

Winners' cup

For 100 years, the paper cup has been a product whose time keeps coming

GREGORY GRISHCHENKO

Every day, millions love their morning coffee in a paper cup. They've forgotten that the best thing about paper cups is what they *don't* contain. Tuberculosis. Influenza. *Death*.

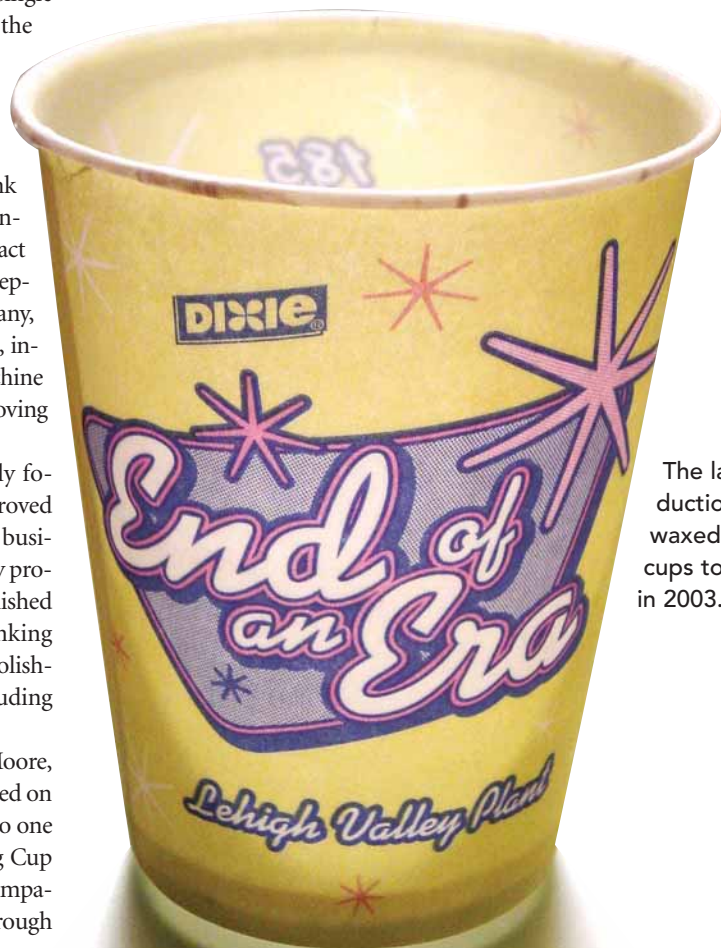
A century ago, Boston lawyer Lawrence Luellen had already become interested in the concept of a manufactured paper drinking cup that could be delivered by a vending machine and connected to a water cooler. At the time, public places often featured common water vessels with a single tin dipper shared by all. (Not coincidentally, the two leading causes of death in the United States at the turn of the century were pneumonia and consumption, or TB.)

By 1908, Luellen had patented a porcelain machine that dispensed a paper cup and a drink of water for a penny. Luellen's innovations included the idea of nesting the cups for compact distribution, and a flange on the cup for easier separation. Not long after incorporating his company, American Water Supply Co. of New England, investors voted to ditch production of the machine and the sale of water to concentrate on improving the real star product: the paper cup.

Their timing took advantage of a rapidly fomenting fervor in the United States for improved standards of public health. In 1908, Luellen's business got a boost when Alvin Davison, a biology professor at Lafayette College in Easton, PA, published his influential paper, "Death in School Drinking Cups." In 1909, Kansas passed the first law abolishing public drinking cups in public places, including trains and railroad stations.

Luellen and his college roommate, Hugh Moore, partnered in several localized companies focused on selling cups; but in 1910, they consolidated into one firm incorporated as the Individual Drinking Cup Co. Luellen assigned his patents to the new company for cup production. The company went through

several name changes for the patented cups, eventually acquiring the now-familiar name "Dixie" around 1919. (The Dixie brand is now owned by Georgia-Pacific.) By that time, more than 100 railroads throughout the country, including the Pennsylvania Railroad, Illinois Central and Pullman Company lines, used the cups. The company soon expanded its market to drug stores and soda fountains. The post-World War I flu epidemic cemented the value of disposable drinking cups in the public consciousness.



The last production run of waxed Dixie cups took place in 2003.

