

Millbourne  
Mills Company



MILLBOURNE

MILLS COMPANY:

ITS ANTECEDENTS AND PRESENT OPERATIONS,

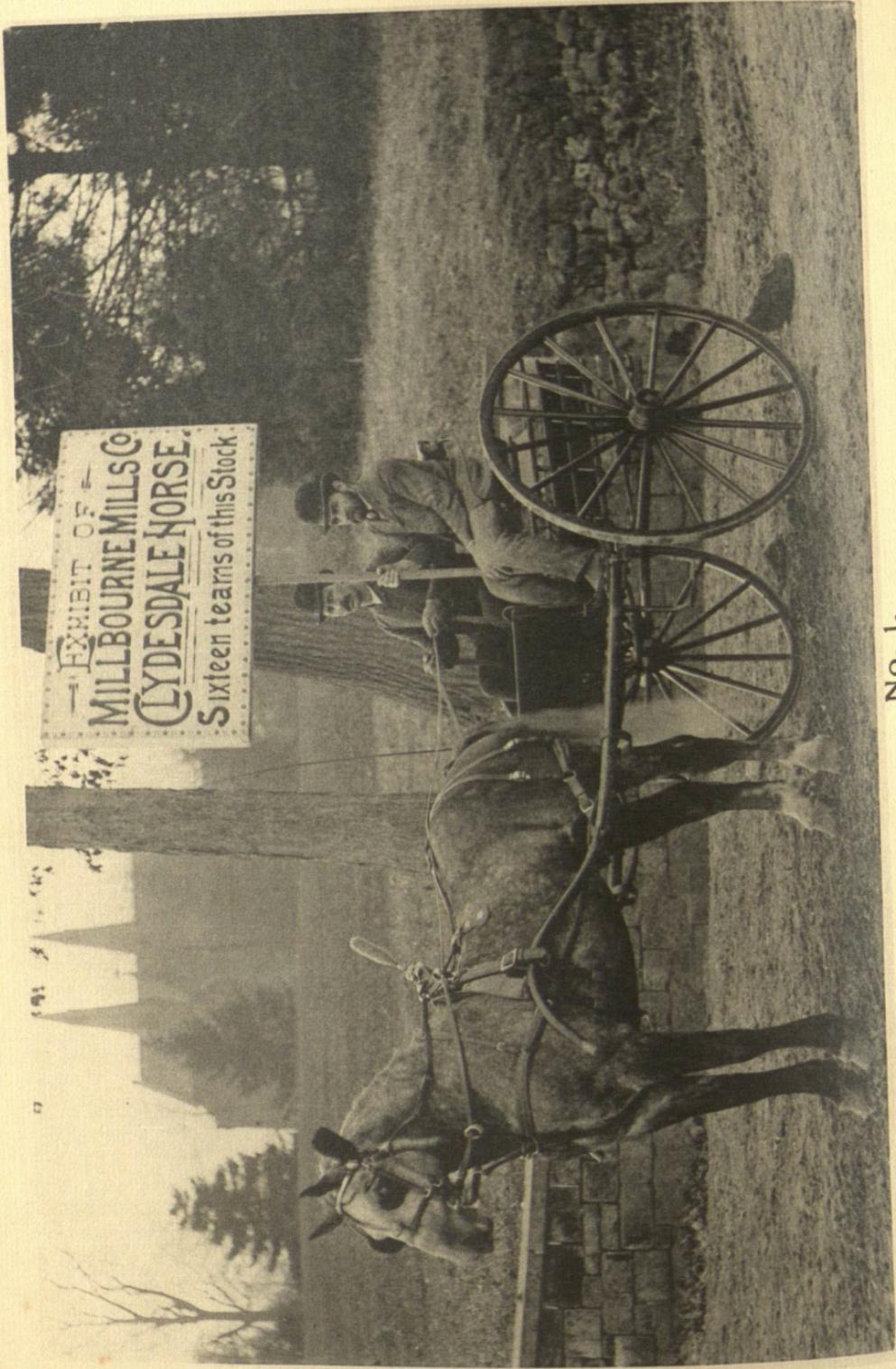
AND ITS EXHIBIT IN THE

CIVIC AND INDUSTRIAL PROCESSIONAL  
DISPLAY AT PHILADELPHIA,  
SEPTEMBER 13th, 1887,

IN COMMEMORATION OF THE

Centennial Anniversary of the Adoption of the  
Constitution of the United States.

1888.



No. 1.

# Millbourne Mills Co.



THE object in making the CIVIC AND INDUSTRIAL DISPLAY AT PHILADELPHIA on the fifteenth of September, 1887, was to show the march of improvement in Industrial Art since the adoption of the Constitution of the United States one hundred years before. The participation of Millbourne Mills Company in that display was for the purpose of showing the advance made in the art of flour manufacture during the century just passed, and especially to show that so late as since the great Centennial Exposition of 1876, in this city, that advance has been so rapid as to amount to a revolution. The history of this progress can perhaps be as fitly illustrated by direct reference to the antecedents of the Millbourne Mills Company as by any other method, for on the present site of their Mills, or in the immediate proximity thereto, the ancestor of the President and other officers of the Company, much more than one hundred years ago, erected a flouring mill embodying all the best known methods of that time. In tracing the history of this old structure, a portion of which still remains, we obtain a faithful record of the gradual development of this industry in the early but slower stages of progress, and the rapidity with which new ideas were absorbed and applied when the

