

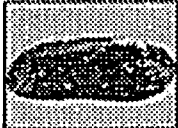
**U.S. Fish & Wildlife Service**

Freshwater Mussels of the Upper Mississippi River System



## History of Mussel Harvest on the River

"One Button/Clam" - historical footage



Spectaclecase



Threeridge



Purple wartyback



Elephantear



Spike



Yellow sandshell



Pistolgrip

### Pearls

In the 1800s, it was common for people to collect mussels and look for treasure on the Upper Mississippi River; that treasure was freshwater pearls found in native mussels. Some historians have compared this treasure hunt to the gold rush in California. The fever to find a pearl was so intense that people literally killed millions of mussels. In some areas of the river, entire mussel beds were eliminated. But the effect of the pearl rush on mussel populations was minor compared to the rush to make buttons out of mussel shells.

#### Natural pearls

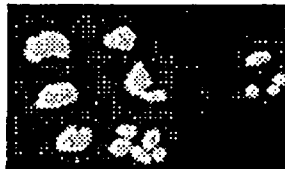
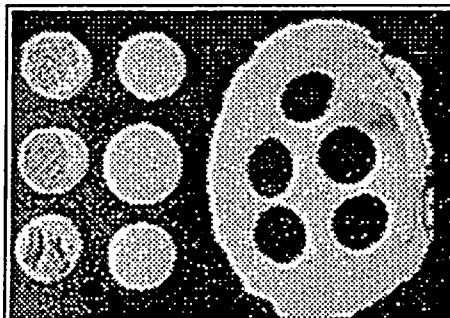


Photo: Illinois State Museum

### Buttons

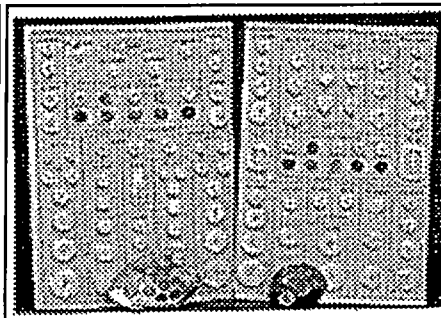
In 1889, the German button maker Johann Böpple pioneered the use of freshwater mussel shells in America. Special machines punched out buttons by the millions; the best buttons came from mussels with thick shells, like the yellow sandshell and the pistolgrip.

#### Drilled threeridge mussel and button blanks



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#### Button display



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Sixty button factories were located in the Mississippi River Valley by 1899—these factories harvested over 21,000 tons of shell in the vicinity



Ebonyshell



Wabash pigtoe



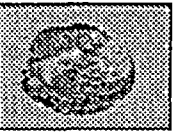
Washboard



Sheepnose



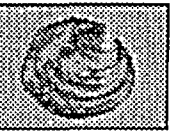
Round pigtoe



Monkeyface



Wartyback



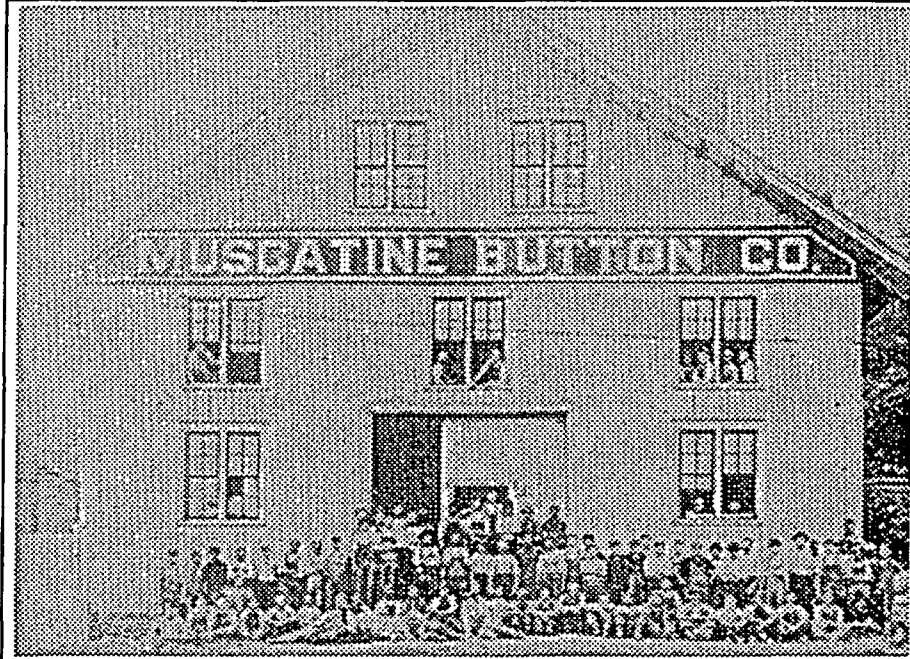
Pimpleback



Mapleleaf

of Muscatine, Iowa. Less than ten years after its inception, the industry supported thousands of workers and was valued at over \$23 million (1998 US dollars).

