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And lo!
To the remotest point of sight,
Although I gaze upon no waste of snow,
The endless field is white.

From *The Cotton Boll* by Henry Timrod.
1859





FROM NATURE BY T. B. THORPE ESQ. OF LOUISIANA.

LITH. OF G. & W. ENDICOTT N. YORK

THE COTTON PLANT.
Dedicated to the Cotton Planters of the South.

1. The blossom.
2. The flower.
3. The same flower, Second day.
4. The same flower at night.
5. The "burr," or involucre.
6. The young boll.
7. The boll bursting.
8. The boll nearly ripe.
9. The boll ripe, cotton perfect.
10. The Cotton blown by the wind.

ROCKY MOUNT MILLS

A CASE HISTORY
 OF
 INDUSTRIAL DEVELOPMENT

1818-1943

ROCKY MOUNT, NORTH CAROLINA

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FOREWORD

This is the story of Rocky Mount Mills — a story which covers a span of one hundred and twenty-five years and traces the growth of one of America's pioneer industrial companies from its inception as a purely local enterprise to its present-day position as one of the most efficient operating units in the cotton spinning industry.

The story is interesting, we believe, as the historical record of a single manufacturing establishment that has successfully operated for more than a century under the management of one family.

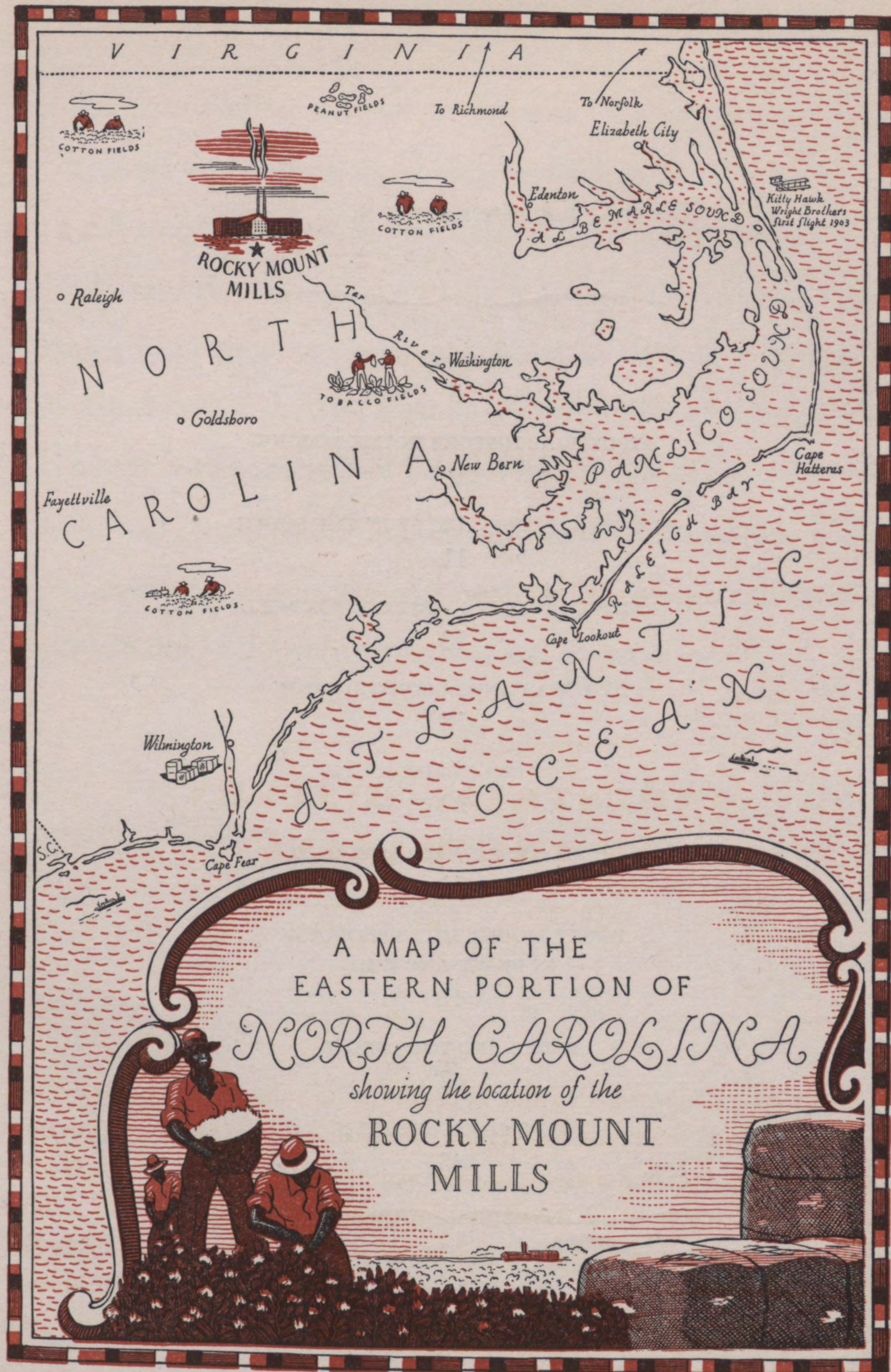
Its greater value, however, lies in the fact that it presents a case history of a company that epitomizes, in its origin and subsequent development, the establishment and growth of American industry as a whole during the period of transition of our nation from

a vast unexploited storehouse of natural resources to the highly organized and industrialized society which is America today.

The story of Rocky Mount Mills is significant, also, because it symbolizes the beginning and the growth of the industrial South. As the first cotton mill to be established in the State of North Carolina and one of the first such enterprises to be established below the Mason and Dixon line, Rocky Mount Mills has its place in the industrial history of that great section of the United States which is today, after many vicissitudes, realizing its full potentialities as a contributor to the nation's wealth and economic strength.

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Spinning in the 18th century. A "spinster" around 1740.

INDUSTRIAL HISTORY IN THE MAKING

Twelve feet deep, at high water, beneath the turbulent current at the Falls of Tar River, the solid rock foundations of the first Rocky Mount cotton mill stand today as firm and massive as they were when first they were laid and pointed up back in 1817 by plantation owner Joel Battle's negro slaves. There is no indication in this rugged bit of construction of the inefficiency of slave labor; nor is there any indication in the history of Rocky Mount Mills of the "decadence" of the old South, slave itself to King Cotton and to the unbalanced economy of that bygone era.



An old hand gin.
From an old woodcut.

Even during the period before the war between the states, when the concept of an industrialized South found few advocates, even during the Civil War itself, and during the bitter days of Reconstruction, the cot-

ton mill at Rocky Mount continued its production. And now, today, after a century and a quarter the mill remains as firmly grounded in the soil of North Carolina, and in the new industrial empire which the South is building, as its foundations remain grounded in the bed of Tar River.

The history of Rocky Mount Mills is closely interwoven with the history of one family, the Battle family, for it is in the hands of this one family that the fortunes of the Mills have largely rested for the past one hundred and twenty-five years.

The ancestors of Joel Battle, the first of the Battle family with whom this story is primarily concerned, came to the English Crown Colony of Virginia about the year 1654. Subsequently they moved to North Carolina and became large land owners. Joel Battle's home plantation, known as "Shell Bank," was located on Tar River, a few miles below what is now Rocky Mount.

Meanwhile there had been established in the locality, about 1807, a grist mill which operated from the water power developed by the Great Falls of Tar River. As was usual in those days, it was the presence of water power that determined the location of these first crude industrial plants. Because of a great granite ledge which forms a natural dam, the Falls of Tar River was an ideal site for operating a grist mill. This mill was owned by one John Watkins and his associates, all near neighbors of the Battles.

To Joel Battle and his brother-in-law, Peter Evans, the mill site and the available water power seemed to offer an opportunity. Joel Battle was a well educated man, having spent two years as a student at the University of North Carolina, of which institution one of his grandsons was destined to be president. Because he and his father and brothers were all farmers and

raisers of cotton, he was undoubtedly aware of the cotton mill development currently going on in the New England states. It seems obvious that Joel Battle and Peter Evans must have recognized the advantages of a local cotton mill, if for no other reason than to spin yarn to meet the needs of the local community, and perhaps to fabricate the coarse cotton cloth required to clothe the growing slave population of the neighboring plantations.

In any case, as early as 1816 these two brought from the North a man of Scotch ancestry named Henry A. Donaldson, who had had practical experience in the cotton mill business. The three partners began buying land around the Great Falls and soon became owners of the entire area.

The construction of the original stone building in which the cotton mill was housed was begun in either 1816 or 1817. Manufacturing had clearly commenced as early as 1818, for in 1819 the building was enlarged. The mill building itself was about 76 feet long by 30 feet wide and consisted of four floors. All of the original machinery was made in North Carolina, a considerable part of it, no doubt, being hammered out under the experienced eye of Henry Donaldson.

PRE-CIVIL WAR INDUSTRY IN THE SOUTH

In order to gain a true perspective of this fledgling industrial enterprise at Rocky Mount, it is necessary to have some understanding and appreciation of the economic orientation of the Southern states during the first half of the 19th century.

In the days when Virginia and the Carolinas were being settled, and for some years thereafter, considerable attention was given to manufacture. Several of the sectional governments offered positive inducements to newly-established industries and made every effort to foster the growth of manufacturing. During this period, therefore, the Southern territories gave promise

of developing a well-balanced economy and of becoming to a considerable extent self-sufficient with respect to their supply of essential manufactured goods.

The vital factor which changed the entire situation was the invention by Eli Whitney of the cotton gin in the year 1793. The ease with which raw cotton, particularly the upland grades, could now be mechanically processed meant a tremendous saving in the conversion of the cotton boll into spinnable cotton. Although cotton had, of course, been extensively used before, this revolution in the method of handling the fibre so reduced its cost that cotton fabric soon became "the poor man's cloth," and the market for it expanded with unbelievable rapidity.

The effect of this upon the Southern territories was likewise revolutionary. The land and the climate in this section of the country were both ideal for the growing of cotton, and it soon became apparent that the shortest and easiest road to wealth lay in the growing of the staple for which the whole world was clamoring. Private capital rushed into cotton lands and into the purchase of slave labor to till those lands. By degrees cotton assumed a position of such paramount importance that its production was the very economic life of the South. For more than forty years, from the beginning of the 19th century, King Cotton held absolute sway throughout the South and blotted out all attempts to industrialize that section.

The steady increase of the slave population in the South also contributed to the agricultural enslavement of that section of the country. The existence of slave labor made it impossible for free white labor to make a living in competition with it, and the socially inferior position which labor of any kind held in the South made that part of the United States unattractive to free white workers. As a consequence, most of the artisans who were at that time flocking to the new world from Europe stayed in the North where working conditions were better and greater opportunity beckoned. The South was thus bereft of the



The new crop reaches the gin house. About 1875.



Hauling cotton for shipment. From a drawing dated 1866.

skill and intelligence of the white workers which were being applied to the problems of Northern industry.