## *MILLBOURNE MILLS COMPANY.*

---

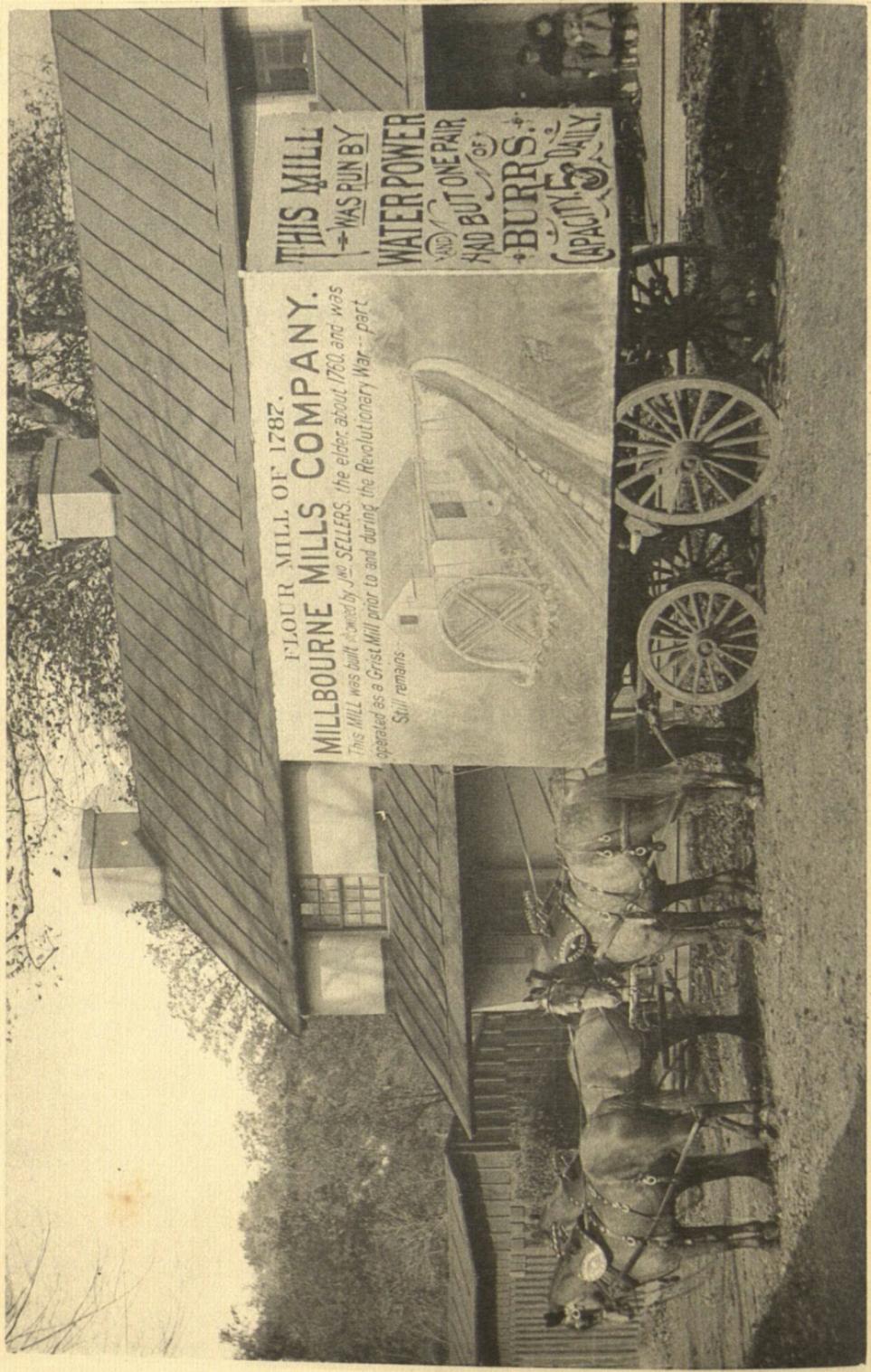
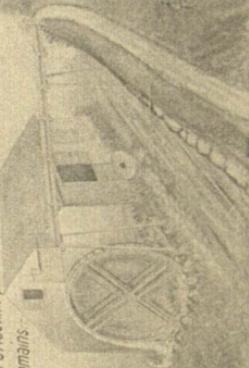
light obtained through scientific research developed the possibilities of the "new process" during the last decade.

The nucleus was a grist-mill of the crudest form and appointments, if viewed from the standpoint of present events; but it is the story of progress that applies to almost every other industry that has grown and flourished with this in parallel lines of development. The lesson taught in this direction, by the great parade itself, should be studied with care, and not allowed to pass from the minds of those who witnessed it, without an effort to apply the instruction suggested by the wonderful tale of progress it told.

With this idea in mind, and in the hope that we may be able to perpetuate, as it were, that portion of the display for which we were responsible, we have prepared this illustrated account of the exhibit, combined with a history of the mill, in which concise reference is made to some of the important discoveries that have been applied, from time to time, in the art of preparing food for man from grain that comes into the hands of our fraternity for that purpose: discoveries that have added much to the physical welfare of the human race.

THIS MILL  
— WAS RUN BY  
WATER POWER  
AND BUT ONE PAIR  
OF  
BURRS.  
CAPACITY 50 DAILY.