Muscatine Button Company



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In the early 1900s, portions of the Illinois River were considered the most productive mussel stream per mile in America. A clammer could make about ten dollars a week (and more if he found a pearl) compared to a dollar a day for the average laborer in 1899. By 1922, the freshwater mussel fishery was considered one of the largest and most profitable inland fisheries in the U.S.

30  
PA

Clammers



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Button factory workers



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Used shell

Billie Button



Elktoe



Flat floater



Rock pocketbook



White heelsplitter



Creek heelsplitter



Flutedshell



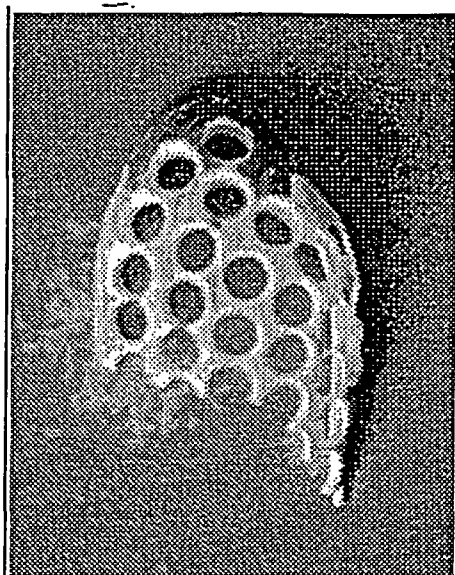
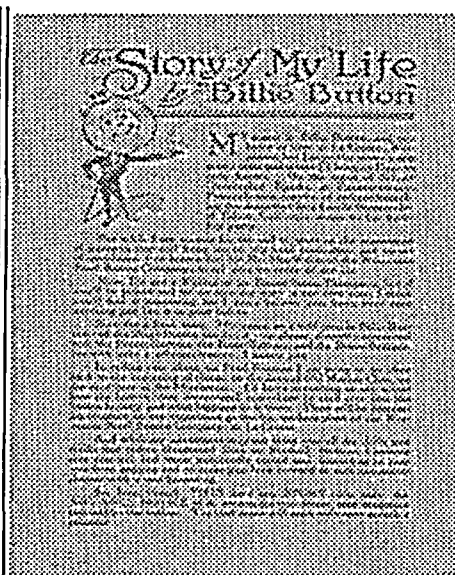
Giant floater



Salamander mussel



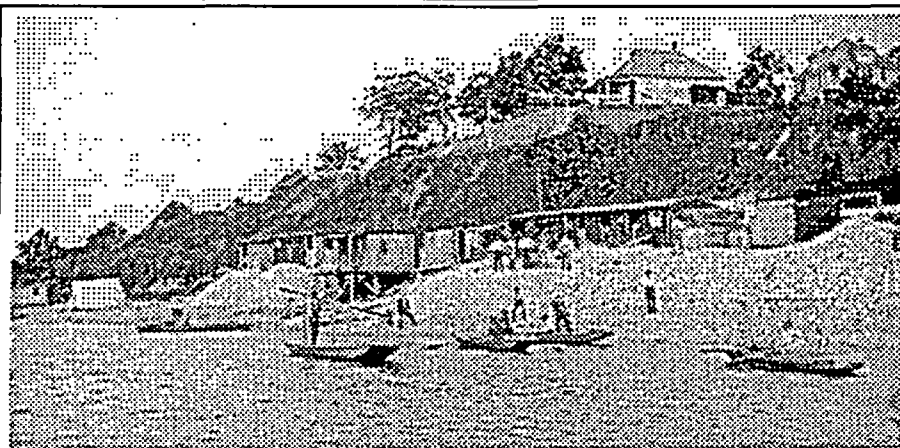
Creeper

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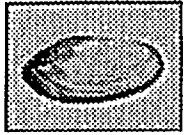
A fascinating account of the button industry is told by the fictional Billie Button in the booklet "The Story of My Life by Billie Button".