Under these conditions, it is somewhat surprising

that Joel Battle should have conceived the idea of a cotton mill at Rocky Mount, for he and all of his family were plantation owners specializing in the production of raw cotton. That they were successful at it is attested by their steady acquisition of more land and wealth. It is probable, therefore, that the first mill was started primarily as a sort of local public utility for the benefit of the surrounding community. This view is confirmed by the fact that Joel Battle and his associates continued to run the grist mill, which was of great assistance to the planters for miles around. The grist mill had previously been erected at the Great Falls and, subsequently, a saw mill and a cotton gin were added. Imports of manufactured goods were expensive in those days and difficult because of inadequate transportation facilities. A community mill was, therefore, a great convenience.

NORTH CAROLINA'S FIRST COTTON MILL

Evidence indicates that Rocky Mount Mills was the first cotton mill to be established in the State of North Carolina. Certainly it is the oldest mill in the state still operating at its original site. Authority for this claim of primacy is given by an article published in the August first issue of the "Western Carolinian" in the year 1838.

"Since we became proprietors of the Carolinian" editorializes this journal, "we have taken some pains to obtain all the information within our reach

concerning the cotton manufactories in North Carolina, knowing that it would prove interesting to our readers. Our list is not complete, but even as far as it goes, many of our citizens will be surprised to see the progress North Carolina has made in the establishment of manufactories: — it should be recollected that all these establishments, with exception of two or three, have sprung up within three or four years. The following is, as far as we can ascertain, a list of cotton factories in actual operation in North Carolina.”

The journal then goes on to list eleven such enterprises and the list is headed:

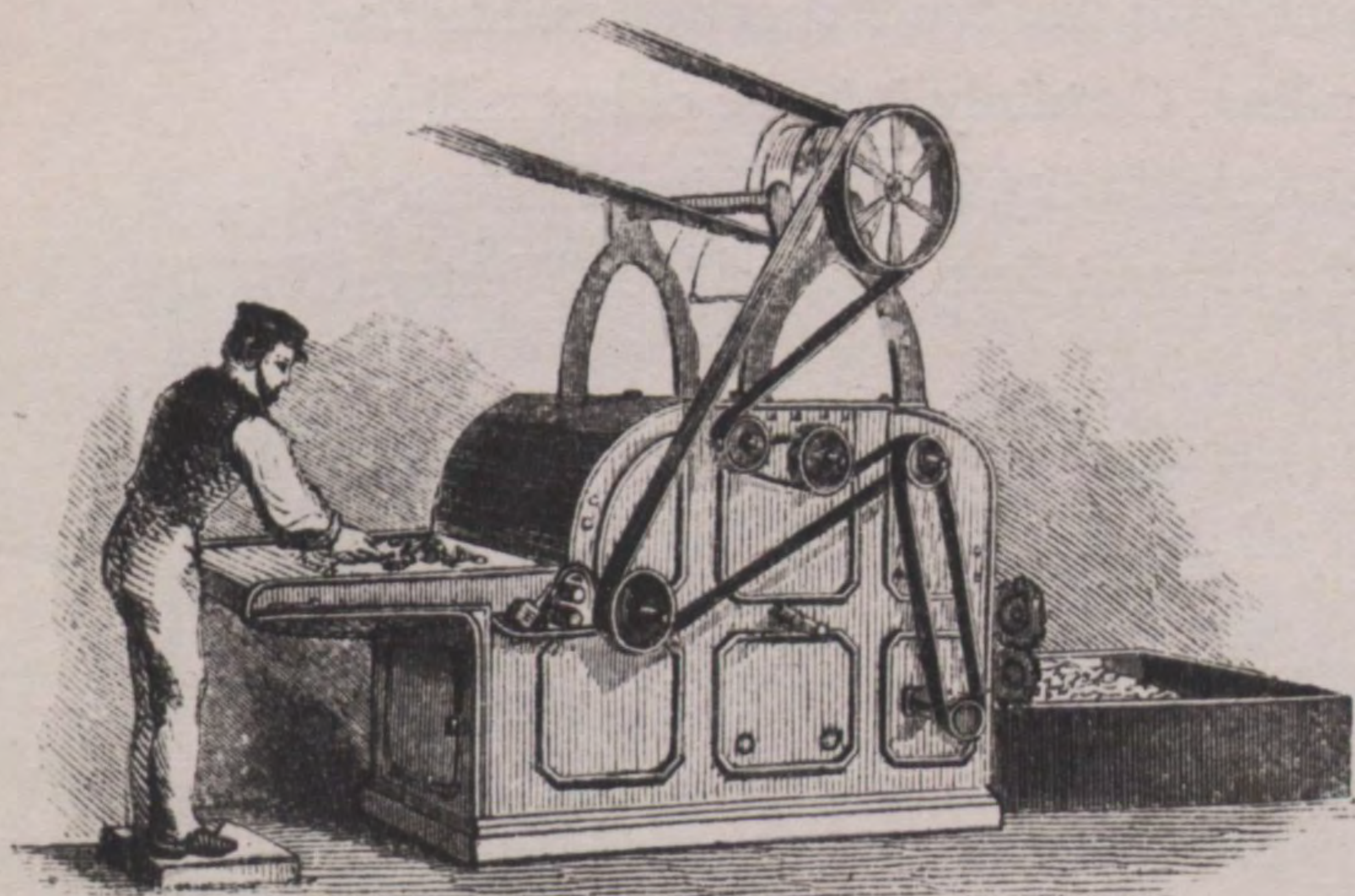
“1. Factory at the Falls of Tar river, in Edgecomb county. This is the oldest in the state; owned by a company.

“2. Factory near Lincolnton, Lincoln county, built by a company, — but is now owned by Mr. John Hoke.”

The Lincolnton mill has been credited by some authorities as being the first cotton mill in North Carolina, but it seems reasonable to suppose that a newspaper published during this early period (1838) in the western part of North Carolina where Lincolnton is located must have had solid foundation for its assertion as to chronology.

As has been indicated, the mill was at first owned by the three partners, Battle, Evans and Donaldson. This arrangement, however, did not long continue. It appears that in 1821 some disagreement arose among the partners and Donaldson bought out the Evans interest in the mill. Four years later, as evidenced by a deed dated August 26, 1825, Donaldson sold his entire interest in the mill and in the property at Great Falls to Joel Battle. The price, which was \$15,000, seems a substantial one for the period and would indicate that the mill had proven itself a profitable venture.

Joel Battle continued to operate the property until his death in 1829. During these early years the mill did both spinning and weaving. In its character as a community enterprise, its principal customers were the local plantation



An early opening machine.



William H. Battle

owners who brought their corn to the grist mill to be ground, and their raw cotton to the cotton mill where it was spun into yarn. Clark, in his well-known history, “The South in the Building of the Nation,” mentions the Rocky Mount mill and states:

“For some years prior to and during the Civil War, the mill was a general supply station for warps which the women of the South wove into cloth on the old hand looms.”

Some coarse cloth was manufactured at the mill, moreover, which was used to clothe the slave population of the surrounding plantations.

It is probable that some good share of the mill’s business was conducted, as was customary at that period, on a basis of barter. Finished yarns were exchanged in some cases for meat and grain, and sometimes for raw cotton. It is reported in Broadus Mitchell’s “The Rise of the Cotton Mills in the South” that the local mills of the period were “able to barter for the small quantities of local raw cotton which they used. The standard of exchange, the par, was one yard of 3-yard sheeting for a pound of raw cotton, which was one-third of a pound, made into cloth, for one pound in the raw state. But this was a retail and not a strictly manufacturing profit.”

The mill, during Joel Battle’s time and, indeed, up to the year 1852, was operated on the basis of slave labor. The fact that the mill shifted to paid help as early as it did (more than ten years prior to the Emancipation Proclamation) would indicate, however, that the employment of slaves for factory work left something to be desired.

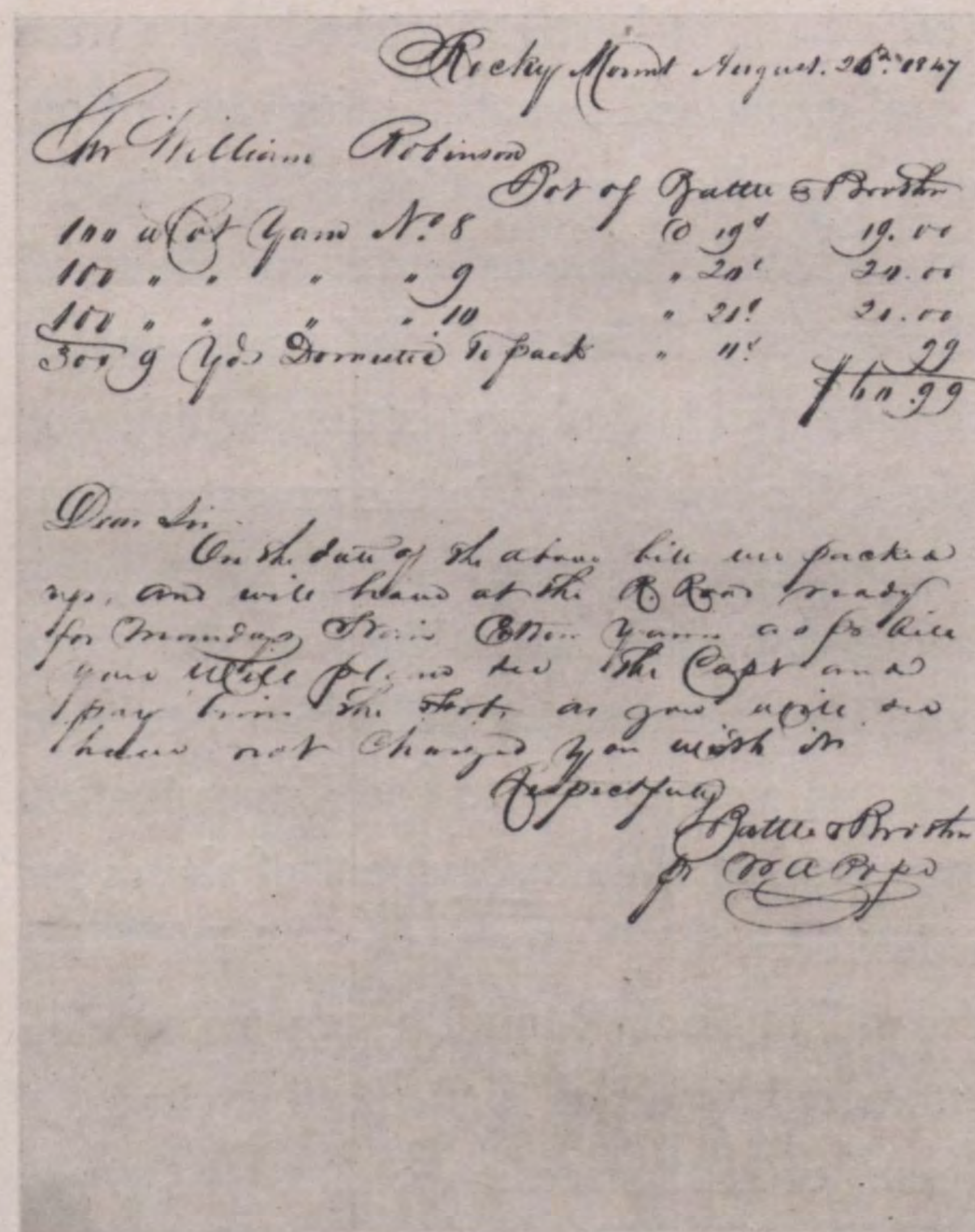
Even in the days of Joel Battle, the mill at Rocky Mount began to broaden its market and to reach out for customers beyond its immediate environs. A clipping from the Tarboro “Free Press” of 1828 states:

“The manufacture of cotton into yarn at the Falls of Tar River is the oldest in the state and it recently shipped twenty bales of yarn.”

