Air Force and NASA.

Above: 1906 – A lunch car from the Worcester Lunch Car Company.
Right: 1855 – Joshua Stoddard and his steam calliope.



Photos on pages 1 to 4 are courtesy of the Worcester Historical Museum.

Want to know more?

Blackstone River Valley National Heritage Corridor: www.nps.gov/blac/

The Worcester Historical Museum: www.worcesterhistory.org/

A good site for anyone interested in the construction and operation of the Blackstone Canal: www.hollowcreek.com/blstone.html

Read All About It!

Engines of Enterprise: An Economic History of New England, edited by Peter Temin
Harvard University Press, \$24.95 (not available through the Federal Reserve Bank)



In October 1998, the Federal Reserve Bank of Boston hosted a conference on "Growth and Development of the New England Economy." The papers and discussions from that conference form the basis of this new book.

The following description of the book appeared on the Harvard University Press web site:

New England's economy has a history as

dramatic as any in the world. From an inauspicious beginning as immigration ground to a halt in the eighteenth century, New England went on to lead the United States in its transformation from an agrarian to an industrial economy. And when the rest of the country caught up in the mid-twentieth century, New England reinvented itself as a leader in the complex economy of the information society. This dramatic story is told in a sequence of narrative essays written by preeminent historians and economists.

- Margaret Newell surveys the colonial period in New England, discussing the organization of agriculture and growth of trade over two centuries.

- Winifred Rothenberg describes the economic revolution that took place during the Revolutionary period in New England, when the growth of markets transformed industrial production.

- Peter Temin surveys the transforma-

tion of New England from an agricultural to an industrial region.

- Joshua Rosenbloom continues the story through the Great Depression.

- Lynn Browne and Steven Sass carry the story from the Second World War to the end of the twentieth century, describing how New England reinvented itself to lead the economy, producing (and exporting) intangible services such as education and software.

The final chapter poses questions raised by the preceding narrations. Bernard Bailyn argues that slavery, while not prominent in colonial New England, was a part of the economy. Merritt Roe Smith contends that the federal government also played a crucial role in the development of New England industrial skills. And Paul Krugman discusses the factors that make for regional growth in general and asks if New England can count on the prosperity of the past to generate future economic growth.



Fed Challenge 2000

Team members from Gorham High School in Gorham, New Hampshire, celebrate the fact that they are heading to Washington, D.C., to represent the First Federal Reserve District in Fed Challenge 2000. The happy man on the cell phone is teacher Mike Brosnan. Next to him are, L to R: Niklas Brosnan, Matthew Labonville, Rosalind Stever, Zack Demers, Gabe Graff, Wesley Turner, and technical advisor Chad Miller. Gorham won a hard-fought regional competition that included teams from Boston Latin School, Boston, MA; The Bromfield School, Harvard, MA; Choate Rosemary Hall, Wallingford, CT; and Winchester High School, Winchester, MA. Fed Challenge is a national competition in which high school students analyze current economic conditions and formulate a monetary policy recommendation. The students' efforts mirror those of the Federal Reserve's Open Market Committee, which is responsible for setting U.S. monetary policy.

By the Numbers

A Statistical Snapshot

Each edition of *The Ledger* highlights at least one statistic related to economic change. This issue looks at four:

- U.S. farm productivity, 1800-1960,
- U.S. urban growth, 1840-1960,
- U.S. urban/rural population split, 1800-1960,
- Raw steel produced in U.S., 1860-1920.

Yes, the titles sound dry, but the numbers behind them tell a story about how and why an economy evolves. The story begins in the early 19th century. Two American political factions, with very different visions of the future, are vying for dominance.

One faction, led by Alexander Hamilton, is convinced that manufacturing, banking, and urban growth are the keys to future prosperity. The opposing faction, led by Thomas Jefferson, believes that representative government cannot thrive without a strong core of independent farmers.

Which would prevail? A quick glance at the numbers will tell you almost everything you need to know.

1800: Only 5.7 percent of the U.S. population lives in urban areas. Small farms employ a large number of people because farming is very labor intensive; 373 man-hours go into producing 100 bushels of wheat.