FLOUR MILL OF 1787.  
**MILLBOURNE MILLS COMPANY.**  
*This MILL was built owned by JNO. SELLERS, the elder, about 1760 and was operated as a Crist Mill prior to and during the Revolutionary War... part Still remains.*



## Clydesdale Horse.

No. 1. We show first, a Village Cart, drawn by a heavy Clydesdale Stallion, carrying a banner with the inscription: "Exhibit of Millbourne Mills Company; Clydesdale Horse; Sixteen teams of this Stock."

These horses are all iron-grays, of heavy build, and used exclusively to haul grain to the mills, and distribute the product throughout the city and suburbs. Their present duty is the transportation of about fifteen hundred bushels of wheat, and the distribution of about three hundred and fifty barrels of flour daily, and they are employed constantly at this work. Their home is in a stable of superior appointments, lighted by electricity, temperature equalized by hot water pipes, thoroughly ventilated, and pure spring water flowing through it. Twenty-five years ago it was the custom to haul wheat to this mill with teams consisting of five or six horses, driven tandem, the full load being one hundred bushels of wheat. Our present practice is to haul this same amount with two horses. This gives some idea of the weight and power of these noble animals.

---

## Flour Mill of 1787.

No. 2. On this float we show the flour mill of 1787, with this inscription: "This Mill was built and owned by John Sellers, the elder, about 1760, and was operated as a grist-mill prior to and during the Revolutionary war. Part still remains." On the rear of the

wagon: "This mill was run by water-power and had but one pair of burs. Capacity five barrels daily." We now find a record showing that the millwright "Commenced placing the machinery in the mill on July 25th, 1757, and finished the work on July 27th, 1758, at a cost of 50 pounds; John Sellers to furnish 10 pounds worth of diet." The total cost, therefore, for placing the machinery in this building was 60 pounds. On April 14th, 1763, a reel and fan to work by water-power were added at a cost of 2 pounds, 15 shillings, 6 pence. It is asserted that previous to this time, the farmers who brought their grist to this mill were required to separate the bran or offal from the flour after it was ground, in a separate room, on a reel or some sifting contrivance which was operated by hand, and, doubtless, when these improvements were arranged to run by power, they were thought a great saving of labor.

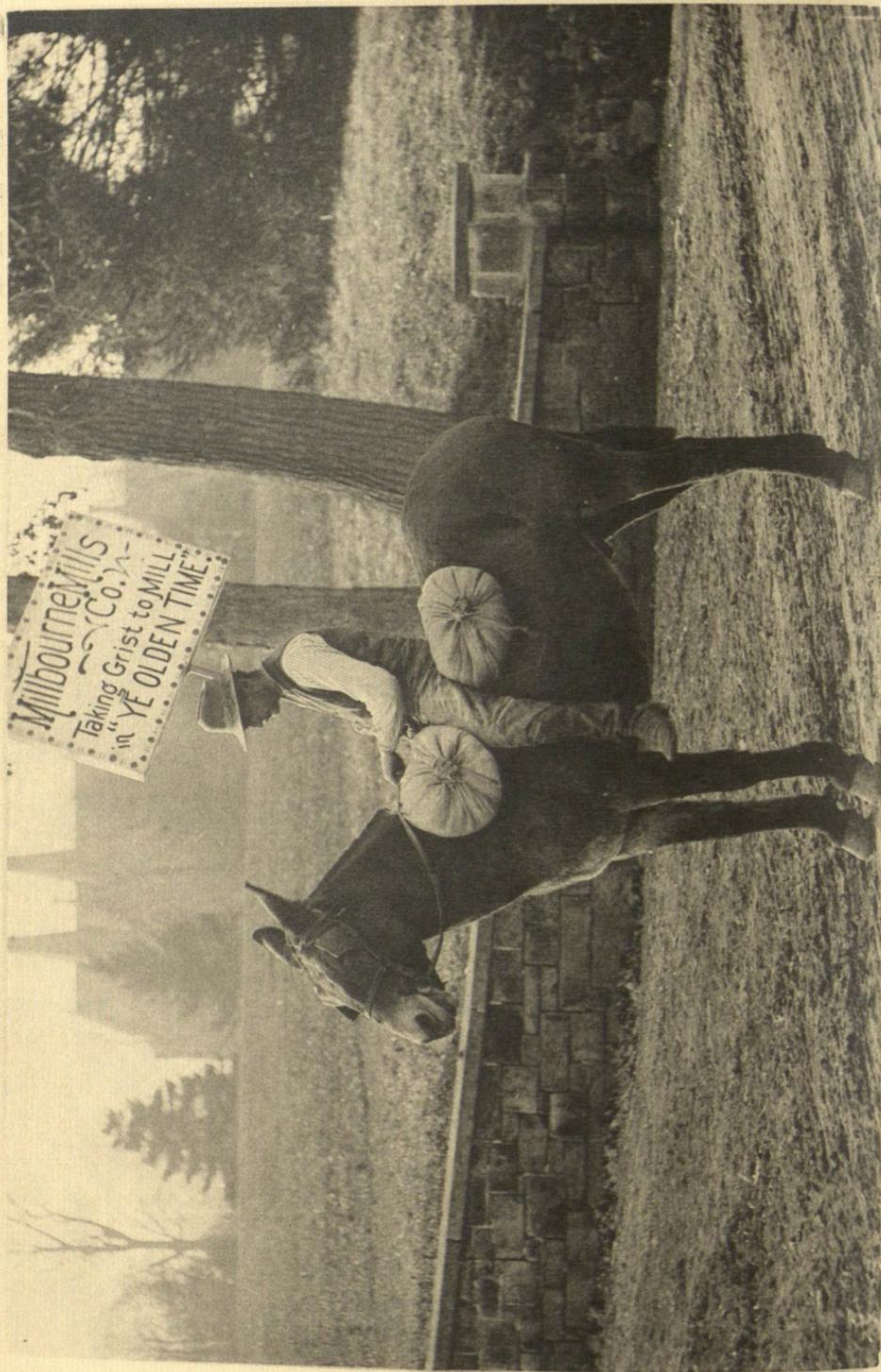
At no time had this mill means of elevating grain or meal from basement to top of building, as mills are at present constructed, but the miller was compelled to carry it on his back from one story to another as needed.

