FLOUR POWER

The Significance of Flour Milling at the Falls

David B. Danbom

In the late-nineteenth century the United States experienced an industrial surge that fascinated the world. Rebounding from a devastating Civil War, the country threw rail lines across the continent, cut forests and dug mines at a furious pace, rapidly populated cities, and built mills and factories larger than anyone could have imagined just a few years before. By 1890 the United States had passed Great Britain and Germany to become the world's leading industrialized country and number-one producer of timber products, petroleum, iron and steel, packed meat, and flour—the bone and muscle of the world's first industrial economy.

The nation's dynamic growth in the postbellum period drew strength from many factors, including an expanding rail system, a rich resource base,

Background: *Detail from a bird's-eye lithograph of Minneapolis, 1885, suggesting the importance of the industrial central riverfront to the growing city.* Above: *St. Anthony Falls industrial district, including the west-side mills and Stone Arch Bridge, 1947*

energetic entrepreneurs, and a vital work force. But much of the impressive expansion was rooted in a vibrant, growing, and productive agricultural sector.

Almost unnoticed by contemporaries bedazzled by the wonders of the industrial age, the number of the nation's farms, the amount of farmland, and the production of most agricultural commodities more than doubled in the quarter century after the end of the Civil War. While agriculture burgeoned in most sections of the country, the expansion was most impressive on the Great Plains, America's last great agricultural frontier. First, cattle ranchers and, then, wheat farmers pushed onto the plains, sometimes with the encouragement of railroads and sometimes on their own. By the early 1870s insightful observers could see in western Minnesota and eastern Dakota Territory a future breadbasket for the nation and the world.

The ranchers and farmers who peopled the plains were thoroughly modern economic men. They were commercial producers, heavily involved in the market. They were dependent on modern technology, in the form of the railroads, to carry their animals and crops to market and to provide their families with many of the necessities of life. And they applied technology liberally in their own work. By using reaper-binders, riding plows, improved seed drills, and horse- or steam-driven threshing machines, wheat farmers cut the labor requirements of their crop in half between 1840 and 1880. This made wheat production on a stupendous scale possible. In the early 1880s bonanza farmer Oliver Dalrymple, as impressive in his field as millers Cadwallader Washburn and Charles Pillsbury were in theirs, was producing 600,000 bushels of wheat in good years on 30,000 acres that he managed west of Fargo, Dakota Territory.[1]

The millers at St. Anthony Falls and the wheat farmers of western Minnesota and Dakota enjoyed a symbiotic relationship. The millers provided the farmers with an attractive market close by, and the farmers provided the millers with the lifeblood of the mills. Wheat farming, the milling industry, and Minneapolis grew together, with the result that a small village was transformed almost overnight into a great city that eclipsed its more established neighbor, St. Paul.

David Danbom, professor of history at North Dakota State University, Fargo, is the author of Born in the Country: A History of Rural America *(1995) and is currently completing a history of Fargo during the Great Depression.*

Minneapolis's growth did not go unnoticed by contemporaries. Between 1880 and 1890 the city's population rose by 350 per cent, a rate noteworthy even in a country in which 101 cities at least doubled their populations during the 1880s. Observers were struck not only by the population growth, fueled by the in-migration of both Yankees and European immigrants, but also by the rapidity with which the town achieved maturity. Its culture and refinement seemed represented especially by the University of Minnesota and by a new $150,000 library, its churches, and its regard for education. Minneapolitans might have come to make money, but they quickly made homes, transforming a raw frontier village into a sophisticated city in less than a generation. As *Harper's Weekly* observed in 1890, "With churches, schools, and educational organizations of one kind or other as a foundation, Minneapolis has built for herself a social fabric that is in every way creditable to the high standard of Western civilization."[2]

To be sure, visitors commented on Minneapolis's relative maturity and sophistication, but what fascinated them were the flour mills, especially their scale and efficiency. Writing about the Pillsbury A Mill in *Lippincott's Magazine* in 1884, journalist F. E. Curtis estimated that, when it was running at peak capacity, "the aggregate quantity of wheat taken to mill and of flour taken away . . . make one hundred and ten car-loads daily. Four days' product would load an ocean steamer. . . . The flour must be packed and loaded at the rate of five hundred and twenty barrels an hour, or more than eight per minute." Two years later, Minneapolis author Eugene V. Smalley noted that in 1885 the 26 largest flour mills in the city had

> consumed . . . 24,000,000 bushels of wheat and made 5,450,163 barrels of flour—an amount more than sufficient to supply with bread the entire population of the city of New York. . . . The wheat demanded for the daily consumption of the mills requires for its transportation 266 cars, or a solid train of a mile and three-quarters in length, and . . . to move the daily product of flour and mill-stuff there are required 328 cars and 16 locomotives, or more than two miles of solid train.[3]

Curtis and Smalley and others of their generation were fascinated by the changes in scale that were part and parcel of the industrial revolution in the United States. In the years after the Civil War, men and women saw such familiar local institutions as the iron forge, the

slaughterhouse, and the local grist mill eclipsed by steel mills, packing houses, and flour mills that employed thousands and measured output in thousands and even tens of thousands of units daily. The big mills at St. Anthony Falls, such as the Pillsbury A and Washburn A, were the equivalents in flour to the factories of Carnegie Steel, Standard Oil, Swift, and Armour.

By any standard, the scale of the industry in Minneapolis was impressive. In 1870 the city's millers produced more than 200,000 barrels of flour. Twenty years later they were producing about 7,000,000 barrels annually, of which about one-third were exported. In 1884 Minneapolis surpassed Budapest as the world's leading flour miller. And in 1915–16 flour production peaked at 20,443,000 barrels—more than 100 times what it had been 45 years before.[4]

In explaining Minneapolis's spectacular rise to dominance in the industry, commentators stressed the city's natural endowments. Smalley, for example, held that "for favorable conditions for grinding wheat no place in the world can compare with Minneapolis, if success is the measure of natural advantages." With magnificent

Minneapolis's major industry, flour milling, employed these men at the Washburn A Mill, about 1875.