Paper cup consumption

TAKING STOCK

Since then, disposable paper cups have been the preferred choice for drinking on the run. This helped create the industry in the United States and Europe with such names as Maryland Cup, Lily Tulip Cup,

Sweetheart Cup, Solo Cup and Polar Cup. In the 1970s, Maryland Cup and Lily Tulip Cup were acquired by Sweetheart, which in turn was purchased by Solo Cup two years ago. Polar Cup is now part of the Finnish company Huhtamaki Oyj.

Development of special grades for cup stock by major paper companies took off with the arrival of polyethylene-coated paper for cups in the 1950s. Again, the paper cup was ready to take advantage of increasing public demand, this time due to the development and

rapid expansion of the fast food industry.

Numerous paper companies dedicated their research to establish the industry standards for quality cup stock. Leading paper companies like International Paper Co. and Enso spent more than 40 years providing a variety of cup stock with basis weight from 105 to 150 lbs. for the industry's major cup producers.

After World War II, the constantly rising demand led to the creation of specialized companies concentrated on designing and building commercial cup machines. Currently, a few dozen such companies located across the globe build cup machines and re-

lated equipment; but only two leading companies manufacture state-of-the-art paper cup machines that can produce all sizes and shapes of quality cups and containers at high production speed: privately-held Paper Machinery Corp. (PMC) and German manufacturer Michael Hörauf GmbH.

Each uses a different approach to a two-piece cup automated fabrication process. PMC wraps a side wall blank around an already pre-formed bottom piece, while Hörauf forms both parts of the cup separately and joins them together later in the process. Both companies acknowledge their intentions to make their machines as difficult as possible to replicate by counterfeiters.

MODERN MARKETS

Today, the United States is the world's largest consumer of paper cups (see chart). Of 220 billion cups per year used worldwide, 130 billion cups are consumed in North America. The food service sector accounts for approximately 30% to 40% of total output, and fluctuates following the public's taste for fast food and drinks.

In the rest of the world, the paper cup retail business is almost non-existent, with the exception of the tiny "party products" niche. In Western Europe and Japan, the growth of the food service paper cup market is constrained by environmental regulations for packaging disposal. During the last decade, China has experienced a sharp rise in both areas of paper cup use driven by the explosive growth of the Chinese consumer market.

For the last five years, the global food service industry has been in recovery mode after a few tough years. U.S. demand for foodservice paper disposables is projected to rise around 4% per year to about \$15 billion in 2008. In Europe, the foodservice single-use sector is forecasted to grow by a rate of 2% to 3% through 2008, according to Foodservice & Packaging Institute economic research.

The strongest growth is expected in Central and Eastern Europe (Poland, Czech Republic and Russia). China, with its booming economy, 1.3 billion consumers and annual growth of disposable income in urban areas topping 9%, has become a leading paper and paperboard user (16% of the world total consumption). Expansion of quick-service brands in China will lead to double-digit growth of paper disposables, including cups. No longer is paper-cup making an entirely domestic business for North America.



The Springfield, MO facility of Solo Cup Co., one of the largest manufacturers of disposable foodservice products in the world.



STILL STANDING TALL (OR VENTI)

In the United States, another recent public fervor has kicked paper cup consumption into a caffeinated overdrive: coffee. The coffee shop expansion worldwide, led by Starbucks, is generating growing demand for disposable, environmentally friendly cups. According to the company's 2006 Corporate Social Responsibility (CSR) Annual Report, Starbucks purchased 2.3 billion cups during its '06 fiscal year. By partnering with Solo Cup Co. to research and create the first FDA-approved cup made with 10% post-consumer fiber, Starbucks estimates that 11,300 fewer tons of wood are used per year to produce its cups. Solo manufactures 100 million cups and lids for Starbucks every month.

In fact, to curb its cup consumption, Starbucks has instituted a program that might worry Luellen: customers bringing in their own reusable cup receive a 10-cent discount per beverage purchase. (Presumably, multiple customer sharing is discouraged.)

Considering the anticipated market expansions described above, however, the paper cup seems poised to claim another 100 years of growth and adaptation to public demand. 360

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Paper cup making used to be an entirely U.S. domestic business, but today a growing flow of Chinese-made paper cups, such as this one containing facial tissue, show up in discount stores and even major supermarket chains in the United States.