1840: Agricultural productivity is much higher than it was in 1800. New technology – metal-tipped plows, mechanical reapers, improved threshers, and increased use of fertilizer – has made it possible to produce more food with less labor.

But as farmers have become more productive, Jefferson's vision of an agrarian society has begun to fade. The number of Americans living in urban areas has nearly doubled since 1800, in part because the children of farm families are leaving home and heading for the city – especially in New England. Some are drawn by the opportunity to earn steady cash in factories

and textile mills. Others are being forced off the land because the small farms where they grew up can no longer compete with the larger, more productive farms in places like Ohio, Indiana, and Illinois.

1880: More than 70 percent of Americans still live in rural areas, but the United States is well on its way to becoming an urban, industrial economy. The percentage of people living in urban areas has almost tripled since 1840. Chicago alone has gone from fewer than 5000 people in 1840 to more than 500,000 in 1880. And the U.S. economy is becoming much more industrial. One example: Raw steel output has increased from 13,000 short tons in 1860 to 1,397,000 short tons in 1880.

1920: The 1920 U.S. Census shows that for the first time a majority of Americans live in urban areas. The small, independent farmer is still an important American icon, but there's no denying that the United States has evolved into a full-fledged urban, industrial economy. Figures for raw steel output testify to the growth of industry: 1,397,000 short tons in 1880; 46,183,000 in 1920.

New technology and better techniques made farming less labor intensive . . .

U.S. Farm Productivity, 1800-1960					
	1800	1840	1880	1920	1960
Wheat (Man-hours per 100 bushels)	373	233	152	90	12
Corn (Man-hours per 100 bushels)	344	276	180	122	11
Cotton (Man-hours per bale)	601	438	303	296	47

Source: *Historical Statistics of the United States, Colonial Times to 1970*, U.S. Department of Commerce, Bureau of the Census

Economic opportunity attracted a steady stream of newcomers . . .

Urban Growth, 1800-1960					
	1800	1840	1880	1920	1960
Atlanta	*	*	37,409	200,616	487,455
Boston	24,937	93,383	362,839	748,060	697,197
Chicago	*	4,470	503,185	2,701,705	3,550,404
Detroit	*	9,102	116,340	993,078	1,670,144
Los Angeles	*	*	<20,000	576,673	2,479,015
New York	60,515	312,710	1,206,299	5,620,048	7,781,984
Philadelphia	41,220	93,665	847,170	1,823,779	2,002,512
Pittsburgh	*	21,115	156,389	588,343	604,332
St. Louis	*	16,469	350,518	772,897	750,026

Source: U.S. Department of Commerce, Bureau of the Census

Note: Atlanta, founded in 1837, was little more than a railroad junction in 1840. Chicago and Detroit were remote trading outposts in 1800. And Los Angeles, a cow town with fewer than 2,000 inhabitants, was still part of Mexico in 1840.

1960: Farm productivity has risen dramatically since 1920, but farmers have almost become victims of their own efficiency because high farm yields are holding down prices for crops and livestock. But the low prices benefit consumers, and according to the 1960 census nearly 70 percent of the U.S. population now lives in urban areas. The census also shows that Boston and St. Louis have lost population since 1920 – a sign that the migration to suburbia has begun in earnest. But that’s another story.

Postscript: How far removed are we from Jefferson’s vision of an agrarian republic? A *New York Times* article on the hardships of family farmers offers some insights.¹ It focuses on McPherson County, Nebraska, at the end of the 20th century:

- In 1997, McPherson County had the lowest per capita income of any county in the United States: \$3,961 (New York County, a.k.a. Manhattan, had the highest: \$68,686.)

- Like most rural areas, McPherson County continued to lose population during the 20th century. In 1920, it had a population of 1,692 but by the end of 1999, only 540 people still called it home.

- The percentage of Americans living on farms and ranches declined from 42 percent in 1900 to less than 2 percent in 1999.

¹“As Life for Family Farmers Worsens, the Toughest Wither,” Nicholas D. Kristof, *The New York Times*, Sunday, April 2, 2000, page 1.

The percentage of people living in urban areas continued to climb . . .