Upon the death of Joel Battle, his estate was divided among his children. The cotton mill was operated by them as "Battle & Bros." under the leadership of the oldest son, William H. Battle, who later became a Justice of the North Carolina Supreme Court.

In 1835, one of the sons, Benjamin D. Battle, built for himself a handsome Colonial residence adjacent to the cotton mill. It is this house, barely saved from destruction at the hands of Yankee troopers during the Civil War, that today serves as the general office of the company. The cover of this volume shows the front entrance to the company's general office practically as constructed a century ago.

Three years later, in 1838, an attempt was made to organize a corporation to take over the mill property. A charter was granted in that year by the North Carolina Legislature, and on January 1, 1839, an organization meeting was held with William H. Battle presiding. It was resolved to accept the charter, sell stock and acquire the property for \$80,000 (an indication of how



its value had enhanced in the twenty years of its existence). Capital was not forthcoming, however, since the South was still sticking to its cotton fields, and the plan was dropped.

Five years later, three of Joel Battle's sons decided to purchase the mill property outright from the other heirs. The following notice appeared in the Tarboro "Free Press" of November 16, 1844:

Facsimile of an original invoice by Battle & Bros. in 1847.

WILLIAM H. BATTLE AND BENJ. D. BATTLE, HAVING
PURCHASED THE INTEREST OF AMOS J. BATTLE IN THE
COTTON FACTORY
AND APPURTENANCES SITUATED
AT THE FALLS OF THE TAR RIVER
THE WHOLE ESTABLISHMENT IS NOW OWNED BY THEM AND C. C.
BATTLE. THE BUSINESS IN FUTURE WILL BE CONDUCTED AS HERE-
TOFORE, IN THE NAME OF BATTLE & BROTHERS, AND UPON THE
SAME LIBERAL ACCOMMODATING TERMS.

This, the second generation of the Battle family to operate the mill, continued to supervise the property until 1847, when they sold it to a cousin, James S. Battle, and his son, William S. Battle.

Meanwhile, the opportunities for the mill to expand its business had been greatly enlarged by the coming of the Wilmington and Weldon Railroad, now the Atlantic Coast Line, the right of way for which ran within about a mile of the mill site. Immediately a larger market for the mill's products was opened up. The old invoice of Battle & Brothers, dated August 26, 1847, reproduced on page 16, refers to a shipment of cotton yarn that "was packed up, and will hand at the Railroad ready for Monday's train. You will please see the Capt. and pay him the freight." Thus the mill had by this date definitely passed out of its initial phase as a purely local enterprise.

Concerning the development of the mill, the North Carolina "Register," in 1841, published this brief article:

DOMESTIC MANUFACTURE

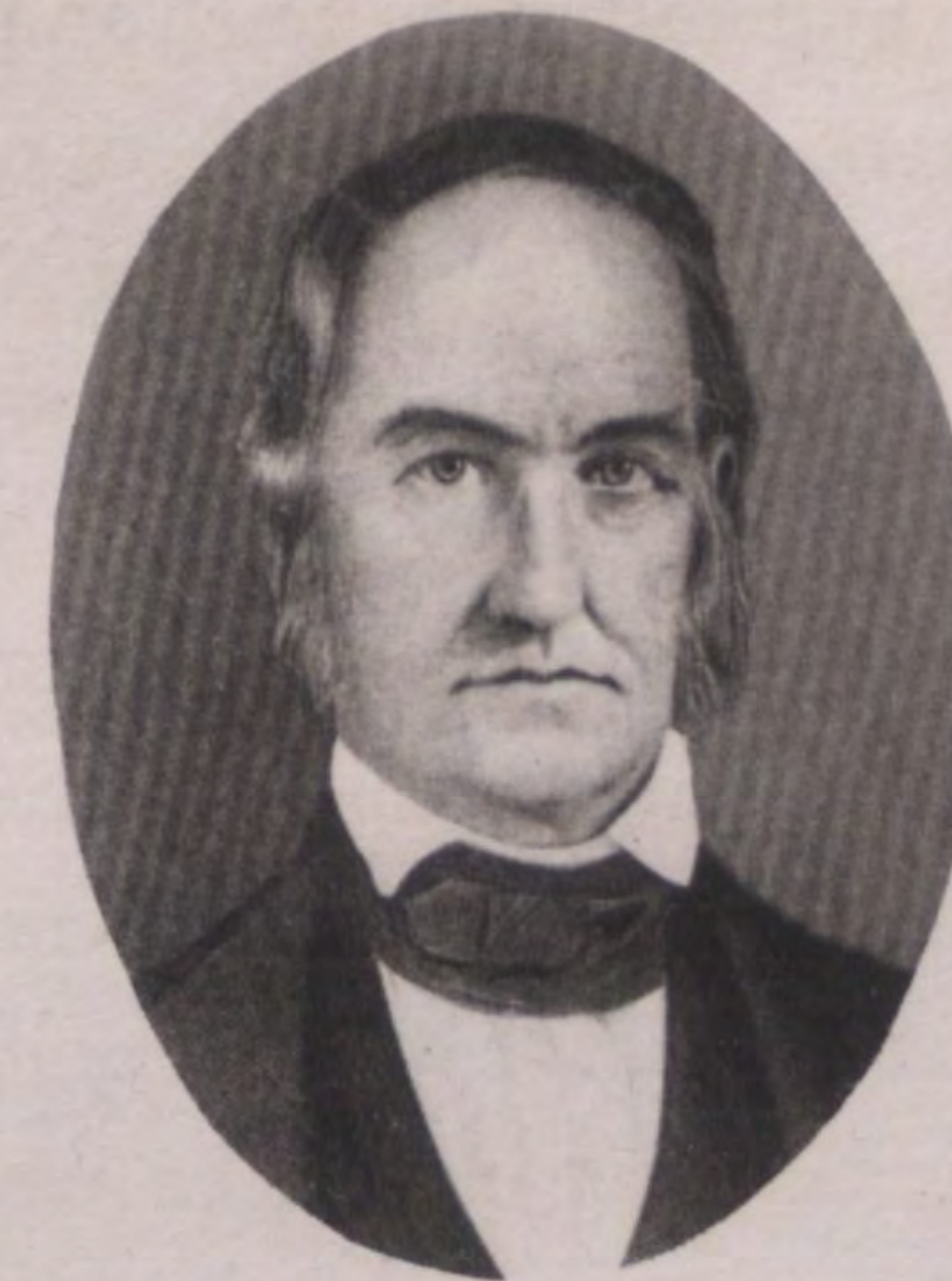
Battle & Brothers, the enterprising proprietors of the Cotton Factory at Tar River, have sent us a very handsome specimen of Cotton Twine manufactured at their Establishment. The machinery, also, used in its preparation, was made by a North Carolinian; which imparts additional value to the article in our estimation. We were also shewn a very neat specimen of Sewing Thread made at the same place. Why should our Merchants and dealers obtain from distant markets those articles which experience has demonstrated we can manufacture as well and as cheaply at home? It is time that this unpatriotic habit should be discontinued, and our own Manufactures be encouraged.

It is interesting to find from this report that the mill at Rocky Mount was at this period beginning to develop new products. The business was obviously beginning to mature, and to think in terms of wider markets. But the hope expressed by the "Register" that North Carolina should turn in any broad sense to the business of manufacture was not to be realized for another forty years; it was to take the cataclysm of the Civil War finally to bring home to the South the perils of a strictly agricultural economy, especially one based almost exclusively upon one crop.

CIVIL WAR AND RECONSTRUCTION

James Smith Battle, who with his son acquired control of Rocky Mount Mills in 1847, was one of the largest plantation owners in North Carolina. At the time of his death, he owned about 20,000 acres of rich river land especially suitable for cotton raising, and was the master of some 500 slaves. At then current values, this slave holding was itself worth more than \$300,000.

One incident of James Battle's career exemplified his high standard of moral responsibility. A slave on his plantation became embroiled in an unfortunate quarrel with an overseer, as the result of which the overseer was stabbed by the negro and died. After careful investigation of the circumstances, Battle became convinced that the slave had acted in self-defense under extreme provocation. He therefore determined to see that the slave received justice. Battle thus became perhaps the first slave owner in the South to defend a slave in court against the charge of murder of a white man. He engaged two leading members of the North Carolina Bar to represent the negro, to one of whom he is reported to have paid the very substantial fee of one thousand dollars. When the negro was adjudged guilty in a primary court and sentenced to death, an appeal was carried to the State Supreme Court, which reversed the decision and saved the man's life. The opinion of the



James S. Battle



William S. Battle

Supreme Court of North Carolina in *State versus Will*, 18 North Carolina Reports, page 121, is a landmark in the history of Southern jurisprudence.

Upon the death of James Battle in 1857, his son and partner, William S. Battle, acquired the mill property of which he remained the sole owner until 1878, operating it with his son, James S. Battle, under the name of "Battle & Son." Thus the third generation of the Battle family took charge of Rocky Mount Mills.

Meanwhile, the strained relations between the northern and southern sections of the country had reached its climax. War was declared, William S. Battle being one of those who participated as a member of the North Carolina Constitutional Convention of 1861 in voting the state out of the Union.

With the declaration of war, Rocky Mount Mills assumed a new and vastly increased importance. It was only after commercial relations with the North had been severed, and intercourse with the outside world halted by the Northern embargo, that the South fully realized its deficiencies in manufacturing equipment essential to the conduct of a war. Obviously, any production unit such as a cotton mill immediately became a vital asset to the Confederacy.

Rocky Mount Mills was engaged at once in the manufacture of cloth for the Confederate Government, as well as in supplying yarn from which

the women of the South could weave cloth and knit socks. Such an important production unit naturally attracted the attention of the Northern command, and in July, 1863, while the forces of the North held control of New Bern, North Carolina, a raiding party of cavalry was organized and dispatched to Rocky Mount with the specific purpose of destroying the Mills.

On July 20, 1863, the raiders reached Rocky Mount and put torch to the cotton factory, the gin and the grist mill, burning them all to the ground. The Union troops then started to burn the residence of the owner. Fortunately, the superintendent of the mills, then in charge, was himself a Northern man and a Mason. Going to the commanding officer, he was able to persuade him to spare the residence, so it remains today substantially as it was at the time of the Civil War.