Innovative entrepreneurs Cadwallader C. Washburn (left) and Charles A. Pillsbury, whose companies developed the Pillsbury's Best and Gold Medal brands that dominate the market today. Pillsbury's office, about 1883, featured a telephone and electric fan; Washburn was considered a father of modern milling technology.

waterpower that could be harnessed at the Falls of St. Anthony, rich spring-wheat lands stretching hundreds of miles to the west, and the proximity of Great Lakes shipping lanes, Minneapolis could justly be called "Nature's Metropolis," a term historian William Cronon coined to describe Chicago.[5]

The natural advantages of St. Anthony Falls are clearer in retrospect than they were in prospect. In the days before electrical power or dependable steam engines, waterpower sites were desirable for all sorts of industries that needed to power machinery. In common with most of the other falls in the upper Midwest, St. Anthony originally attracted sawmill owners eager to turn the pine forests of the north country into housing for the nation's growing population. Two of the great figures in the history of flour milling at St. Anthony Falls, William and Cadwallader Washburn, got their start—and their capital—in the lumber business. Water that can saw wood can also turn grindstones, and small grist mills were also erected at waterpower sites such as St. Anthony Falls. In 1870 there were 13 flour mills there, a tiny portion of the 507 mills counted in the state. Most flour came from local grain ground for local consumption. Any surpluses were shipped down the Mississippi to St. Louis or New Orleans, markets that could be reached only a few months during the year. Other Minnesota towns such as Faribault, Northfield, Red Wing, and Winona enjoyed their own natural waterpower advantages in addition to their proximity to the wheat fields of southern and eastern Minnesota.[6]

To some degree the millers at St. Anthony Falls benefited from changes in the agricultural regime. Wheat farming spread west and north into regions closer to Minneapolis than to its rivals in Chicago, Milwaukee, and southern Minnesota. As that shift was taking place, farmers in eastern and southern Minnesota were de-emphasizing wheat and embracing enterprises that promised more stable incomes and higher per-acre returns, such as dairy and corn-hog farming. But it was not natural or economic forces alone that made Minneapolis the milling center of the world. The milling industry and the city it nurtured also benefited from a remarkable group of men.[7]

Shrewd, entrepreneurial capitalists saw economic possibilities in Minneapolis's natural situation and shaped nature in ways that would benefit capital. They tamed, controlled, and re-engineered the falls. They adopted the technological and business innovations that allowed them to dominate their enterprise. And they

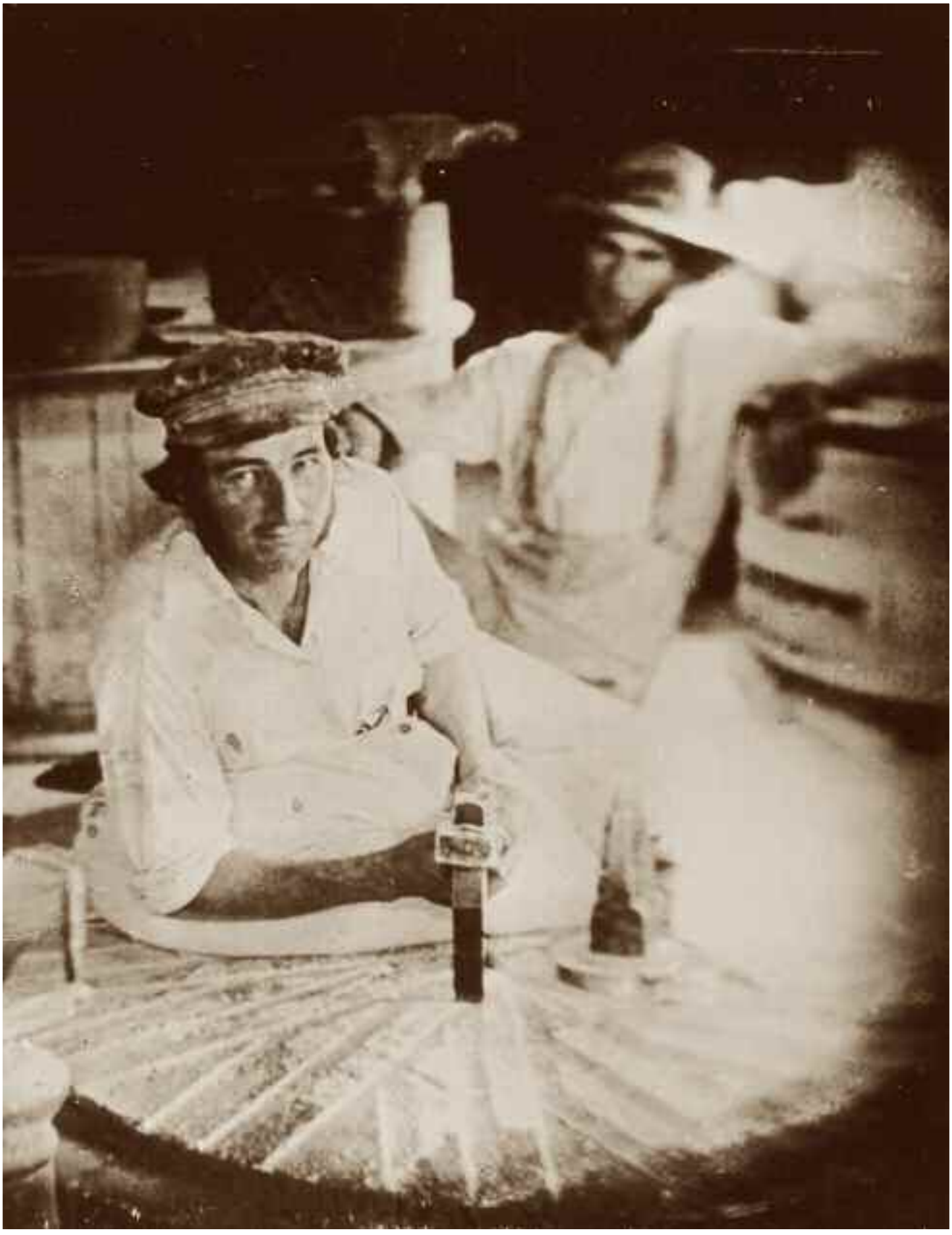
organized to diminish the uncertainties of competition and to solve problems confronting them as a group. In 1890 Minnesota historian William W. Folwell noted that "the great natural advantages" of the site came to the fore because they were "seized upon and turned to account by keen intelligence and audacious enterprise," and a journalist writing in *Harper's Weekly* noted that by that time, "the benefit of location is rather more of a tradition than a reality." Minneapolis was nature's metropolis, but it came to life and grew to greatness because of human energy and entrepreneurial vision.[8]