In fact, this practice obtained almost up to the date of Oliver Evans' invention of the grain elevator, hereafter alluded to, though in the later construction of mills by the same family, and on the same property, a well designed rope-hoist, that anticipated a much vaunted invention in England in recent times, was made and operated to advantage.

---

## "Ye Olden Time."

No. 3. We next show a man on a mule taking grist to this mill, carrying a banner: "Taking grist to mill in 'Ye Olden Time.'"



No. 3.

This was eminently an age of economy. In this, as in all other industries of the time, advantage was taken of any available help that might present itself, consequently the man or boy who brought the grain to be ground was expected to assist in its conversion into flour or meal as the case might be, doing the unskilful part of the work. The toll, therefore, which was presumed to be the compensation for the work done, was not the only pay the miller received.

---

## Flour Mill of 1814.

No. 4. To show the gradual increase and improvement of the business, we next present the mill of 1814, a portion of which is still standing and forming a part of our present plant. On this float is inscribed the following: "Millbourne Mills Company, mill of 1814. This mill was built and owned by John Sellers, second, and operated as a grist and merchant mill by John Sellers, third. The price of wheat in counties west of Philadelphia was regulated by this mill." On the rear of this wagon: "Grain was received from over the Alleghany Mountains by the old Conestoga wagons." A magazine published in Philadelphia, in 1818, gave the following as an item of news: "In the course of the twelve months of 1817, twelve thousand wagons passed the Alleghany Mountains from Philadelphia and Baltimore, each with from four to six horses, carrying from thirty-five to forty hundred-weight. The cost of carriage was about \$7.00 per hundred-weight, in some cases as high as \$10.00 to Philadelphia. The aggregate sum paid for the conveyance of goods exceeded \$1,000,000. To move a ton of freight between Pittsburgh and Philadelphia, therefore, cost not less than \$140.00, and took probably two weeks' time." In 1887, the

average amount received by the Pennsylvania Railroad Company for the carriage of freight, was three-fifths of one cent per ton per mile. The distance from Philadelphia to Pittsburgh is three hundred and fifty-five miles, so that the ton which cost the shipper \$140.00 in 1817, was carried for him in 1887 for \$2.13. At the former time the workmen in Philadelphia had to pay \$14.00 for moving a barrel of flour from Pittsburgh against \$0.26 now. The Pittsburgh consumer paid \$7.00 freight upon every one hundred pounds of dry goods brought from Philadelphia, while one hundred pounds is hauled now in two days at a cost of 32 cents.

From the time the mill of 1757 was erected, up to or about 1800, there seems to have been but little change in the manner of doing the work, but about this time, or a few years later, Oliver Evans, a notable millwright, making his home in Philadelphia, invented a means of elevating and conveying material, and also made other improvements, since generally adopted in the construction of mills. He demonstrated that all hand labor in manipulating the material could be done away with, and automatic machinery could be employed to take the grain as it entered the mill, and convey it to the places required for its manufacture through the various processes, even to its final disposal in the barrel as finished flour. Remarkable as were his inventions, considered in the light of the art at that time, millers were slow in availing themselves of his skill. He complained justly of the ignorance of millers and of millwrights who could see no gain in what has since come to be the universal practice in all flouring mills.

While many refused to adopt his inventions, others tried to steal his ideas, and he was troubled with constant litigation to sustain his rights. In the case of this mill of 1814, John Sellers, the owner, saw the merit of Oliver Evans' elevator invention, and was one of the first to adopt it, introducing it into this mill in 1816, as will be seen by the following copy of the license which we now hold:

## LICENSE.

KNOW ALL MEN, that I, Oliver Evans, of the City of Philadelphia, have received of John Sellers, of the County of Delaware, State of Pennsylvania, the sum of Twenty Dollars, in full, for license hereby granted to the said John Sellers, his Heirs, Executors, Administrators or Assigns, to construct, make and use my Patented Machines and Patented Improvements in the art of manufacturing flour or meal, as follows, viz: For elevating tail flour and bran to the hopper-boy for the use of his mill, consisting of one water-wheel, driving not more than one millstone at the same time, situate on Cobb's Creek, called Sellers' Mill, for and during my present or any future patent term. *In witness whereof*, I have hereunto set my hand and seal, this tenth day of January, 1816.

The privilege is for elevating tail flour and bran to the hopper-boy. There are two water-wheels, one for merchant work, the other principally for grist. They may both occasionally run on merchant work, but very seldom.

Sealed and delivered in the presence of us:

OLIVER EVANS.