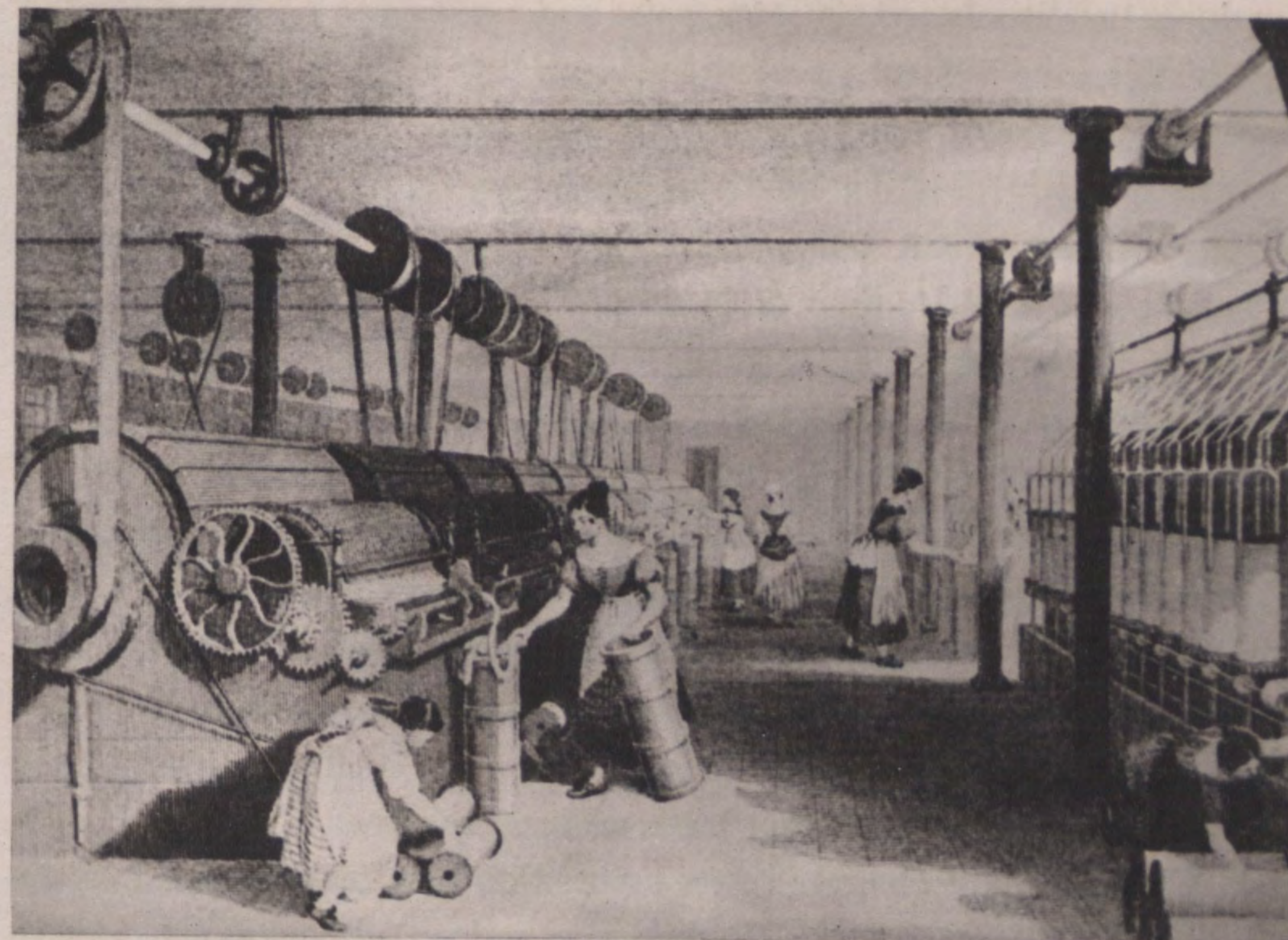
As the raiders were returning to their headquarters at New Bern, a small engagement took place with a body of Confederate Junior Reserves at the town of Tarboro, during which several of the invaders were killed. Half a century later, Dr. Russell H. Conwell, well known Baptist preacher, author of the celebrated lecture, "Acres of Diamonds," and founder of Temple University, appeared on the Chautauqua platform in Tarboro. He prefaced his address by stating that his last visit to Tarboro had been as a member of the troop of Federal cavalry that had destroyed Rocky Mount Mills in 1863. "Southern hospitality," he added, "has improved since those days."

The original cotton mill at the time it was burned had 2,000 spindles. Attached to it was a large wooden building for the accommodation of either spinning or weaving, and in the same group of buildings were also the grist mill, the cotton gin, the saw mill and two store houses. All of these buildings, together with the machinery, were a complete loss.

Not discouraged, William S. Battle erected in 1865 on the same site a new brick mill building, which was also of four stories. The basement was used for looms, the first floor for carding, the second floor for spinning, and



In the early days, laps were formed by hand.



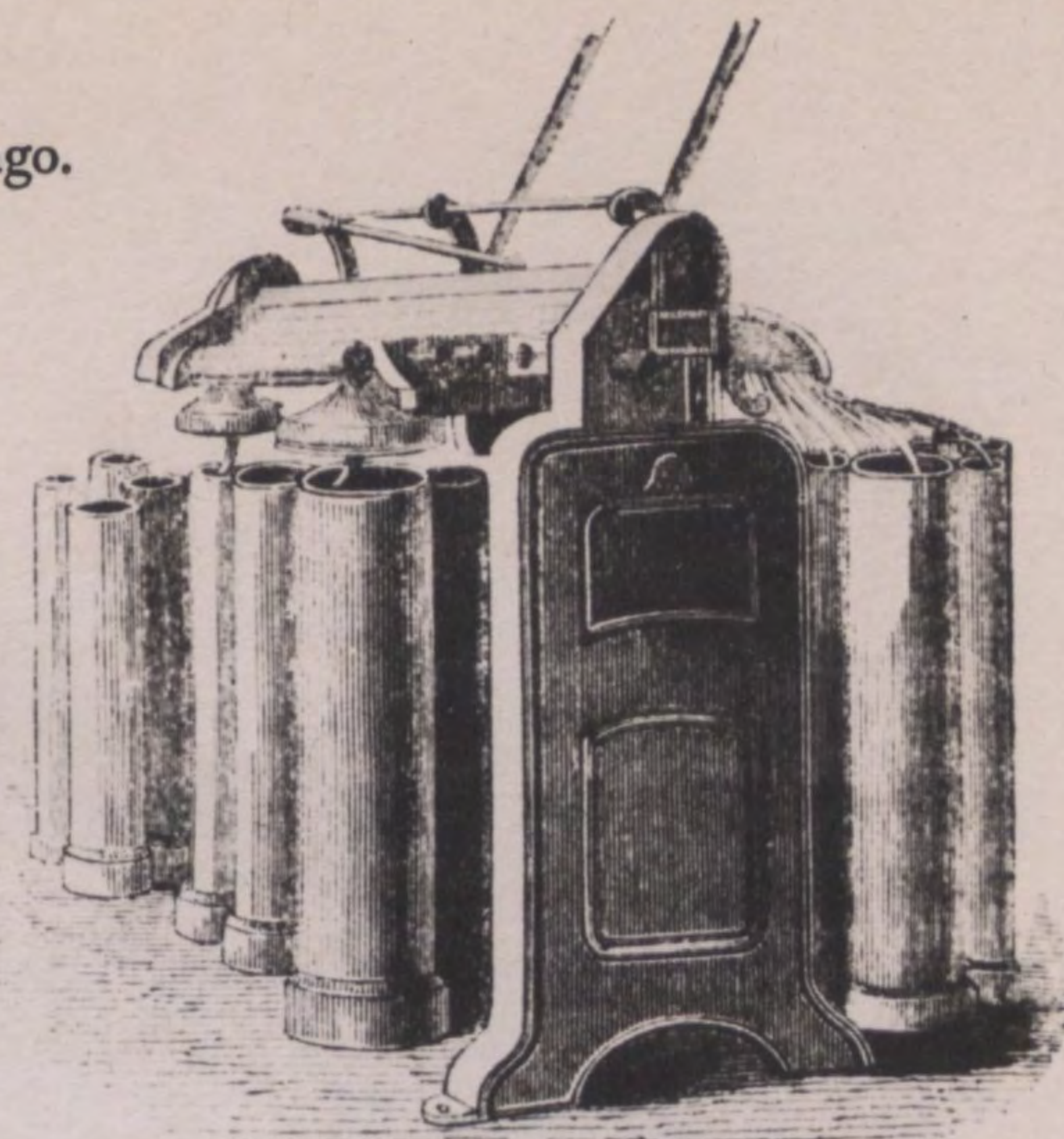
Carding and roving in the 1870's

the third floor for reels in which the "dressing" was also provided. The factory as it was rebuilt contained 28 looms, 1600 spindles, and other necessary machinery, according to Col. Bridgers' "History of Edgecombe County." In full operation, it had a capacity of about 900 pounds of raw cotton a day, and turned out about 1200 yards of shirting and 500 pounds of cotton yarn. Some fifty operatives, now fully on a wage basis, were employed.

But ill fortune continued to beset the establishment, for on November 10, 1869, the mill again was burned, this time by an incendiary. Both the mill building and the machinery were a total loss, and Mr. Battle was once more forced to rebuild the plant. Business apparently was good, for in 1871 the number of spindles was increased to 3000 and the number of looms to 100.

William S. Battle could not, however, avoid the drastic consequences of the Reconstruction Era that was then in progress throughout the defeated Southern states. Prior to the war he had been a large plantation owner and slave holder. Now, at the mercy of unscrupulous carpetbaggers, subjected

A drawing frame of fifty years ago.



to ruinous taxation, bereft of the franchise and thus unable even to voice a protest, he found himself "land poor," his capital, which had consisted largely of slave holdings, nearly wiped out, and credit temporarily nonexistent. He was forced to drain from the Mills whatever liquid resources remained, leaving it woefully short of working capital.

Under these circumstances, Battle sought to strengthen the position of the company by incorporation and the sale of some stock to outside investors. A charter was granted by the State Legislature on February 16, 1874, with William S. Battle and two of his sons as incorporators. The capital stock was fixed at \$150,000 with authority to issue additional capital stock up to a total of \$1,000,000.

The charter is unusual in that it is a rather rare surviving instance of the archaic procedure of charters being granted directly by the State Legislature, and it is also noteworthy for the broad and varied powers extended to the new corporation. According to its charter, the company is authorized to "engage in the manufacture of cotton, woolen, or other fabrics, or in any species of manufacturing enterprise, may make and operate rail, turnpike, tram or other roads or any of them for the purpose of connecting its works with one another and with other roads, and to that end shall have the power conferred on railroads."