Nowadays, most people would probably agree that flour milling was part of what we like to call the "old economy." It was a basic industry, meeting a fundamental human need. It was dependent on a natural resource—albeit a renewable one. And it hired a great many more workers who contributed brawn rather than brains. But the millers at St. Anthony Falls were able to dominate their enterprise because of their innovations. They put capital, technology, and entrepreneurial vision together in such a manner as to transform an ancient art in fundamental ways.

Among the natural disadvantages that the millers at St. Anthony Falls overcame through technology and entrepreneurial acumen were those associated with wheat itself. Winter wheat, sown in early fall and resuming its growth in spring, allowed an early summer harvest. Predominant in the lower Midwest and on the central and southern plains, winter wheat was not a feasible crop where deep frosts and thin snow cover resulted in winter kill. Spring wheat, on the other hand, was sown in spring and harvested in late summer; in the upper Midwest and on the northern plains, it was the only type that could be grown dependably. The problem with spring wheat was that it was difficult to mill into a satisfactory product. Ground between conventional millstones, the hard and brittle husk of the kernel fractured and produced a darker flour than consumers preferred. Moreover, conventional milling practices frequently failed to mix the flour's gluten and starch completely, making it turn rancid quickly.[9]

The millers at St. Anthony Falls attacked these problems systematically, especially through the use of technology. Frenchman Edmund LaCroix, hired by Cadwallader Washburn and George Christian, developed

G. S. Barnes and Company's huge wheat-harvesting operation near the Red River Valley's Glyndon, about 1878

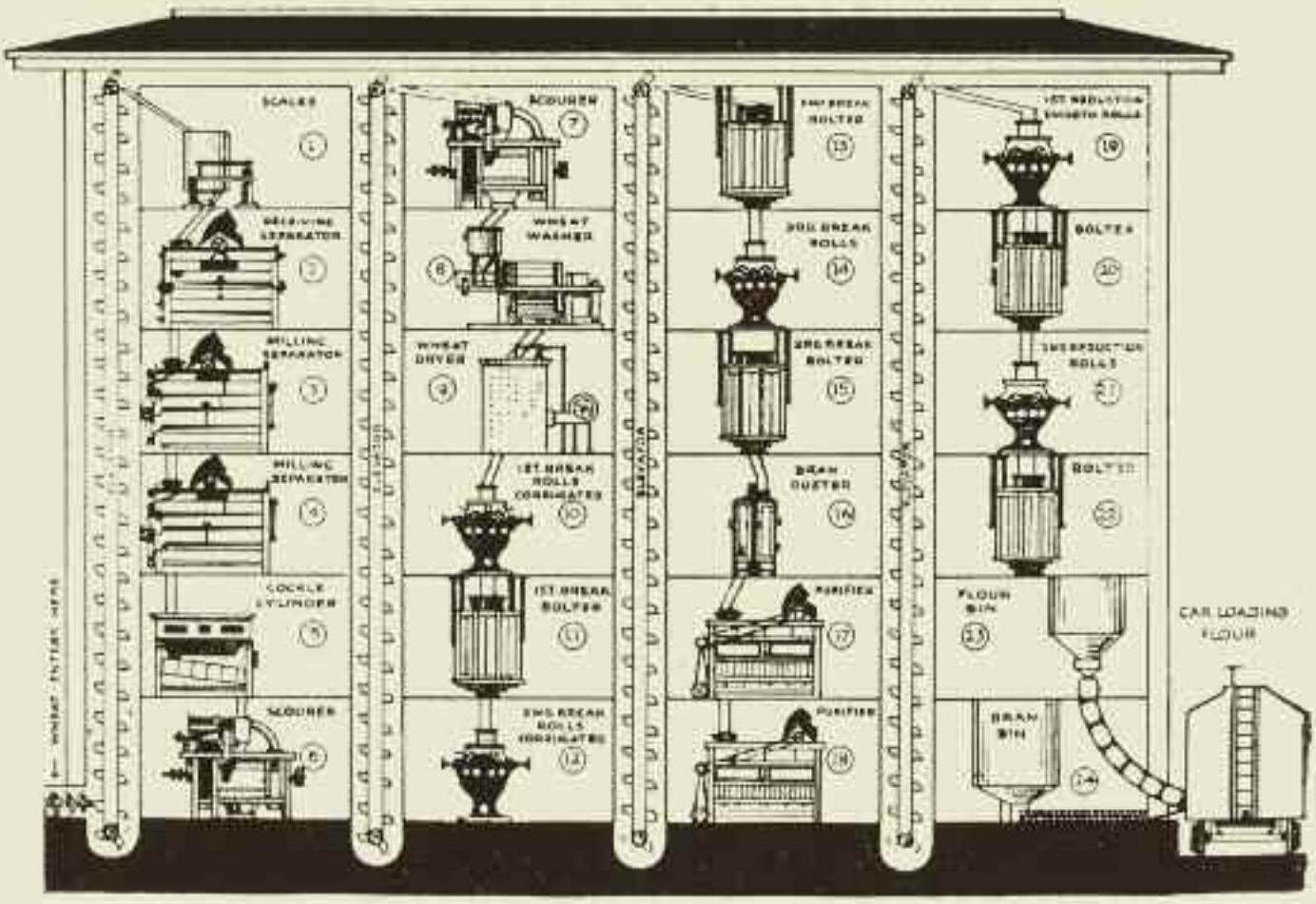


Old and new: The Hill brothers recutting or "dressing" grooves in a millstone at the Minnesota Flouring Mill about 1858, and a (right) cross-section of a roller mill, 1923.