U.S. Urban/Rural Split, 1800-1960 (numbers rounded to nearest thousand)			
	Urban	Rural	% Urban/Rural
1800	322,000	4,986,000	5.7/94.3
1840	1,845,000	15,224,000	10.8/89.2
1880	14,130,000	36,026,000	28.2/71.8
1920	54,158,000	51,553,000	51.2/48.8
1960	125,269,000	54,054,000	69.9/30.1

Source: U.S. Department of Commerce, Bureau of the Census
 Note: “Urban” is defined as a place that has a population of 2,500 or more; “rural” is 2,500 or less.

One measure of industrial growth was the increase in steel production . . .

Raw Steel Produced, U.S., 1860-1920 (1,000 short tons)	
1860	13
1880	1,397
1900	11,227
1920	46,183

Source: *Historical Statistics of the United States, Colonial Times to 1970*
 U.S. Department of Commerce, Bureau of the Census

Economic Education Councils & Centers

The National Council on Economic Education – a nonprofit partnership of leaders in education, business, and labor – has worked to foster economic education since 1949. Its teacher training affiliate, EconomicsAmerica, provides training and support to more than 120,000 teachers a year.

New England currently has three EconomicsAmerica affiliates:

Maine Council on Economic Education
 P.O. Box 9715-159
 Portland, ME 04104-5015
 Phone: (207) 780-5926
 Fax: (207) 780-5282
 e-mail: econmaine@aol.com

Economic Education Council of Massachusetts
 2060 Turnpike Street
 North Andover, MA 01845
 Phone & Fax: (978) 691-2774
 e-mail: jcdlstewart@worldnet.att.net

Rhode Island Council on Economic Education
 Rhode Island College
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 Phone: (401) 456-8037
 Fax: (401) 456-8851
 e-mail: jblais@grog.ric.edu
 e-mail: pmoore@grog.ric.edu

If you live outside New England and would like to find out how to contact the EconomicsAmerica affiliate in your area, visit the National Council on Economic Education web site: www.nationalcouncil.org

Or write to:
 EconomicsAmerica
 National Council on Economic Education
 1140 Avenue of the Americas
 New York, NY 10036

Correction

The Winter 1999/2000 issue of *The Ledger* incorrectly stated that “more than \$450 billion worth of U.S. currency was held outside the United States in 1998.”

According to Treasury Department estimates, the correct figure was close to \$300 billion. The \$450 billion figure represented the *total* amount of U.S. currency in circulation during 1998.

Worth a Thousand Words

Anyone who has spent time looking at old photos knows that the experience can be vaguely unsettling. The people in them, frozen for all time in a single instant of work or play, have a way of drawing us into their world. Their eyes look out at us from across the years, and we can't help but wonder if their dreams and fears were at all like ours.

Worth a Thousand Words uses the power of archival photos and prints to focus on New England economic history.

It *is* rocket science!

There's a scene from the film *Apollo 13* when an astronaut radios mission control with this chilling message: "Worcester, we have a problem."

Cut!!!

Every film buff knows the line is really, "*Houston*, we have a problem." Less well known is the fact that Worcester, Massachusetts, played a key role in aerospace history.

Dr. Robert Goddard, a Worcester native and a member of the Clark University physics department, developed and successfully launched the world's first liquid-fueled rocket at his Aunt Effie's farm in neighboring Auburn, Massachusetts. Lift-off was at 2:30 p.m. on March 16, 1926, and according to Goddard's diary the rocket

"rose 41 ft, & went 184 ft, in 2.5 secs, after the lower half of nozzle had burned off."

Eventually Dr. Goddard moved his test launches to Roswell, New Mexico – a site with better year-round weather, better visibility, and "a minimum of people and houses on it, where rockets could rise, or crash, or even explode without wear and tear on neighbors' nerves."