By reason of having been incorporated by the Legislature, Rocky Mount Mills is one of the few companies in North Carolina that is not required to use the word "incorporated" or "company" as a part of its official name. All companies incorporated in the state since the year 1901 must so designate themselves.

This incorporation was re-enacted by the State Legislature on December 12, 1876. On January 3, 1878, the three incorporators met to perfect the organization, William S. Battle being elected as President. He was also owner of all of the capital stock of the company except for the qualifying shares given his two sons. Conditions continued to be so difficult, however, that the

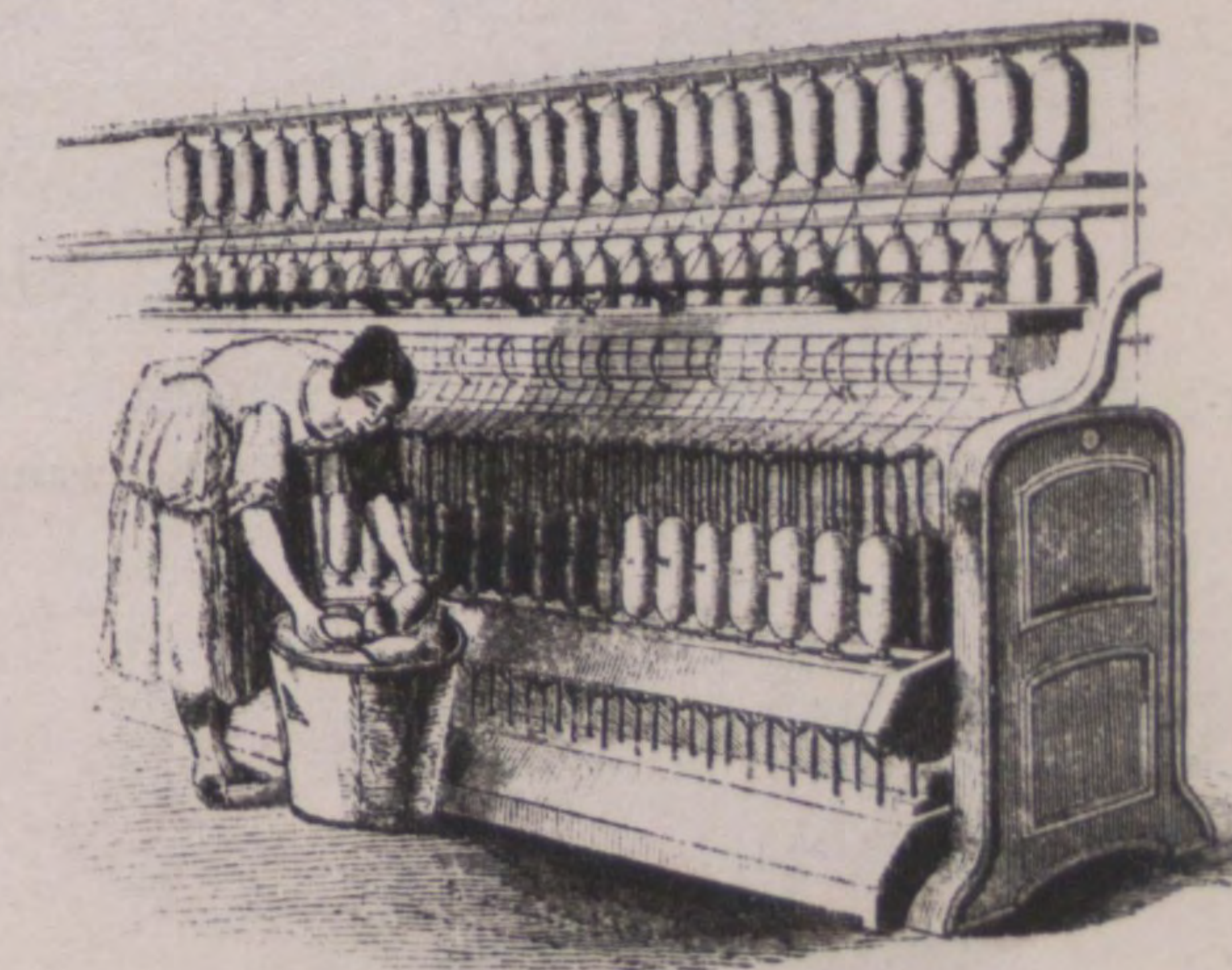
fresh capital that Mr. Battle had hoped to raise was not forthcoming. The financial situation of the mill became increasingly embarrassed, as did that of its owner, and on February 2, 1883, William S. Battle made an assignment of his stock in the company to his trustees and thereby lost financial control of the mill. For the first time in over sixty years, the property went out of the hands of the Battle family.

NEW ERA IN THE SOUTH

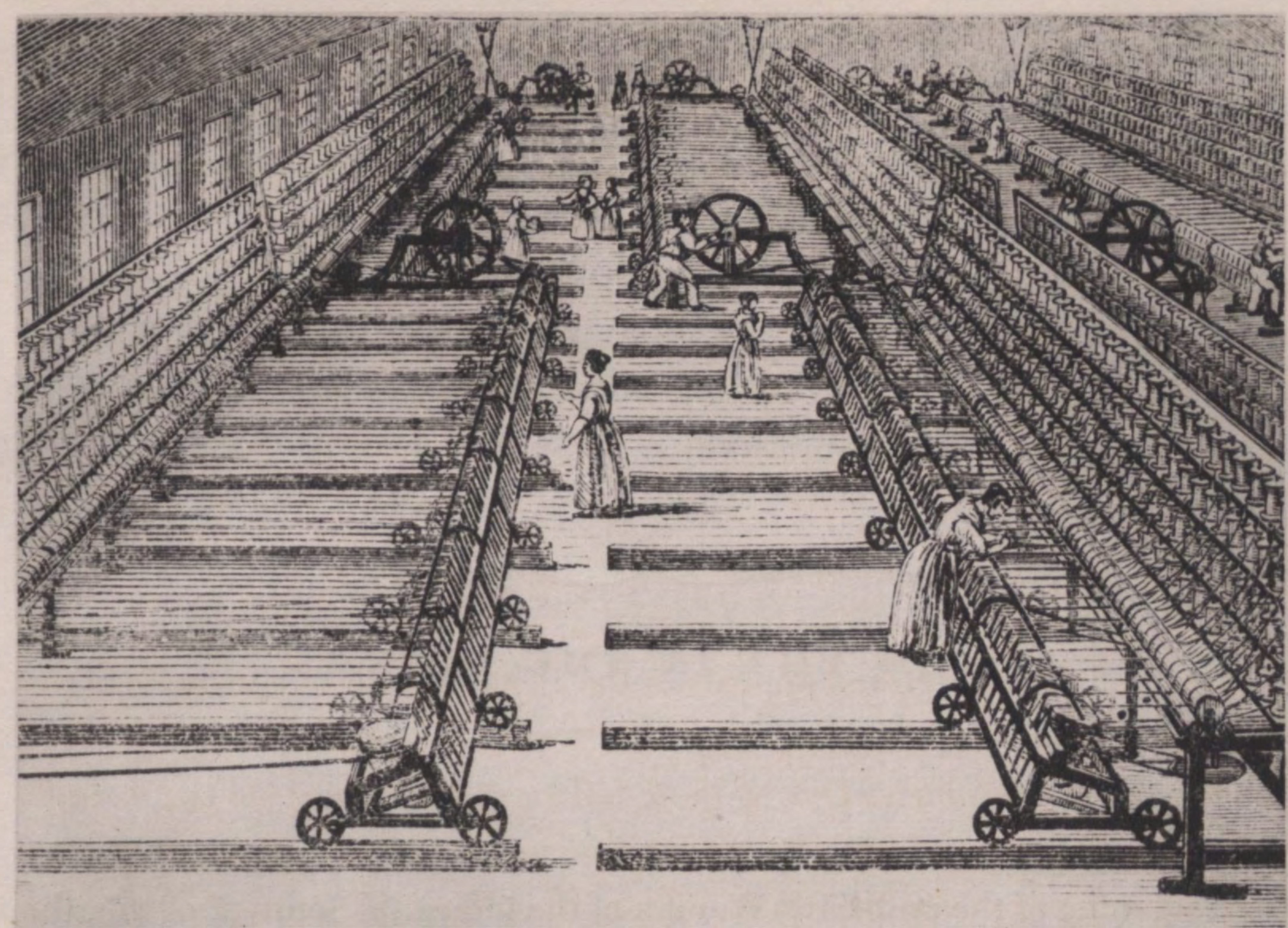
The reorganization of Rocky Mount Mills coincided almost exactly with the beginning of the post-Civil War era of the industrial South. By 1878, the last of the Northern troops had been withdrawn from Southern territory, the plague of the carpetbaggers was over, and the South began to feel the stirrings of a new life. In a broad sense, the beginnings of the industrial South of today may be said to have lain in the decade from 1880 to 1890. Certainly that was true of the cotton manufacturing industry.

According to the U. S. Census of 1840, the State of North Carolina had in that year a total of only 25 cotton manufacturing plants with an aggregate capital of but \$995,000. All told, these plants had only 47,934 spindles and employed only 1,219 workers. In all the Southern states put together, the number of mills was but 248, utilizing 180,927 spindles. Total capitalization was \$4,441,000 and the number of employees 6,642. As against this, the New England states at the same time had 674 mills, capitalized at \$34,931,000, utilizing 1,497,394 spindles, and employing 46,834 workers.