a "middlings purifier" that used jets of air to remove the husks from the flour early in the milling process. This diminished the color problem and enhanced the attractiveness of the flour to consumers and bakers. The second major technological development in milling at St. Anthony Falls was the introduction of the gradual-reduction process. This involved the use of a series of porcelain, chilled iron, or steel rollers to gradually pulverize the purified middlings and integrate the gluten with the starch. The gradual-reduction process diminished wear on milling machinery and resulted in the production of Minnesota "patent" flour, the finest bread flour in the world at the time. The Washburn Mill attempted to monopolize these techniques, but Pillsbury Company and other competitors were able to duplicate them rather quickly, aided by employees they hired from Washburn.[10]

This technological innovation was remarkable not because it illustrated the millers' inventiveness but because it demonstrated their shrewdness and vision. Popular talk about "globalism" in our contemporary economy conveys the impression that an international perspective in business is new, but nothing could be further from the truth. The middlings purifier was developed by a Frenchman brought to Minnesota by millers who believed he could contribute to the development of the local industry. The gradual-reduction process was a Hungarian technique, the mysteries of which were unraveled through industrial espionage by Austrian engineer Walter de la Barre, and the Washburn Mill hired a Hungarian, F. Wohlgennant, to oversee production when the new process was in place. What Washburn and Christian did was to put innovations together on a scale that allowed them and their imitative competitors to become world leaders.[11]

The mills at St. Anthony quickly became the most technologically sophisticated and economically efficient in the world. They effectively ignored the basic conundrum of manufacturing by producing high quality in massive quantities. By 1900 Minnesota mills were grinding 14.1 percent of the nation's grain, nearly twice as much as second-place New York. The large scale of Minneapolis's milling complex was illustrated by the fact that Minnesota's milling industry ranked first among states in capital investment, wage earners, and



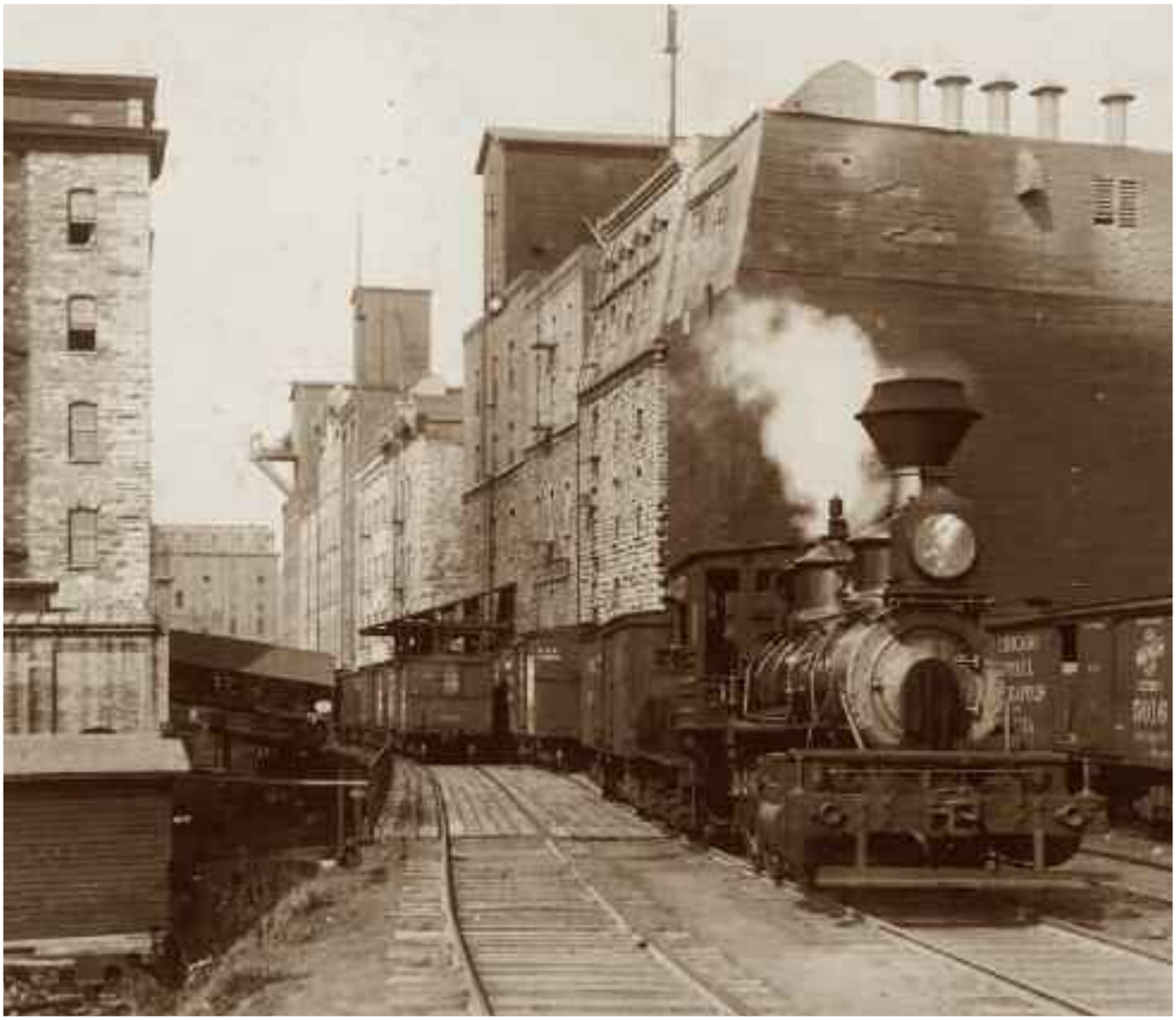
quantity of ground grain but stood only eighteenth in number of mills. Only 3.6 percent of the nation's flour mills were in Minnesota, but they produced almost a quarter of the country's wheat flour. Even that was misleading; although Minnesota had many small, locally oriented mills, 7.5 percent of its mills produced flour valued at more than $1 million, according to the 1910 census. Those megamills, concentrated at St. Anthony Falls, employed 72.6 percent of the state's mill workers and accounted for 78.1 percent of its total output.[12]