SARAH EVANS.

On the back of this paper is a cut of a mill as invented and perfected by Oliver Evans, showing the elevators and conveyors and other appliances, the principles of which are still used in all mills, though, of course, improvements have been made in construction.

## The Old Millstone.

No. 5. This float shows the millstone and its attendant hoop, hopper, and damsel, with the following inscription on the banner, viz : "Millbourne Mills Company. The old millstone that for ages knew no rival has been finally superceded by the 'Chilled Iron Roller Mill,' and on the rear of this float the following : "The old methods yield to the 'New Process.'"

---

## Flour Mill of 1887.

No. 6. This float shows our present mill and above it the following: "Flour Mill of 1887—Millbourne Mills Company, John Sellers, Jr. (4th in direct line) President, Nathan Sellers, Secretary and Treasurer," and on the rear: "This mill employs rolls exclusively and makes the highest grade of flour known to the trade; capacity over three hundred barrels daily."

These buildings embrace the mill proper, part of which is a portion of the original mill of 1814. Storehouse for bran and flour; capacity about 125 tons of the former, and 3000 barrels of the latter. Engine and boiler house in which there are two Buckeye Engines of eighty horse-power and fifty horse-power respectively, the former of which is exclusively employed from one o'clock, A. M., Monday, until twelve o'clock the following Saturday night, in driving the mill machinery for the manufacture of flour, with such aid, however, as is afforded by two turbine water-wheels, through which all the power of Cobb's Creek passes—being an average of about twenty horse-power daily. This

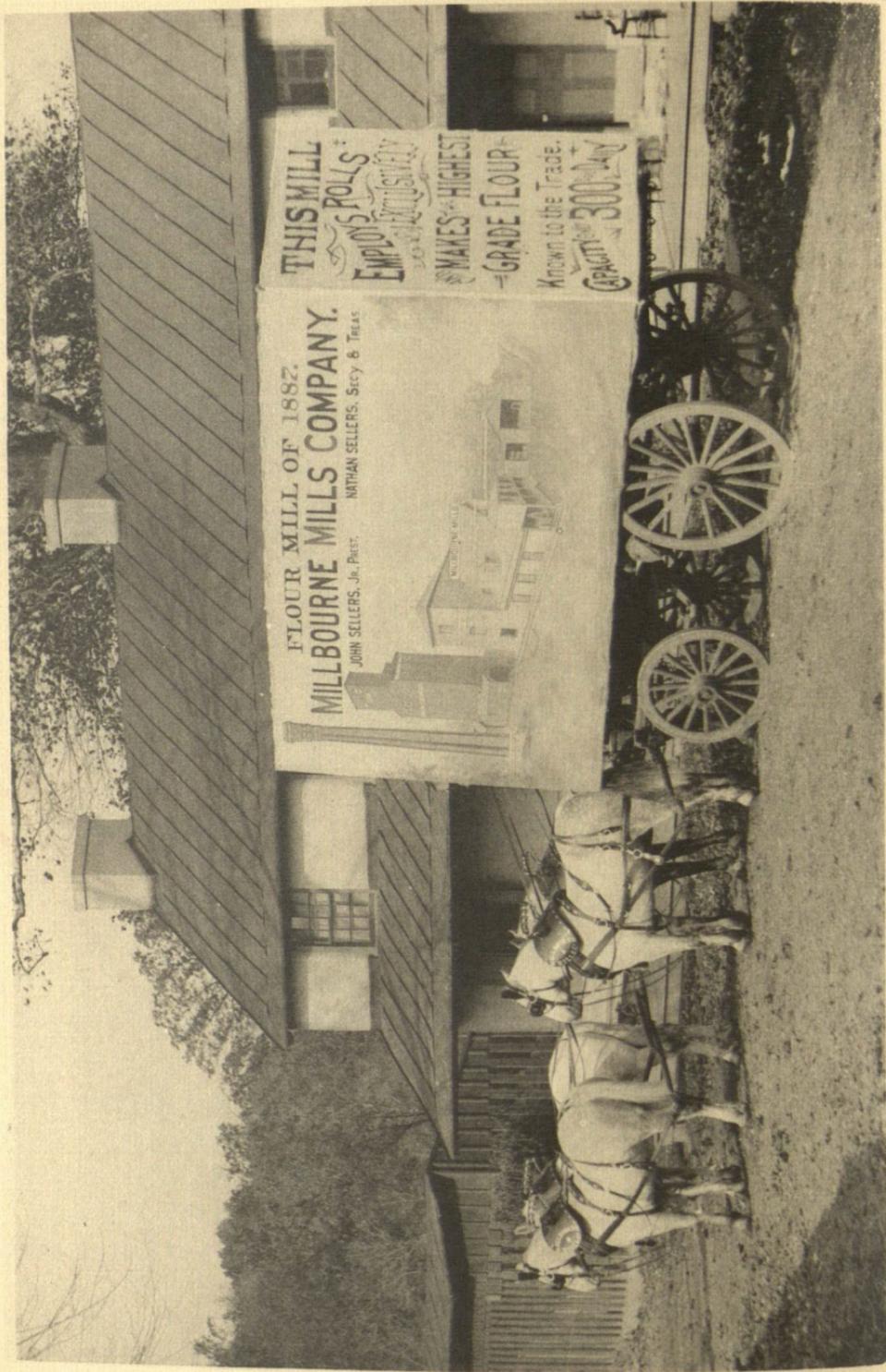
house also contains two steel boilers each 6 feet diameter, 20 feet long, of the Galloway type, either of which will develop 200 horse-power, and therefore of abundant capacity—each without the aid of the water-power—to drive all the machinery of the mill and adjoining elevator. These boilers are used alternately so as always to have one in reserve, thoroughly clean, and ready for service with the best results. This practice, in itself, is good economy where the demand for service every consecutive hour through the whole week long is so imperative; but we also had in view, in thus providing duplicate boilers, the possibility of accident to one or the other, in which case the stoppage might be a serious loss to us. They obtain their draught from a stack measuring in height 135 feet from the grate bars. An average of three tests, recently made of one of these boilers, shows the evaporative capacity to be 11  $\frac{788}{1000}$  pounds of water to one pound of combustible from and at 212° Fahrenheit.