But Worcester still maintains a strong link to Robert Goddard through Clark University's Goddard Archives. If you are at all interested in

rocketry – and even if you think you're not – be sure to check out the archives online:

<http://libref.clarku.edu/archives/archivesintro.htm>

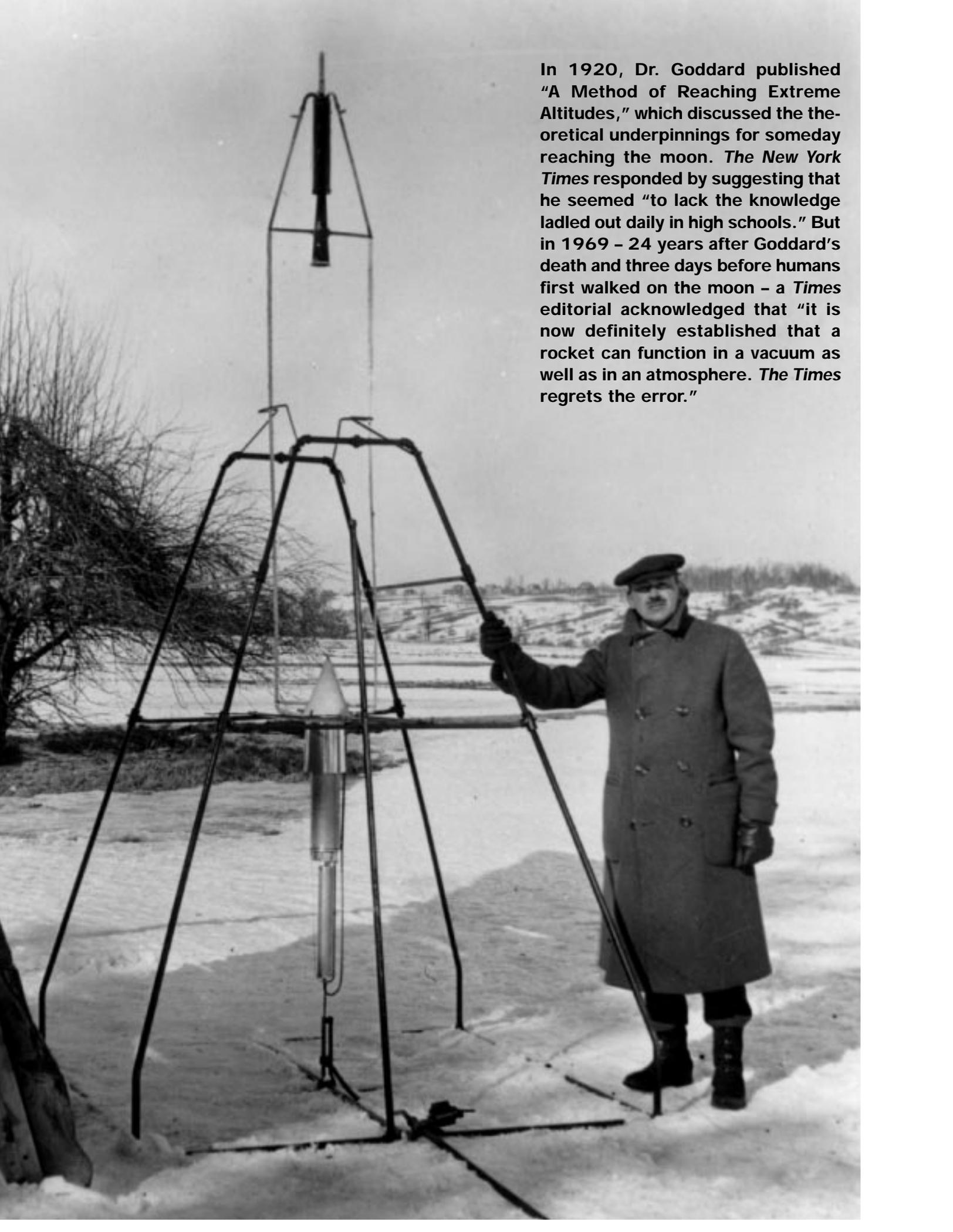
It's a fun site, packed with fascinating detail.



Photos courtesy of Clark University Archives



In 1920, Dr. Goddard published "A Method of Reaching Extreme Altitudes," which discussed the theoretical underpinnings for someday reaching the moon. *The New York Times* responded by suggesting that he seemed "to lack the knowledge ladled out daily in high schools." But in 1969 - 24 years after Goddard's death and three days before humans first walked on the moon - a *Times* editorial acknowledged that "it is now definitely established that a rocket can function in a vacuum as well as in an atmosphere. *The Times* regrets the error."