The technical virtuosity and impressive growth of milling at St. Anthony Falls exacerbated some business problems even as it solved others. The mills' need to insure an adequate supply of wheat led them to build or buy storage facilities in Minneapolis or along rail lines, as in 1882 when a Pillsbury-led consortium of millers bought a string of line elevators on the St. Paul, Minneapolis and Manitoba Railroad (later reorganized into the Great Northern). As early as 1867 the millers had banded together into the Miller's Association, which bought wheat more cheaply than any single miller could and served as a trade organization. Later the millers, along with grain traders, became active in the Minneapolis Chamber of Commerce, which was essentially a grain exchange in its early days. The need for quality grain later involved the millers in efforts to improve farming practices in Minnesota and the Dakotas and to encourage wheat production in Montana.[13]

The millers also developed a complicated relationship with the railroads. While some, like Pillsbury and Washburn, were large enough to demand rebates on their shipments, all felt vulnerable because they depended on the roads. All rail lines from Minneapolis to the East ran through Chicago, and the millers complained of discriminatory rates charged by Chicago-based carriers. Rates on wheat shipped in from the northwest were more favorable, but the dominant railroad man in the region, James J. Hill, believed that the future of flour was in the East, and he preferred shipping wheat to Duluth for transportation to Buffalo and other eastern milling centers via Great Lakes steamers. In 1883 the flour producers addressed the railroad problem by chartering a line from Minneapolis to Sault Ste. Marie, Michigan, thus freeing them from dependence on the Chicago roads. Millers provided three-quarters of the capital for this road, and William D. Washburn, prominent among them, was its first president. The next year they chartered a line to run into northern Dakota Territory, and in 1888 the lines were consolidated into the Minneapolis, St. Paul, and Sault Ste. Marie Railroad, popularly known as the "Soo" Line.[14]

Not all of the St. Anthony millers benefited equally from the growth and elaboration of their industry. The larger millers were better able to secure the capital that allowed innovation, and they had the resources to hire the best engineers, machinists, managers, foremen, and workers. Their size allowed them to compete advantageously when buying, shipping, and storing grain, and when shipping flour out, they were better than small competitors at prying rebates out of the railroads. Because they bought huge quantities, they enjoyed favorable prices for milling machinery, barrels, bags, and whatever else they required. Seeing the handwriting on the wall, most smaller millers either consolidated with or sold out to larger competitors, with the result that by 1895 virtually all of Minneapolis's milling capacity was controlled by the Pillsbury-Washburn Flour Mills Company—which included the William D. Washburn, C. A. Pillsbury, and Northwestern Consolidated mills—and by Washburn-Crosby Company.[15]

The big mills' size and product quality allowed them to control marketing, both domestically and abroad, as well as to influence the costs of production. This was not the case for small millers. When they sold outside their localities, they marketed through commission houses that retailed the flour generically or with a vague identification such as "Minnesota flour" or "patent flour." Small millers lost control over the flour once it passed from their hands, and no consumer loyalty or demand for their product could develop. Even the larger mills were more attentive to production than to marketing in the early years. In 1888, when James Stroud Bell of Philadelphia became managing partner in Washburn-Crosby, he discovered that the firm's flour was sold under several different names in the United States alone. Bell determined that efficient exploitation of the domestic market required Washburn-Crosby to gain control of its own marketing, set up distribution systems, and hire sales representatives, instead of depending on semi-independent jobbers. Washburn-Crosby and the other large millers quickly grasped that single-branding their product would facilitate promotion and build consumer demand and loyalty. At a time when most products were still being marketed generically, Minneapolis millers began selling "Gold Medal" (in recognition of a prize won by Washburn-Crosby in an international competition in 1880) and "Pillsbury's Best" flour.[16]

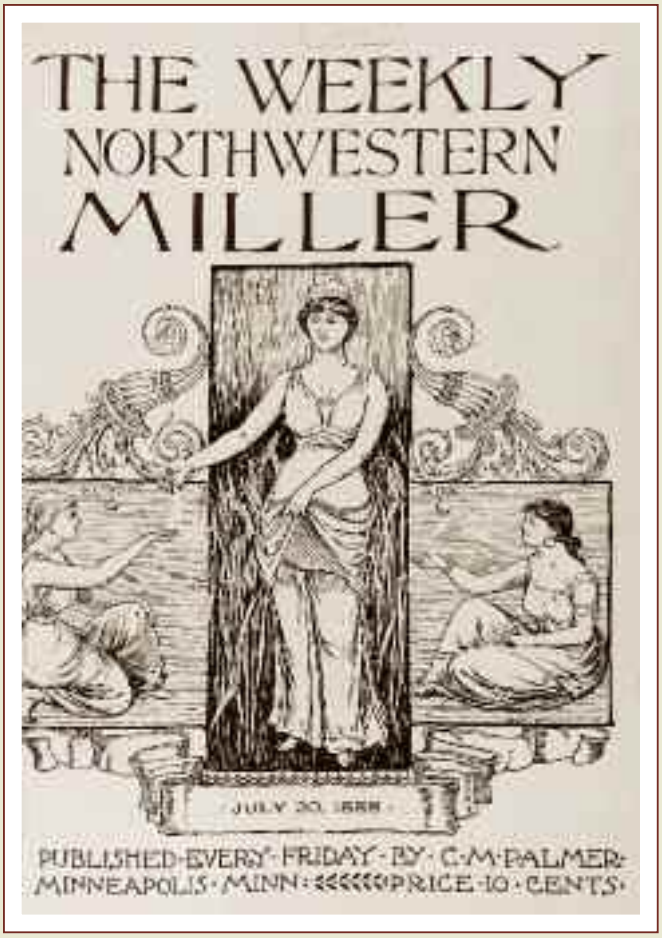


Elevated tracks serviced the west-side mills along First Street and above the waterpower canal, about 1890.