A Carpenter shop for general construction and repairs, a blacksmith shop for shoeing the horses, previously referred to, and general jobbing, and a grain elevator building 40 x 40 feet and 106 feet high, are also part of the present plant. The elevator has a capacity of 40,000 bushels of wheat. In the tower of this building, at an elevation from the ground of 93 feet, are three water tanks of 5000 gallons each, from which a supply of water can be used at any time to flood the buildings in case of necessity, and to which is attached a very complete system of sprinkler pipes for protection against fire. These tanks get their supply from a Worthington steam pump, under the immediate charge of the engineer, and always ready for service at a moment's notice. In the top story of this building above the wheat bins, and at an elevation of 73 feet, is located all the cleaning machinery, which is driven by the fifty horse engine before mentioned.

This machinery is the best of the kind known for the purpose, and has a capacity for more than double the manufacturing capacity of the

mill, so that it is in operation only during the daytime. Being entirely removed from the manufacturing department, it is not, therefore, open to the objection of uncleanness to the latter through the large amount of dirt and dust ordinarily created by the cleaning process. Even this, however, is avoided in our establishment, for in the large room in which this machinery is placed we employ dust collectors, which not only prevent the dust from contaminating the atmosphere and soiling the buildings, but actually enable us to utilize all the material that heretofore and still is, in many mills, thrown into the open air, thus coating the buildings and all surrounding objects with a light-colored inflammable dust, exceedingly offensive to the sight and dangerous as to fire. This dust, which contains a large amount of nutrition is, in our case, collected by the process above referred to, and fed to pigs, (of which we keep a sufficient number to be the only customers for the material,) and which require from sixty to one hundred head to consume, so that we not only get some return in money for what was formerly thrown away but secure additional protection against *danger from fire*.

The several mills of 1757, 1814 and of later date on this property, have been a laboratory, as it were, in which many experiments have been tried before the time when science of the highest order came to be recognized as essential in the education of the miller. The spirit of improvement that animated the proprietors of the property, as it passed down in line of inheritance, witnessed, from time to time, important developments in the direction of better results by the introduction of new methods and the employment of superior machinery, until finally the traditional "clack of the mill" of the olden time was lost in the modern mill, which in full operation gives no sound that can be heard outside its walls, and which long before the advent of the roller system had an enviable reputation for the quality of work produced, and the honest and reliable methods of administration. The legacy thus left



FLOUR MILL OF 1887.  
**MILLBOURNE MILLS COMPANY.**  
JOHN SELLERS, JR., PRES.  
NATHAN SELLERS, SEY & TREAS.

**THIS MILL**  
**EMPLOYS 300 MEN**  
**MAKES THE HIGHEST**  
**GRADE FLOUR.**  
Known to the Trade.  
Capacity 300,000 Bushels

comes to the present owners for their emulation and is highly prized, for they are in direct descent from the first ancestor of the Sellers family, who settled in this country in the year 1682 and took title in 1690 from William Penn to this identical mill site and the farm adjoining, the ownership having passed from that time to this through one generation to another, leaving it still in the Sellers name.

The introduction of modern machinery into the old-fashioned mills of the day, (prior to about the year 1869,) created a complete revolution in the milling practice, and the business of manufacturing flour that was formerly termed a trade, may now aptly be called an art or science, as a more intelligent manipulation of the material is absolutely essential to insure a successful result. Previous to this time the aim of all progressive millers was devoted to reducing the kernel of the wheat-berry to flour in one operation, without producing any semolina or middlings. Every improvement that could be made on the millstones—their speed, their dress, and their general handling—had this one object in view. The idea being to make as small an amount of semolina or middlings as possible, and as large a quantity of flour in one operation. The middlings thus made were looked upon as an inferior article, *suitable food only for pigs or cattle*. In the new or modern system, called “New Process,” this whole arrangement is reversed—the central idea being to make the largest quantity of middlings possible and the smallest amount of first or “break” flour. Under the old process, all of the flour was sought to be produced at one operation, the new process seeks to produce it in very many operations, and for this reason: If the flour is manufactured at one time, so much heat must be generated that only the coarse gluten will escape injury. All of the fine will be so much burnt that such flour will not take up nearly the quantity of water that flour produced by the “new process” will absorb, and upon the capacity for absorbing water the lightness and nutritive qualities of the bread largely depend, so much so that what is known