Current Value of Old Money

www.ex.ac.uk/~RDavies/arian/money.html, scroll down to **Other Sources of Monetary History**, click on **current value of old money**

How much was an English pound worth in 1770?

It's a question that often prompts anxious parents to call our bank: "My fifth-grader is doing a project on causes of the American Revolution and there's this question about taxes and English pounds and . . . oh, what are we going to do? The assignment is due *tomorrow*."

Relax! The British have come to our rescue with a web site maintained by Roy Davies at the University of Exeter.

One of the highlights is "Dollar-Pound Exchange Rates, 1800-1997." But that is only the beginning. There are also links to:

- "How Much Did Things Cost in Roman Times?"

- "English Consumer Prices, 1264-1998"
- "Treasure and Prices in Spain 1505-1650"
- "US Inflation Calculator, 1800-1999"
- And more

Note: For those who are curious about the directory name *arian* in the site's URL, Mr. Davies explains that it is "the Welsh word for *money*. It also means *silver*, which was for many centuries the most common metal for making coins."

Taking a Whack at Industrial History

http://k12s.phast.umass.edu/~masag/industrial_history.html

Any web site that can figure out a credible way to connect "industrial history" and "Lizzie Borden" deserves a look.

The Massachusetts Studies Project developed this site as a way to help teachers and students tackle the Commonwealth's curriculum frameworks for social studies and

economics. But you don't have to be from Massachusetts to benefit from the material, nor do you even need to be a student. There's a lot of interesting stuff here.

The site's major components are:

- links to primary source materials;
- a teachers guide;
- a link to *Lizzie Borden and Fall River*, a University of Massachusetts-Amherst industrial history course adapted for use in grades 7-12;
- an industrial history bibliography.

The "Online Primary Sources" included in the industrial history bibliography are particularly useful. Be sure to check out the Kids Info. link on immigration and the industrial revolution:

www.kidinfo.com/American_History/Industrial_Revolution.html

A Bit of Boston Folklore

www.bpl.org/WWW/print/brinksjob.html

Okay, this one might not have a direct application to economic education, but it has a lot to do with money. And it's fun, too.

The Print Department of the Boston Public Library has put together a photo retrospective to commemorate the 50th anniversary of the Brink's robbery. The exhibit, located in the Wiggin Gallery Balcony of the BPL, is open Monday-Friday, 9 a.m. to 5 p.m., through December 2000. And you won't have to rob a bank to get in. Admission is free.

continued on page 12



Just the Facts

BOSTON, January 17, 1950
Investigators from the Boston Police Department immediately interviewed Brink's employees at the crime scene. Judging by the expression on everyone's face, clues were scarce. Note to the style conscious: Check out the beautiful old overcoat on the uniformed officer.

Photo: Boston Public Library Print Department

A Question of Economics

A Question of Economics focuses on questions related to economics in everyday life. Anyone can submit a question – students, teachers, anyone at all. And the question need not be complicated. In fact, the more it pertains to daily life, the better.

Send your question to:

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If we use your question, we'll send you a bag of shredded money for each person in your class (limit 35).

The question in this issue was submitted via e-mail from Braintree, Massachusetts.

● ● ● ● “Why is college so expensive?”

The “fat envelope” arrives from the college of your choice. You’re in!

But your troubles aren’t over. Before you know it, the college bursar’s office will be mailing your first bill, and it’s going to be a big one.

Higher education doesn’t come cheap. During the 1999-2000 school year, the average annual cost – tuition and fees, books and supplies, room and board, transportation, and “other” – was \$10,909 at a 4-year public college and \$23,651 at 4-year private college. And those are average costs. Students can expect to pay anywhere from \$30,000 to \$36,000 a year at a “highly selective” private college.

Yes, financial aid can help to reduce the cost, and according to The College Board, more money than ever was available in 1999.