Run by men of true business acumen, the large, efficient, milling establishments that developed at St. Anthony Falls were able to tap a national market and open export markets to American flour. Prior to the Civil War, most manufactures and processed food products that Americans purchased were produced locally. Every town of any size had a grist mill, a sawmill, a butcher, and a brewer, along with blacksmiths, tinsmiths, shoemakers, harness makers, and so on. The cost of transportation in a sparsely populated country effectively confined most manufacturers to local markets, and the prejudice people held against food products processed elsewhere made it especially difficult for far-away millers or meatpackers to break into markets. Europeans bought American raw materials—tobacco, wheat, and especially cotton—to process themselves but had no interest in purchasing products manufactured in the United States.

The revolution in transportation that began about 1815 and accelerated after the Civil War progressively solved the problem of access to American markets. Thereafter, the quality and price advantages enjoyed by large millers, packers, and processors allowed them slowly to break the monopoly enjoyed by local producers. By the 1880s American producers were aggressively attacking export markets, and Minneapolis's millers were among the most successful.

Flour exports fluctuated, but between 1880 and 1915 about one-third of the flour produced by Minneapolis's mills was exported—mostly to Europe but also to Latin



The United States, symbolized by Columbia, offers wheat to the outstretched hands of Europe and Asia on this 1888 cover of the Minneapolis millers' magazine.

America and Asia. As much as 40 percent was sold abroad in some years. While American flour became one of the first domestic manufactures to be exported in large quantities, this did not happen quickly or easily. The English market, Europe's most lucrative, was fiercely guarded by local millers who were not above spreading unfounded rumors about American flour. Moreover, the Hungarians had a well-deserved reputation as flour millers, and they enjoyed a geographic advantage over their distant American competitors.[17]

As early as 1877 Cadwallader Washburn had dispatched an agent, William H. Dunwoody, to the British Isles to explore the possibilities of building sales by exporting flour. What Dunwoody discovered was discouraging. International transactions were difficult to finance, and British importers were reluctant to do business with exporters they did not know or trust. When shipments could be arranged, carriers frequently delayed them for months and handled flour in a haphazard manner, allowing vermin and moisture to degrade it. Importers frequently mixed and repacked American flour with other flours, making the development of consumer loyalty virtually impossible. And British millers campaigned actively against the American product, claiming that its light color was *prima facie* evidence that it had been adulterated.[18]

The Washburn mills attacked these problems systematically and, eventually, successfully. During the 1880s the company invited European importers to Minneapolis and, in turn, sent representatives to establish business relationships and stress that Minneapolis flour should carry its own labels. In 1893 the millers persuaded Congress to pass the Harter Act, which held carriers responsible for late and damaged cargoes, and they received further protection the next year with the introduction of all-risks insurance, which covered cargoes against all perils. James Bell, who assumed leadership in 1888 of the Washburn-Crosby firm, was especially attracted to the export trade, perceiving in it an alternative to potentially saturated American markets. In 1893 he created an export division under Charles C. Bovey, who had established close relationships with European importers and had strenuously promoted the Gold Medal brand. The other leading millers followed suit, so that by 1904 it was possible for one observer to write: "American foodstuffs, on account of their purity and uniformity, have taken a prominent place in the markets of the world, and Minneapolis is now in the lead as a base of supplies."[19]

The Minneapolis millers' success in tapping foreign markets reminds us again of the modernity and international nature of their enterprise. The millers operated locally, but they thought globally. They were quite willing to hire European workers, engineers, and inventors and to improve upon European techniques, and they refused to limit their market to the United States or even the western hemisphere. In entering world markets they offered an unbeatable combination of high quality and low price, and they demonstrated patience and understanding in overcoming others' resistance. We have learned no more important lessons about operating in a global economy than they learned over a century ago.

Their success in operating in national and international markets gave the flour mills dominance on Minnesota's industrial scene. The Census Bureau reported that in 1909 that millers produced one-third of the state's total industrial product value and did so employing only one-twentieth of its industrial wage earners.

More specifically, the flour mills powered the meteoric rise of Minneapolis to national industrial significance. Minneapolis ranked fourteenth among the nation's cities in value of industrial product, with flour mills accounting for well over half the total.[20]

Of course, the relative strength of one industry does not always translate to overall economic health. The economic history of the United States is replete with stories of one-industry towns that lived and died in accordance with the fortunes of steel, textiles, or automobiles. In contrast, milling helped create the base for Minneapolis's future economic strength and sustained it even when flour milling began to decline after World War I.

For example, the mills depended on a transportation infrastructure that provided the city with significant advantages in exploiting the agricultural hinterland. The Northern Pacific and the Great Northern roads connected Minneapolis to the West Coast, the Milwaukee tied in South Dakota, and the millers' own Soo Line provided connections both to the Great Lakes and the Northwest. Competing lines meant low freight rates, and low freight rates were important to all manner of manufacturers and wholesalers in the Twin Cities.