The button industry declined rapidly after 1930 in response to overexploitation and the dwindling supply of marketable shells. For example, harvest of mussels from Lake Pepin (an impoundment of the Upper Mississippi River near Lake City, Minnesota) dropped from more than 3,000 tons to just 150 tons between 1914 and 1929 as mussel beds were literally wiped out. (30)

**Mountains of shells rose up alongside the Mississippi as clambers made a living harvesting mussels to supply the button industry.**

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In 1914, the U.S. Bureau of Fisheries established the Fairport Biological Station to develop methods to culture freshwater mussels as an alternative to harvesting mussels from the rivers. Between 1914 and 1919, many of the Upper Mississippi River states adopted harvest



Paper pondshell



Mucket



Butterfly



Plain pocketbook



Higgins' eye pearly mussel



Fatmucket



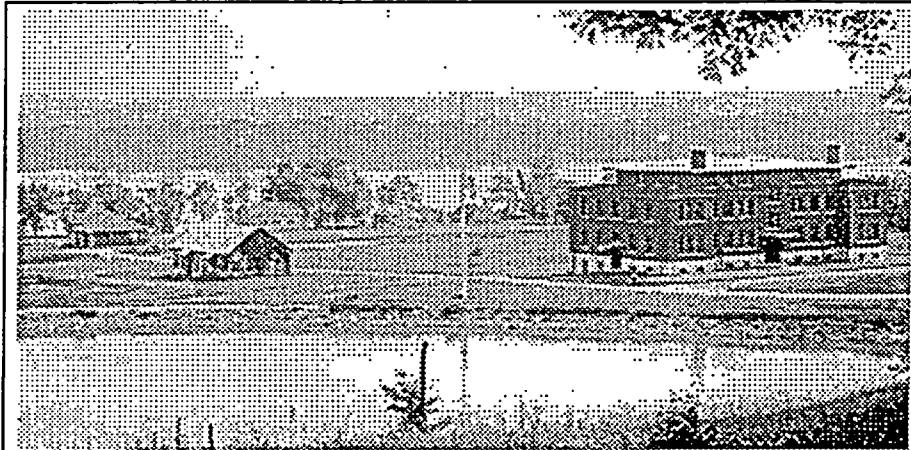
Yellow sandshell



Fragile papershell

regulations, but these regulations occurred too late to save the mussel fishery.

Fairport Biological Station, 1920. From the left, the temporary lab, the tankhouse, the boathouse, shed, and main laboratory.



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A summary of the button industry and culture activities can be found in "An Historical Analysis of Mussel Propagation and Culture: Research Performed at the Fairport Biological Station".

### Cultured Pearls

Commercial shelling had a resurgence in the 1950s because mussel shells from the Mississippi River were found to be excellent seed material for the growing cultured pearl industry. Kokichi Mikimoto of Japan discovered that when spherical beads created from the shells of freshwater mussels were placed into marine pearl oysters, they served as exceptional nuclei as the oyster surrounded the beads with secretions from the nacre (this is what gives pearls their opalescent sheen).



Kokichi Mikimoto (photo: Mikimoto Company, Japan)

### Cultured pearls

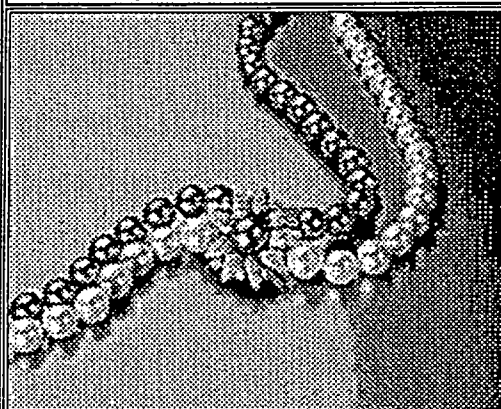
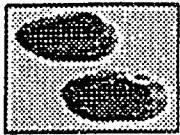