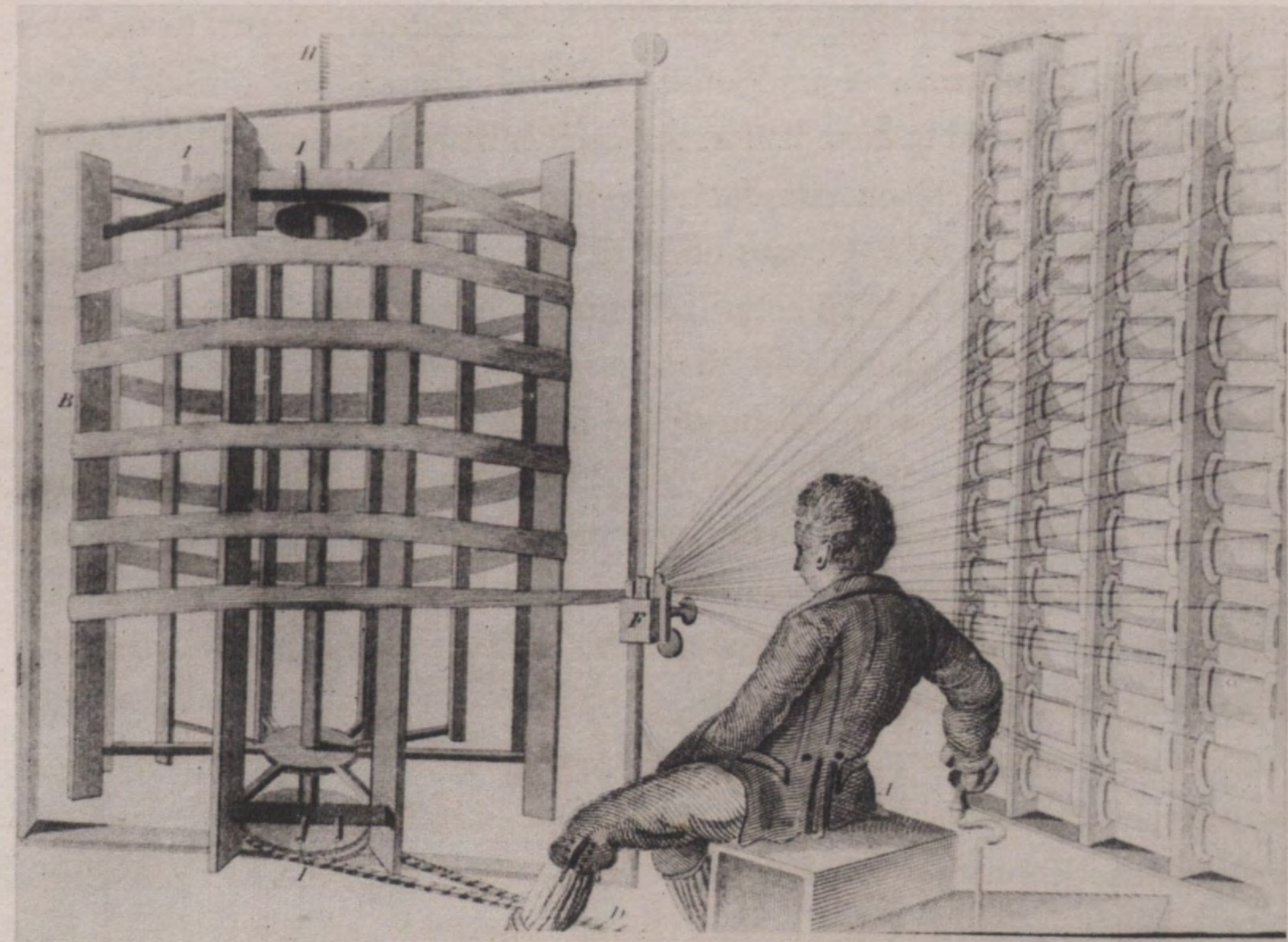
In the 1840's, the North completely dominated the cotton manufacturing industry of the country. Seventy per cent of the country's spinning machinery was concentrated in the North, and the percentage continued to grow



A woman operative tends a roving frame.



Mule spinning, now superseded by ring spinning.



An early English warping mill. From a lithograph dated 1810.

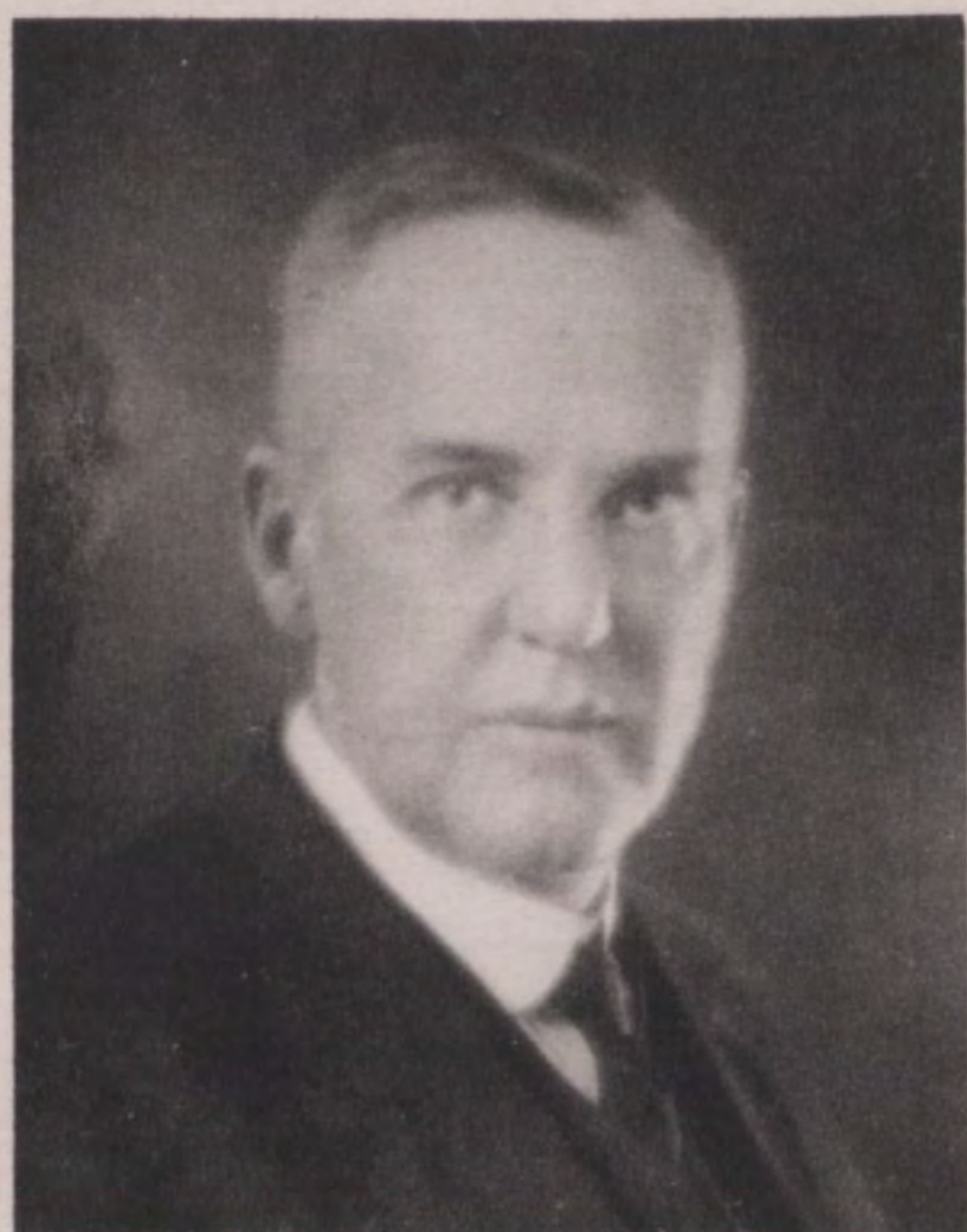
steadily during the next forty years, as will be seen from the following table:

CENSUS YEAR	PERCENTAGE OF SPINNING MACHINERY IN THE NORTH
1840	70 per cent
1860	74 per cent
1870	77 per cent
1880	81 per cent
1890	76 per cent
1900	67.6 per cent

A radical change in trend appears in the 1880-1890 decade, in spite of the fact that during the ten-year period the North alone added over 2,000,000 spindles to its equipment. During those ten years the number of cotton mills in the South jumped from 161 to 239, the amount of invested capital rose from seventeen to over fifty-three millions of dollars, the number of spindles in use jumped from 542,048 to 1,554,000, the number of operatives from 16,741 to 36,415, and the cotton consumption from 84,500,000 pounds to 250,800,000 pounds.

The actual reorganization of Rocky Mount Mills was completed at a meeting held on July 21, 1885. Although the Battle family no longer controlled the company financially, it continued to participate actively in the company's management. The plan of reorganization, finally accepted by the company's creditors, was largely worked out by Thomas H. Battle, a young lawyer, who was a great-grandson of Joel Battle and a nephew of William S. Battle. According to this plan, the creditors were given stock in the reorganized concern in settlement of their claims, and the company resumed operations. Thomas H. Battle was elected Secretary of the corporation, and thus a fourth generation of the Battle family became associated with the direction of the company's affairs.

In the following year, 1886, it became apparent that the company needed the services of a trained textile expert, and James H. Ruffin was asked to join the organization as Superintendent and Treasurer. Mr. Ruffin had gained his experience as a mill man in Lowell, Mass., where he had worked with the Lowell Machine Works and with some of the cotton mills. His knowledge



Thomas H. Battle



James H. Ruffin

and training were invaluable assets to Rocky Mount Mills, and it was largely due to his untiring efforts that the Mills weathered this stormy period to emerge as a successful concern.

Under the new management, Mr. Ruffin had full charge of manufacturing operations, while Mr. Battle was responsible for the company's finances. The largest stockholder at the time of the reorganization was Paul C. Cameron, whose grandson, Paul C. Collins, is now President of Rocky Mount Mills. Mr. Cameron, incidentally, had loaned money to the old corporation and had accepted stock in payment of this debt. Between 1886 and 1894, when the Mills were being developed, it was only through the use of the personal credit of Mr. Cameron and his son, Col. Benehan Cameron (who became a Director of the company in 1891), and of the other Directors (R. H. Ricks, O. C. Farrar, Elias Carr, R. B. Peebles, J. H. Ruffin, and Thomas H. Battle) that the Mills were able to get the money necessary to operate and gradually to enlarge manufacturing facilities. These original stockholders in the reorganized company never lost faith in its ultimate success, and it is interesting to note that 71 per cent of the stock in the corporation now outstanding is owned by descendants of these pioneers.

That these days of rebuilding were by no means easy is indicated by a statement made by Mr. Ruffin in a report to the Directors dated 1887. "We

are still in the hands of the commission houses and at their mercy," he says, "and the commission houses look after the interests of the weavers."

The mill, however, was in full operation, for Mr. Ruffin reports at the same time that it was running twelve hours a day. Waste, he states, was only 14½ per cent, but sales cost was high, for it cost one-half as much to sell the product as all the manufacturing expense. It was at this time also that Mr. Ruffin suggested to the Directors that the company set aside each year an amount equal to 6 per cent of the value of equipment to cover wear and tear on machinery, thus marking the inception of today's depreciation reserve.

In spite of the difficulties of reorganization and lack of working capital, Rocky Mount Mills more than kept pace with the expanding Southern cotton industry. When the reorganization took place, the Mills contained 3,500 spindles. In 1888, equipment was increased to 6,000 spindles and 200 looms. This year was marked, also, by the election of Thomas H. Battle to the presidency of the company.

A year later, the total number of spindles was again increased, this time to 10,000. At the same time the ginning of cotton and the grinding of corn



Rocky Mount Mills as rebuilt after the fire of 1869. To the left is the grist mill, then still in operation; to the right, the cotton mill.

(PRIVATE.)

ROCKY MOUNT MILLS, ROCKY MOUNT, N. C.
COTTON WARPS AND YARNS.