The mills also spurred the growth of banking. Huge amounts of capital were required to build the big mills and stock them with machinery. The demands made by the flour millers for operating capital were also substantial. Local bankers supplied millers most of the capital needed to buy wheat when it was available, store it, and grind it into flour. By the early years of the twentieth century Minneapolis had become "the financial center of the Northwest." The significance for subsequent economic development of locally owned banks, run by

Traders inspect samples on the crowded floor of the busy grain exchange of the Minneapolis Chamber of Commerce, about 1895.

At the end of the multistage milling process, workers bag and seal flour in the seven-story Pillsbury A Mill, 1902.

bankers committed to the local community and appreciative of local abilities and opportunities, cannot be overestimated.[21]

Ancillary industries also developed to serve milling. The need for packaging led to the development of a thriving barrel industry, which produced more than 4 million units in 1900. When millers began realizing that sacks were cheaper, more convenient, and more desirable to noncommercial consumers, a local industry developed to provide that packaging, producing nearly 47.7 million sacks for flour in 1900. More difficult to count and measure was the effect of a skilled, energetic, educated, and dependable work force, including such highly trained workers as machinists and millwrights, and of a cadre of entrepreneurs committed to making Minneapolis a good place to make a living, to be sure, but also a good place to live.[22]

While the millers combined the natural advantages of St. Anthony Falls with their own entrepreneurial energy and vision to make Minneapolis the dominant flour-producing city in the world, milling remained a competitive enterprise. After 1900 the city's dominance was increasingly challenged. Millers elsewhere copied them, just as they had copied the Hungarians, canceling some of their competitive advantage in the process. The Minneapolis millers' natural advantages dwindled, as well. Modern industry was powered by steam—which some of the Minneapolis millers themselves used to supplement water—or, increasingly, by electricity. No longer did the presence of a waterfall convey a distinct advantage. Moreover, declining crop fertility in the Red River Valley and beyond diminished the quantity and quality of the grain available to them. Farmers on the southern plains developed harder wheat varieties more suitable for bread flour, leading to the rise of Kansas City as a milling rival. In 1907 the Interstate Commerce Commission ruled that flour was a manufactured product and should carry a higher freight rate than raw wheat. This ruling raised shipping costs and improved the competitive positions of millers in Buffalo, New York, and other eastern centers. The competitive nature of the industry meant that it was hard to stay on top indefinitely, but it also meant that people the world over got more attractive and nutritious bread at a cheaper price than would have been possible otherwise.[23]

The millers hedged their bets, building mills in Kansas City and Buffalo while keeping their corporate headquarters in Minneapolis. They also forged alliances with higher education, especially the University of Minnesota, in order to address some of the production and political challenges they confronted. To improve the appearance of the flour, for example, they sponsored university experiments with bleaching. When bleaching was challenged by pure-food-and-drug advocates early in the twentieth century, university scientists bolstered the millers with political support. The millers also consulted with the university's agricultural scientists regarding declining soil fertility, wheat rust, and other supply problems.[24]

Most noteworthy was the energy that the millers put into building ties with consumers. Bread flour went primarily to commercial bakers, while the public bought generic flour from local grocers. As early as the 1880s millers had reached out to consumers by branding their products in hopes that superior quality would build loyalty. Beginning in the 1890s, companies sought to cement their relationship with consumers and attract new ones through aggressive advertising campaigns, such as James Bell's Gold Medal campaign, which by 1894 had purchased $220,000 in advertising in periodicals such as *Ladies' Home Journal.* In addition, millers standardized their packaging and created such memorable slogans as Gold Medal's "Eventually—Why Not Now?" and "Because Pillsbury's Best." The companies further strengthened their relationships with consumers by setting up test kitchens, developing recipes, and sponsoring homemaker baking contests. Washburn-Crosby created WCCO radio in 1924 to experiment with advertising techniques and developed a mythical representative, Betty Crocker, who was probably behind only Eleanor Roosevelt in name recognition among women in the 1930s.[25]

Leading millers diversified beyond bread flours into cake flours and dough mixes, and they were also among the first American food processors to grasp the desire among affluent consumers for convenience. In 1924 Washburn-Crosby introduced Wheaties, and soon other breakfast cereals, which boasted much higher profit margins than flour could command, made their appearance on grocery shelves. Eventually, snack crackers and chips and frozen foods followed. In 1928 Washburn-Crosby merged with several regional milling companies and changed its name to General Mills in order to convey the breadth of its market and its product mix. By that time, the mills themselves were in decline, but General Mills and Pillsbury, still headquartered in Minneapolis, were numbered among the leading corporations in the United States and the world.[26]

General Mills' aging Washburn-Crosby mills and railroad yard, about 1940, with a large sign from the long-running "Eventually" advertising campaign

Americans seem to like contrasts more than continuity. We prefer to see things as revolutionary rather than evolutionary, and we enjoy posing the old against the new. We like to look at the "old" economy versus the "new" economy. The old economy, as we understand it, leaned heavily on basic extraction or processing—"smokestack" industries centered in factories and dependent on labor that brought more brawn than brains to the job. They were environmentally exploitative and degraded the "rust belt" where they were concentrated. These industries were characterized by inflexibility and lack of imagination, and they frequently collapsed in the face of global competitive challenges in the 1970s and 1980s. The new economy, on the other hand, is based in high technology and in services. It is carried out on "campuses" rather than in factories, by people whose minds are their main assets. New-economy firms are environmentally benign and can exist just about anywhere. They are global in their orientation, drawing their work forces from around the world and operating throughout the world. While old economy firms were rigid, these are nimble and adroit.

But if we look at the flour milling at St. Anthony Falls, we can see that the accepted distinctions between the old and the new economies don't hold up very well. On the one hand, milling was a basic industry, doing something that people had been doing since before recorded history: turning grain into flour. It was an industry that exploited the natural environment—most obviously the falls itself—for its profit. In most ways, though, this old industry was distinctly new. It thrived because it adopted and articulated the most advanced technology of the time. It was truly a global industry, drawing workers, engineers, and technology from Europe and exporting its product throughout the world. It established a relationship with higher education in

order to overcome some of the challenges confronting it. And its leading firms were flexible and adaptive, shifting their operations as business conditions changed, developing advanced organizational and marketing strategies, and building from their flour-milling base to become multifaceted food-production companies.