as Vienna bread, cannot be produced from flour made under the old process. Before the invention of the Automatic middlings purifier, new process flour was made on the continent of Europe by high grinding to produce the largest amount of semolina, and treating each successive grinding by hand-sieves covered by sheep skins, consequently such flour was available only to kings and princes or the wealthy portions of the community. This hand process was finally adapted to operate by power to deal with the middlings (about ten per cent.), which the miller could not help but produce however close he might grind with the millstones, and the handling of this despised production by purifiers developed in the course of time an entirely new principle in milling, popularly known as the "Roller System," which has become the accepted method of all first-class establishments throughout this and all progressive foreign countries. The middlings, the product of the sieve and air purifier, proved not only more valuable, as the miller expected, for a cattle food, but more so than the highest grade of flour he had ever known, and developed the necessity for increasing the production of this article, as the more he made the more high grade flour he was enabled to manufacture. When this became apparent, all manner of devices were adopted to secure the largest quantity of semolina, and a sort of high grinding with millstones was tried. Previous to this time the stone had been grinding about fifteen bushels per hour, but afterward they were fed to turn out but seven or eight bushels per hour, and all with a view to make more middlings. The grinding became higher and higher, and at last a sort of gradual reduction on millstones was tried, but the best form of stones made but a small percentage of middlings, and various devices were added to assist, and mills which formerly contained millstones only for reducing the wheat in one operation, introduced small or pony stones and other contrivances for reducing the middlings, and special methods for treating the tailings. Between each pair of burrs were bolting reels, and at this point the limit of

the production of middlings by millstones was reached, and other means for increasing the quantity became a necessity. The rigid spindle millstones, with grinding surfaces at fixed and controllable distances apart, was tried, and was the last step previous to the advent of the "Roller System." The purifier was the prelude to the gradual "break" system by corrugated rolls, and the necessary outcome of this idea. Our eastern mills, handling none but Winter wheat, suffered greatly thereby, the supposition then being that none but Spring wheat could be granulated on rolls in that particular manner. In our own individual operations, however, we soon proved that the process was as well adapted to Winter as to Spring wheat, and about 1879 commenced gradually improving, keeping our mill running constantly, adding, from time to time, chilled iron rolls and other improved machinery as fast as our needs required them, until the millstones have been finally discarded and our trade and capacity increased, until we are pushed to supply our orders at a capacity of about three hundred and fifty barrels daily.

---

## Chilled Iron Roller Mills.

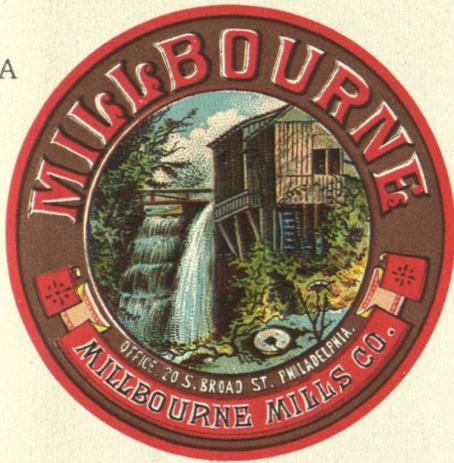
No. 7. To show to the uninitiated the character of the "Chilled Iron Roller Mills," of which there are now many types, and which have so effectually superceded the French Burr Millstones, which for many ages held undisputed sway in the manufacture of flour, we present on this float two complete machines, from which some idea of their general construction and appearance may be obtained.

## Our Brands.

No. 8, of our exhibit, shows one of the mill wagons loaded with flour, under a banner with the inscription, "Our Brands."

Owing to the impossibility in the process we have employed in the reproduction of these exhibits to transmit colors, we are unfortunately unable to show the brands on the barrels as they actually exist, and are, therefore, under the necessity of making a separate cut, as shown herewith, naming them in the order of their quality.

A



(A) "Millbourne" represents a so-called patent flour and the best grade manufactured by us. We claim it to be fully up to the highest standard of quality (in this or any other section of the country) in uniformity, color, strength and purity. We base this claim upon the care and exercise of such intelligence as we possess in the selection of the best wheat, the employment of the best methods of manufacture, the best machinery for the purpose, and the best skill that can be obtained to secure that end. This same care and intelligence is applied with equal assiduity to the lower grades of flour made by us as well.