This Company has issued bonds to the amount of \$150,000 for the purpose of completing the debts due on its third mill and establishing a permanent working capital. The bonds are engraved coupon to year bonds of \$1,000 each bearing 6 per cent. interest payable semi-annually; principal and interest payable in gold at the office of the trustee. They are secured by first mortgage to The Farmers' Loan and Trust Co., of New York, with all the usual safeguards as to insurance, &c., the papers being approved by said trustee. The security consists of 340 acres land on both sides of Tar River; a valuable water power of 1,000 horse power and upwards; three brick factories containing 25,000 spinning spindles, 7,000 twister spindles and all preparatory machinery; three turbine wheels aggregating 1,000 horse power; two Cooper-Corliss engines and boilers of 350 horse power each; 80 tenement houses; brick office, store, standard storage houses for 3,500 bales of cotton, &c. The whole property is thoroughly equipped with fire systems, automatic sprinklers, force pumps and hydrants, electric lights, &c. On the above property there is carried \$328,000 insurance in standard companies as a standard mill at a rate of $\frac{1}{2}$ of 1 per cent. The property conveyed is all in first class condition and is just completed at a cost of \$500,000.

The Company is the largest spinning mill in the South and its goods are well known to the Northern trade. It refers to the cotton yarn merchants of New York, Philadelphia, Boston and Providence, and to The National Park Bank of New York.

The location of the Company is all that could be desired, a spur track connecting with the Atlantic Coast Line, in one of the best farming sections of the State, in the cotton belt, its situation healthful and picturesque, its water power so well known that here was located the first cotton factory in North Carolina.

The majority of the bonds have already been taken.

The officers are

THOS. H. BATTLE, PRESIDENT. J. H. RUFFIN, TREASURER.
DIRECTORS:
GOV. ELIAS CARR. R. H. RICKS. R. B. PEEBLES,
B. CAMERON, B. N. DUKE.

For further information apply to

THOS. H. BATTLE, PRESIDENT,
ROCKY MOUNT, N. C.

(FOR PRIVATE CIRCULATION ONLY.)

were discontinued, automatic sprinklers were installed in the Mills, and electric lights for the first time introduced throughout the plant. Meanwhile, the welfare of employees was not being overlooked, for it was at this period that a school was started by the company for children of employees.

The year 1889 was likewise of great importance to the company, for a spur line was completed connecting the plant with the Wilmington and Weldon Railroad, the predecessor of the Atlantic Coast Line Railroad. This greatly simplified the company's shipping problems.

Again in 1892 additional equipment was purchased, bringing the number of spindles up to 25,000, to which were added 7,000 twister spindles. In this year the company did away with its looms and concentrated its activities upon the spinning of yarns, and that policy is still in effect.

Most important, from the viewpoint of the stockholders, the company had

been doing exceptionally well financially. Until 1892 all the company's profits were put back into the plant, but in April of that year the first dividend since the reorganization was declared. In no year since that time has the company failed to pay a dividend — an unbroken record of over fifty years.

This expansion on the part of the company created a need for more working capital. In November, 1894, it was decided to issue bonds to a total of \$150,000, "for the purpose of completing the debts due on its third mill and establishing a permanent working capital." No difficulty was experienced on this occasion in raising the money. Rocky Mount Mills had definitely established its value as an industrial project. A majority of the bonds was taken up even before the issue was officially announced and no public offering needed to be made. Conditions had markedly improved since the days of William S. Battle and Reconstruction.

The circular announcing the bond issue, shown on page 28, is interesting as showing the status and condition of the property in 1894. Mention is made in it of complete automatic sprinkler equipment, of water-power and auxiliary steam plant, and of the company's very considerable mill village. "The Company is the largest spinning mill in the South," the circular states, "and its goods are well known to the Northern trade." Access to Northern banking credit is evidenced by reference to the National Park Bank of New York. This, obviously, is no longer a community enterprise, but a well-established, high-powered, modern manufacturing unit equipped to compete anywhere in the United States with the best of Northern or Southern mills of its type.

One of the serious problems with which the Mills had to deal during these days was that of the health of its employees. The low country of the Carolinas has always been a breeding ground for malaria. Writing of Rocky Mount back in the 80's, one of the Battles remarks: "At that time it was the general belief that malaria was caused by a miasma that arose from the rivers and other wet places and was particularly harmful at night. . . . It was considered to be very dangerous to remain in the low country during the summer months."

The mill operatives could not, of course, spend their summers in the hills, and as a result many of them suffered from periodic attacks of malarial fever.

In his reports to the Directors during his management of the Mills, Mr. Ruffin continued to refer to the loss of production due to malaria among the employees, and frequently commented that they lacked "snap and vigor." In 1896, however, water mains were run through the mill village and the Mills, and a company doctor was employed. From that period on, health conditions in the community steadily improved.

In 1892 one of the company's Directors, Elias Carr, was elected Governor of North Carolina. As a result, several of the company's Directors' meetings during this period were held in the Governor's Mansion at Raleigh.

In 1895 Rocky Mount Mills attempted for the first time to discontinue selling its products through commission houses. A selling office was established at Philadelphia with the object, no doubt, of getting permanently "out of the hands of the commission houses," a situation which had greatly disturbed Mr. Ruffin back in the days of the reorganization. The experiment did not prove a success, however, and the plan was abandoned after three years. It was not until some thirty-five years later that the company's present management was able to effect this permanent change in sales policy.

In 1898, Mr. Ruffin's health broke down as a result of overwork, and he was forced to retire. He had devoted himself unsparingly to the development of the company, and he had achieved results that fully justified the confidence imposed in him by the company's stockholders. In his final report to the company's Directors, Ruffin stated:

"During the past twelve years we have passed through some narrow and dangerous places. Now that you have the mills in good financial condition, pardon me for urging you to keep them in such shape in order to meet any emergency that may arise. There will surely be breakers and hard times, and against these every caution must be taken."

Mr. Ruffin's words were indeed prophetic. Since his day, Rocky Mount Mills has lived through such major crises as the panic of 1907, the World War of 1918, the depression of the 1920's, the great economic catastrophe of the 1930's, and now the impact of a second world war. It is well that full heed was given to Mr. Ruffin's advice and that the policy which he outlined has been the permanent policy of the company.



ROCKY MOUNT MILLS TODAY

With the retirement of Mr. Ruffin in 1898, Thomas H. Battle was elected Treasurer of the company. It has been a long-established company policy for the Treasurer to be its active executive head. On taking over Mr. Ruffin's responsibilities, Mr. Battle retired as President and was succeeded in that office by R. H. Ricks, who remained President until his death in 1920.

In Mr. Battle's report to the Directors for 1899, he complains of unsatisfactory business conditions and says: "The steady increase in the number of yarn mills all over the South is bound to have a permanent and depressing effect on the business." Of his predecessor, Mr. Ruffin, he says: "I feel that certainly we will never see his like again as an architect, administrator, organizer and economizer."

But the writer was unduly pessimistic over the outlook for the future, and certainly underestimated his own abilities as an operator and administrator, for during his thirty-five years of management, Rocky Mount Mills continued steadily to expand, continued to be a leader in the betterment of



Hyman L. Battle

working conditions for company employees, continued to build good will and reputation, continued to improve manufacturing technique, and never passed a year without a dividend. One could ask little more by way of summary of a successful business career.

Throughout Mr. Battle's management, his cousin, Turner Battle Bunn, was his loyal assistant and right-hand man. Mr. Bunn, Secretary since 1917, retired in 1940 under the company's pension plan after 45 years of continuous service, but still follows with keen interest the progress of the corporation.

Mr. Battle was not a technically trained mill man, but he had a knowledge of human nature which enabled him to select competent assistants, whom he held responsible for techniques of production, and to elicit their loyalty and best efforts. He personally conducted the fiscal operations of the corporation, directed its selling policies and did most of the cotton purchasing. The progress made under his administration has been further developed under that of his son, Hyman L. Battle, who succeeded his father as Treasurer-Manager of Rocky Mount Mills in 1933, and is today its chief executive.

Hyman L. Battle joined the organization immediately after his release from the Army, in which he served during the first World War. In 1920 he was made purchasing agent and three years later was appointed Manager. In 1931 he became Assistant Treasurer and Manager and, upon his father's retirement as Treasurer in 1933, he assumed full charge of the company's management, being the fifth generation of the family to be entrusted with that responsibility.

The fairest tribute which can be paid to the present management of Rocky Mount Mills is a consideration of the major policies which have resulted in

placing this corporation in its present position as a recognized leader among the carded yarn mills in the United States.

MANUFACTURING POLICY

Briefly stated, the manufacturing policy of Rocky Mount Mills, as it has been developed over the past forty years, is based on the belief that efficiency rather than size is the keynote to success. It has, of course, expanded since 1900, when it was operating 25,000 spinning spindles and 7,000 twister spindles. In 1923, the plant was increased to 35,000 spinning spindles, and in 1937 to 43,000 spinning spindles and 18,000 twister spindles, which it today operates. But it has not been so much the quantity as the quality of the equipment which has been the primary concern of the management.

As far back as 1889, the plant was equipped with automatic sprinklers and electric lights, and became one of the first mills in the South to be so equipped. Power for the lighting system was at that time generated by a dynamo directly connected to a water wheel. In 1899, automatic humidifiers were installed throughout the plant, thus doing away with the picturesque group who used to go through the plant sprinkling the floors with their water cans in order to maintain some degree of humidity and at least to check the floating lint that gave the air of a cotton mill somewhat the appearance of a London fog. In 1911, one of the first steam turbines in the state was installed, and the entire plant was electrified.

Rocky Mount Mills was also one of the first in North Carolina to install long draft roving and spinning. This development was started in 1932 and completed in 1935. Not satisfied with these improvements, however, the company, in 1940, deliberately sacrificed a considerable amount of equipment which was not of the most up-to-date pattern and spent close to \$400,000 in the installation of the very latest type of cotton spinning machinery. Plans are already being made for a program of plant modernization to be undertaken after the war, which will include complete air conditioning of the mill. In short, the company today never hesitates to scrap an important capital investment in machinery and equipment, provided that, by so doing, efficiency of production can be appreciably increased. As a result of this



Office of the Treasurer.



Entrance hall to the main office.

policy, Rocky Mount Mills is without question one of the most efficient cotton spinning units in the entire United States.

INDUSTRIAL RELATIONS POLICY

In relations with employees, Rocky Mount Mills has for more than forty years followed a constructive and forward-looking policy. It must be admitted that the cotton industry as a whole, particularly in the South, has by no means an unblemished record in its relations with labor. Unbelievably long working hours, employment of child labor, deplorable housing conditions, employee exploitation through company-owned stores, and other similar abuses have only too frequently been visited upon the cotton mill worker.

The company is proud that it has been among the first in the industry to recognize these abuses and to rectify them as rapidly as possible. The mill village, which today consists of 165 houses, has for many years received the closest attention from the company's management. As has already been pointed out, running water was installed throughout the village as early as 1896. In 1911, all tenement houses were screened and indoor plumbing installed. In 1913, all houses were equipped with electric lights and gas. Today, those employees who live on company property enjoy housing facilities at least equivalent in comfort and convenience to any available at like rentals anywhere in the community.

As far back as 1902, the company's management recognized the dangers inherent in the company store and credit system. In that year the company store at Rocky Mount Mills was permanently closed, and Mr. Battle, in explaining the closing to the Directors, stated: "When the credit system comes up, the store is a source of endless demoralization, and the Mills will be better off even though the store has made a good profit."