In the history of flour milling in Minneapolis, we can see that there is no sharp disjuncture between the old economy and the new. In fact, the former built a base for the latter, and the new economy evolved from the old, carrying forward lessons learned a century ago. The pioneers of flour milling attracted the population that made Minneapolis a major city and the capital that fueled its growth, but they did much more. The millers at St. Anthony Falls introduced technological sophistication, an eagerness to participate in the global economy, an imaginative entrepreneurial outlook, and a noteworthy commitment to making their city a good place to live. And it is those characteristics that continue to make Minneapolis a vibrant, diverse, and energetic economic center today.

Notes

1. David B. Danbom, *Born in the Country: A History of Rural America* (Baltimore: Johns Hopkins University Press, 1995), 111–12, 139–49.

2. William W. Howard, "The City of Minneapolis," *Harper's Weekly* 34 (May 24, 1890): 416.

3. F. E. Curtis, "A Floury City," *Lippincott's Magazine* 33 (Jan. 1884): 79–80; Eugene V. Smalley, "The Flour Mills of Minneapolis," *Century Illustrated Monthly Magazine* 32 (Sept. 1886): 39–40.

4. William E. Lass, *Minnesota: A History* (New York: W. W. Norton, 1998), 163; John Storck and Walter D. Teague, *Flour For Man's Bread* (Minneapolis: University of Minnesota Press, 1952), 210.

5. Smalley, "Flour Mills of Minneapolis," 47; William Cronon, *"Nature's Metropolis": Chicago and the Great West* (New York: W. W. Norton, 1991).

6. Lass, *Minnesota,* 158–59; Henrietta M. Larson, *The Wheat Market and the Farmer in Minnesota, 1858–1900* (New York: AMS Press, 1969), 68–69.

7. Larson, *Wheat Market,* 127–28.

8. William W. Folwell, "Minneapolis in 1890," *New England Magazine* 3 (Sept. 1890): 96; Howard, "City of Minneapolis," 416.

9. For the strengths and weaknesses of hard, red spring wheat from the millers' point of view, see Storck and Teague, *Flour for Men's Bread;* Charles B. Kuhlmann, *The Development of the Flour-Milling Industry in the United States: With Special Reference to the Industry in Minneapolis* (Boston: Houghton Mifflin, 1929).

10. For technological innovations adopted by Minneapolis millers, see Alison Watts, "The Technology That Launched a City: Scientific and Technological Innovations in Flour Milling During the 1870s in Minneapolis," *Minnesota History* 57 (Summer 2000): 86–97.

11. Storck and Teague, *Flour for Man's Bread,* 246.

12. H. W. Wiley, "Flouring and Grist Mill Products," United States, *Census,* 1900, vol. 9, *Manufactures,* 356–59; *Census,* 1910, vol. 9, *Manufactures,* 596.

13. Larson, *Wheat Market,* 91–92, 147; Wayne G. Broehl Jr., *Cargill: Trading the World's Grain* (Hanover, NH: University Press of New England, 1992), 57; David B. Danbom, *"Our Purpose Is To Serve:" The First Century of the North Dakota Agricultural Experiment Station* (Fargo: ND Institute for Regional Studies, 1990), 60–69.

14. Patrick Dorin, *The Soo Line* (Seattle: Superior Publishing Company, 1979), 11; Albro Martin, *James J. Hill and the Opening of the Northwest* (1976; reprint, St. Paul: Minnesota Historical Society (MHS) Press, 1991), 287–90.

15. Larson, *Wheat Market,* 228. See "Milling in Minneapolis" timeline on p. 311 of this magazine.

16. Edward L. Lach Jr., "Bell, James Stroud," American National Biography Online, Aug. 2001, *http://www.anb.org*; William C. Edgar, *Medal of Gold: A Story of Industrial Achievement* (Minneapolis: Bellman Company, 1925), 171; Kuhlmann, *Development of the Flour Milling Industry,* 129–30; Lass, *Minnesota,* 162–63.

17. B. C. Church and F. W. Fitzpatrick, "Flour and Flour Milling," *Cosmopolitan* 26 (Nov. 1898): 501; Smalley, "Flour Mills of Minneapolis," 37; Curtis, "A Floury City," 81; Storck and Teague, *Flour for Man's Bread,* 269–70.

18. Edgar, *Medal of Gold,* 67–70.

19. "Modern Flour Milling," *Scientific American* 90 (Feb. 27, 1904): 178; Edgar, *Medal of Gold,* 170–87.

20. *Census,* 1910, vol. 9, *Manufactures,* 588–89, 594.

21. James L. Nash, "Shifting the Commercial Center of Gravity," *The World To-Day* 14 (Feb. 1908): 161. Lass, *Minnesota,* 163–64, stresses the role of the millers in the development of transportation and banking.

22. *Census,* 1910, vol. 9, *Manufactures,* 364.

23. See Lass, *Minnesota,* 237–39.

24. For the connection between millers and the University of Minnesota, see Danbom, *"Our Purpose is to Serve,"* 42–43, 64–73.

25. Kirk Jeffrey, "The Major Manufacturers: From Food and Forest Products to High Technology," in *Minnesota in a Century of Change: The State and Its People Since 1900,* ed. Clifford E. Clark Jr. (St. Paul: MHS, 1989): 224–25, 236; Lass, *Minnesota,* 237–39; Lach, "Bell, James Stroud."

26. Jeffrey, "Major Manufacturers," 236–37.

The opening mill-district photo is by Gordon Ray; bird's-eye view by W. V. Herancourt; mill interior by Jacoby; farm by Frank J. Haynes. All the images are from the MHS collections, including the mill cross-section from Pillsbury's The Story of Flour *(1923).*