Photo: Mikimoto Company, Japan





Black sandshell



Pondmussel



Threehorn wartyback



Hickorynut



Pink heelsplitter



Fat pocketbook



Pink papershell



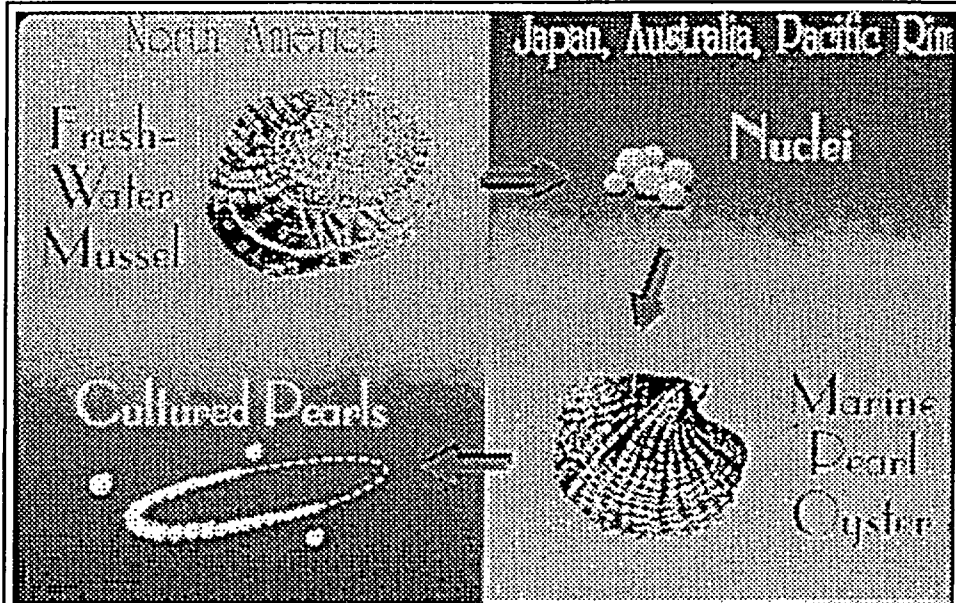
Bleufer



Lilliput

To process a cultured pearl, freshwater mussel shells are sliced, cubed, and rounded and are implanted in a marine oyster, which lays its own nacre over the bead.

#### The cultured pearl process



The cultured pearl process

Photo: Tom Watters, Ohio State University

By 1990, the expansive industry boasted retail sales exceeding \$3 billion (1998 U.S. dollars). Ultimately about 90% of the weight of a cultured pearl is the shell of a native freshwater mussel!! The harvest of freshwater mussel shells for cultured pearls is a destructive process because much of the shell is lost during the processing—a ton of shell produces about 40 to 60 pounds of nuclei.

These photos provide several views of a large mussel processing operation near Muscatine, Iowa. The photos were taken in 1986. The mussels were being processed (cooked) and their shells were being bagged for shipment to Japan for use in the cultured pearl industry.



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[Click for larger scale](#)



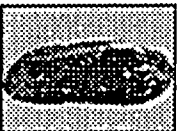
Fawnsfoot



Deertoe



Ellipse



Spectaclecase



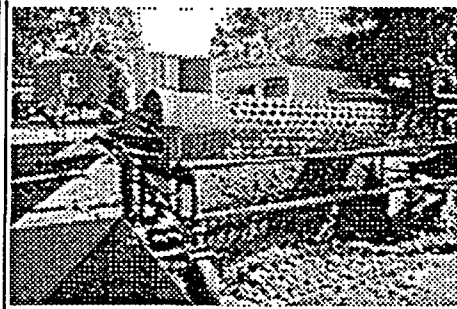
Threeridge



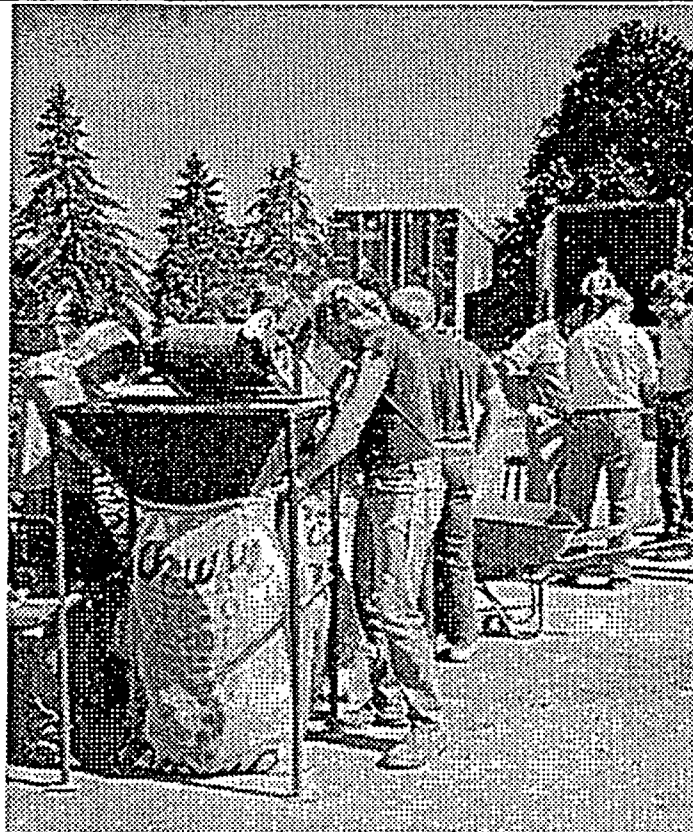
Purple  
wartyback



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In the Upper Mississippi River System, at least 18 species, half of which are considered endangered, threatened, or a species of special concern by at least one of the states bordering the Upper Mississippi River, presently have some commercial value.

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*Last updated on September 30, 2003*  
<http://midwest.fws.gov/mussel/harvest.html>