B



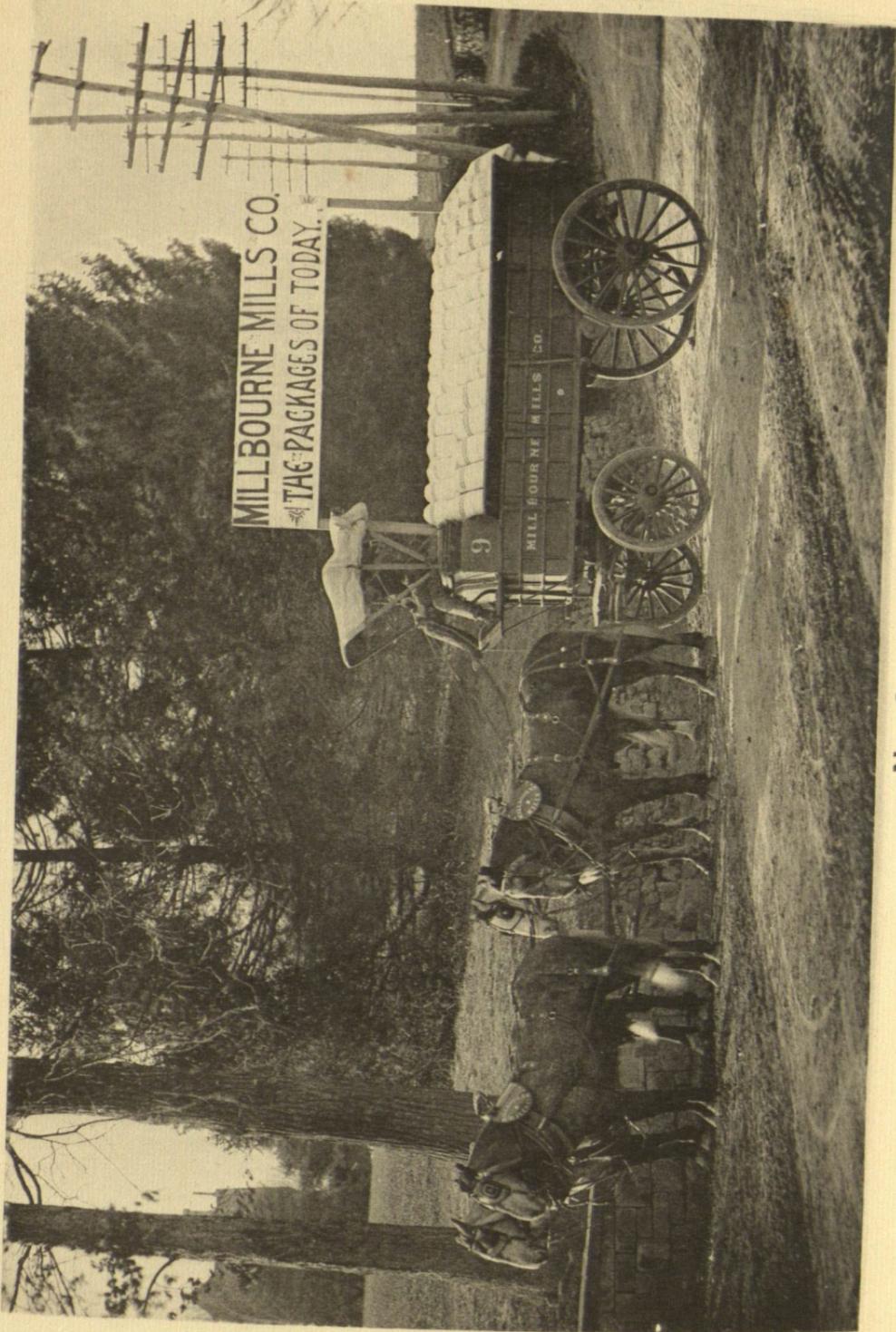
(B) "Rosabel" represents what is known to the trade as a "straight" flour, and is claimed by us to be equal to any of the same grade manufactured here or elsewhere. Previous to the advent of the "new process," this flour would have been considered phenomenal. Improved methods elevate the standard and what then could not be produced, is now classed as second grade. Its inferiority, however, to "Millbourne," will be found mainly in the color. It is eminently a highly satisfactory family flour.

C



(C) "Semper Idem." This represents our third quality for which we hold ourselves responsible for the statement, that it is unsurpassed by similar grades, and as the name indicates, is "always the same." In the "French burr age," a flour that would rank with this brand would pass under the Inspector's hand as a "superfine" of the best quality, and would then be considered up to the highest known standard. It now takes, under the new régime, the third place and may safely be claimed in the present classification as a family and baker's flour of superior merit.

These brands designate the several qualities of flour offered to the trade we solicit, and are guaranteed by us to fulfill the foregoing specifications. They stand to us in the light of a trade-mark in each case, which we are bound to protect by every obligation we are under, to a business of our choice as well as of inheritance through many generations.



MILLBOURNE MILLS CO.  
THE PACKAGES OF TODAY.

MILLBOURNE MILLS CO.

No. 9.

## Packages of To-day.

No. 9, of our exhibit shows, also, one of the mill wagons, loaded in this case with muslin sacks, filled with the several brands of flour, under a banner inscribed, "Packages of To-day."

The same difficulty as to transmission of color makes it impossible to show the brands on these packages as they actually exist. They, however, simply designate the several qualities contained in them, as indicated by the different brands. These same packages show the gradual change that has come over the commercial methods of the dealers in flour throughout the country in the last few years. In former times the grocer or flour dealer purchased all his supplies in packed barrels of one hundred and ninety-six pounds each, and made a division of these larger packages into smaller ones, in either paper or muslin bags, as the case might be, to suit his customers, and the wants of those the latter supplied. To do this he was compelled to sift the whole contents of every large package through fine sieves to get clear of the hard lumps caused by the tightly-packed flour in barrels. The modern practice, in order to relieve the dealer of all this labor, cost and annoyance, is to purchase from the miller direct such packages in muslin or paper, containing one-eighth or one-sixteenth of a barrel in each package. As some indication of the change of practice in this respect we may state, that the amount furnished by us in this way to the trade is now about fifty per cent. of our entire production.

To those who would like a more intimate knowledge of the various subjects of which we treat in the foregoing little history, and which we trust may have some interest even to those outside of the dealers in the "Staff of Life," we would extend a cordial invitation to visit our mills, where, with the aid of working machinery, we will be better able to make clear some of the newer processes in this important industry that are the direct outcome of the revolution we have attempted to describe in the manufacture of flour.