But 58 percent of it was in the form of student loans, compared with just over 40 percent in 1980-81.

Why is going to college so expensive? Let’s approach the question from a few different angles.

1. Expensive compared to what?

When asked for his thoughts on the subject, a colleague at the Boston Fed didn’t miss a beat: “The ‘flip’ economist answer would be that college really isn’t expensive compared to the cost of *not* going to college.”

In order to spare him the wrath of all those who are buried under a mountain of college debt, we won’t publish this colleague’s name. But there’s merit in what he says. Just look at the earnings differential between college and high school graduates.

Over the course of a lifetime, those differences add up to “real money.”

Median Annual Earnings, 1997	
Bachelor’s Degree	\$40,100
High School Graduate	\$26,000

Source: Bureau of Labor Statistics from Bureau of the Census, unpublished data.

Median Annual Household Income, by Educational Attainment of Householder, 1997	
Bachelor’s Degree	\$59,048
High School Graduate	\$33,779

Source: U.S. Census Bureau (www.census.gov/hhes/income/histic/fo18.html)

2. Higher costs get passed on to consumers.

“Higher education” is a business, and whenever a business incurs additional costs, it will pass those costs on to consumers if it can. Numbers from the National Center for Educational Statistics show that the amount colleges spent per student went up significantly during the 25-year period from 1970 to 1995:

	Expenditures per Full-Time (in 1995-96 constant dollars)		
	1970-71	1995-96	Increase
Public 4-Year Colleges	\$15,308	\$20,579	34.4%
Private 4-Year Colleges	\$20,006	\$28,623	43.1%

Source: National Center for Education Statistics, U.S. Department of Education.

What are colleges spending more money on? According to an article in *The Chronicle of Higher Education*, “salary increases for faculty members and the costs of improving computer access and student amenities on campus” have had the biggest impact on per-student costs during the 1990s.

The increased per-student costs were reflected in higher tuition and fees paid by students and their families:

Average Tuition & Fees at 4-Year Colleges, 1971-71 to 1996-97 (in constant dollars)			
	1971-72	1996-97	Increase
Public 4-Year Colleges	\$1,519	\$3,102	104.0%
Private 4-Year Colleges	\$7,351	\$13,411	82.4%

Source: The College Board.

3. Higher education is a hot product.

When demand increases, producers often tend to push up the price of their product. Colleges are no exception.

Between 1980 and 1998, the number of full-time college students increased by more than 32 percent.

Demand is particularly strong at highly selective colleges, which often receive a dozen or more applications for each opening in the freshman class. And many of those applications come from students whose families are willing to pay top dollar because they are convinced that getting into the "right" school is the key to future happiness and prosperity. Bottom line: Colleges can charge as much as

Total Number of Full-Time Undergraduates Enrolled in U.S. 4-Year Colleges	
1980	6,315,000
1990	7,234,000
1998	8,364,000

Source: U.S. Census Bureau.

they do because so many of us are willing to pay the price.

Want more information?

- *Trends in College Pricing*, an informative 23-page report, is available on the web site for The College Board: www.collegeboard.org
- For a comprehensive look at how much colleges spent per student, from 1929-30 to 1995-96, visit the National Center for Educational Statistics web site: <http://nces.ed.gov/pubs99/digest98/d98t336.html>

Those of you who don't live near Boston can still get the facts on the famous heist by visiting the Library's web site:

www.bpl.org/WWW/print/brinksjob.html

• **Fun Fact:** Only \$51,906 of the Brink's cash was ever recovered. Most of it eventually ended up in the Federal Reserve Bank of Boston's vault, where it was sent for safekeeping.

• **Economic Education Connection:** Maybe there *is* a way to make this into an "educational" experience. The amount of cash stolen in the Brink's Robbery topped \$1.2 million. (An additional \$1.5 million in checks, money orders, and securities was stolen as well.)

Go to the Minneapolis Fed web site and use the "What's a Dollar Worth?" calculator to determine how much the \$1.2 million in cash would be worth today. (The cash was stolen in 1950.)

The URL for the Minneapolis Fed site is: <http://woodrow.mpls.frb.fed.us/economy/calc/cpihome.html>

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