Cotton mill working hours continued overly long even after many other industries had begun to institute a more reasonable working day. Rocky Mount Mills could not, for obvious competitive reasons, depart too radically from the standards set by the rest of the industry, but it was among the leaders in the trend toward elimination of child labor, and the introduction of shorter hours and higher wages. Until the turn of the century, the standard



Rocky Mount Mills Canteen.

work week in the Southern cotton textile industry was six 12-hour days, or 72 hours a week. In 1900, shortly after Thomas H. Battle took charge of the company, Rocky Mount Mills adopted the 66-hour work week. This was further cut to 60 hours in 1912, to 55 hours in 1929, and to 48 hours in 1933. Today the company, of course, is operating on the basis of a 40-hour week.

The attitude of the company's relations to labor is clearly stated in a resolution adopted by the company's Board of Directors in 1935, supporting the then proposed Federal Wage and Hour Law. Copies of this resolution were sent at that time to the North Carolina members of the United States Senate and House of Representatives. The resolution reads:

"Be it resolved by the Directors of Rocky Mount Mills that they formally record their belief that the public interest and the welfare of the textile industry require the continuance of Federal control of hours and labor, minimum wages, limitation of machine hours and abolition of child labor."

After the Wage and Hour Law was passed by Congress, the attitude of the company to its employees was again demonstrated. In June, 1939, when an increase in the minimum wage for the cotton textile industry was up for discussion, Hyman L. Battle appeared voluntarily in Washington before a hearing held by Wage and Hour Administrator Elmer Andrews to support

the proposed 32½¢ per hour minimum wage for Southern cotton mills. In testifying for the higher minimum, Mr. Battle said that he "wanted to correct the idea that all Southern textile men are against the recommended rate."

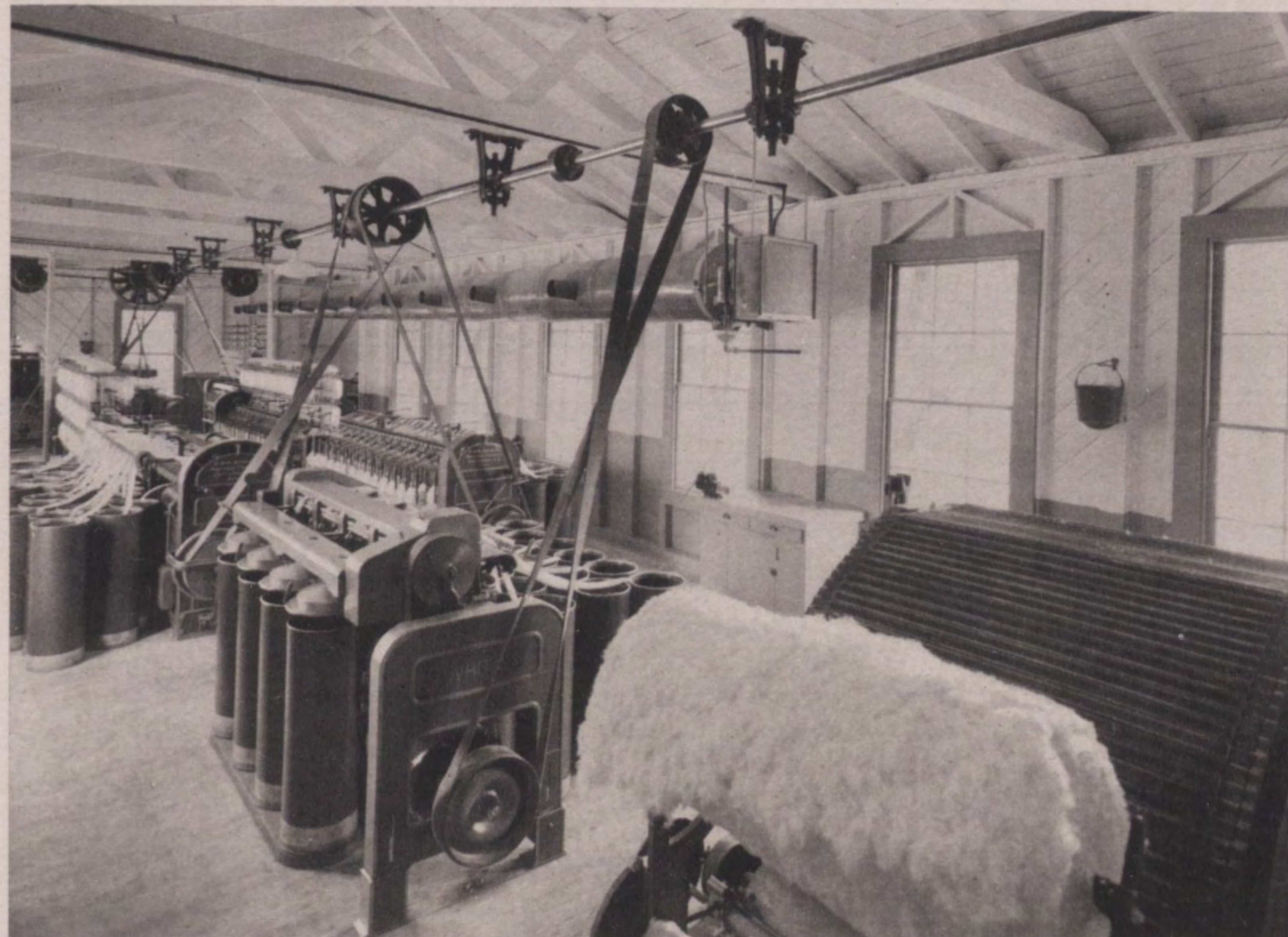
Through the past score of years, Rocky Mount Mills has steadily maintained better than average wage rates, and in every way has manifested a deep concern for the welfare of its employees. Every worker is insured for hospitalization, sickness or death. The management has always assumed a personal relationship with the worker as an individual, and his problems are always given prompt and sympathetic consideration. The corporation has permitted and encouraged employees to form a mutual welfare association which operates, on company property and without rent, a modern canteen and restaurant. Not only is this an important convenience to the workers who desire refreshment and food while on duty, but substantial profits are realized in its operation, all of which are utilized in welfare services to the employees. A number of retired workers receive regular monthly grants of aid from the Canteen fund, and large expenditures have been made for the removal of tonsils, the furnishing of glasses, and other medical assistance to the children of company employees. This enterprise is not profit-making and is charitable in nature, and the corporation has made substantial contributions to it. The company's policy and attitude toward the laborer is an essential reason for its success, since it has evoked his loyalty and confidence. The feeling between management and labor is so cordial and wholesome that no shadow of labor trouble has embarrassed its operations.

SALES AND RESEARCH POLICY

As has already been stated, the company experimented as far back as 1895 with a policy of direct sales to users of company products. It has long been the opinion of the company's management that, for Rocky Mount Mills at least, the sale of its yarns through commission houses made it impossible for the company to give to its customers the close, individualized service essential to modern manufacturing techniques. In 1932, therefore, Rocky Mount Mills deliberately discontinued its commission house connections. Since that time, the company's output has been sold directly to fabricators.



The company's laboratory.



Experimental production unit.

This policy has resulted in the establishment of the closest relationship between the company and its principal clients. Today Rocky Mount Mills is proud to feel that in many instances the company is regarded by its customers more as an affiliated spinning department than as an independent outside supplier. This type of relationship has made it possible for Rocky Mount Mills to understand completely the manufacturing problems of these customers, to adjust quality and treatment of yarns to individual needs, and to help in the solution of new problems as they arise.

Of the greatest possible assistance, both in technical control of the company's production and in the adaptation of company products to specific customer requirements, have been the testing laboratory and experimental production unit which are now maintained by the company. The experimental mill is really a complete cotton spinning unit, and the testing laboratory compares favorably with any in the country. Here the technical staff, headed by a textile engineer, can carry out experimental work on speeds, drafts, or other work of this type, and is responsible for the over-all maintenance of quality throughout the plant. This department also renders frequent service to customers through the analysis of fabric and yarns. Men from the laboratory staff are available to visit customer plants in order to study actual manufacturing conditions and to see whether Rocky Mount Mills can change its yarns or yarn putups to better serve customers' needs.

TODAY'S MANAGEMENT AT ROCKY MOUNT MILLS

Since 1892, when Rocky Mount Mills discontinued weaving, the company has specialized in the production of plied weaving yarns in counts from fours to thirties, and is today one of the largest single units producing plied yarns in the industry. Under stress of war conditions, the mills are currently running three full shifts and employing approximately 700 operatives. Annual consumption of cotton is running at 30,000 to 35,000 bales. For these operations the company has adequate capital and reserves. It has had no funded debt or preferred stock for more than 40 years, and it utilizes only seasonal borrowings for the purchase of raw cotton during the marketing season.



Ronald E. Stevens

This substantial enterprise is under the executive management of Hyman L. Battle, Treasurer and Manager. Associated with him in the operation of the company is Ronald E. Stevens, who joined the organization in 1933 and was made Assistant Treasurer in 1940. Before coming to Rocky Mount, Mr. Stevens was with the Cotton Textile Institute. Mr. Battle and Mr. Stevens not only supervise the manufacturing operation, but also handle all sales and maintain all customer contacts. A complete list of the Officers and Directors of the company follows:

OFFICERS

Paul C. Collins, *President*
 Kemp D. Battle, *Vice President*
 Robert R. Gay, *Vice President*
 Hyman L. Battle, *Treasurer and Manager*
 Ronald E. Stevens, *Assistant Treasurer*
 Thomas E. Marshall, *Secretary*

DIRECTORS

Hyman L. Battle	Alexander H. Graham
Kemp D. Battle	John W. Graham
Paul C. Collins	David A. Ricks
Robert R. Gay	Ivey Watson

It is interesting to note that all of these Directors, with the exception of Mr. Watson and Mr. Gay, are descendants of the original group who undertook the reorganization of Rocky Mount Mills in 1885 and were so largely responsible for the company's establishment upon a sound and permanent financial basis. Two of them are great-great-grandsons of Joel Battle, the founder of the Mills.

ROCKY MOUNT MILLS PRODUCTS IN PEACE AND WAR

A visit to Rocky Mount Mills today gives little outward evidence that the company is at war. Neither machine guns, tanks, nor airplanes roll from its assembly lines. Its operations are little changed from days of peace.

Yet the manufacture of yarns is as much an essential war industry as the fabrication of actual tools of destruction. Ninety-five per cent of the output of Rocky Mount Mills is now going into war products. The fact that these products are made of cotton rather than of steel does not make them less vital to the war effort.

In the two tabulations given below are shown the principal types of products in which Rocky Mount Mills yarns are used in war and in peace.

PARTIAL LIST OF PEACETIME USES OF ROCKY MOUNT MILLS YARNS

Athletic Supporters	Canvas Belting	Fishing Lines and Nets	Tapes, Industrial
Auto and Furniture Upholstery	Carpets	Insulated Wire	Tape Lines (measuring)
Bag Sewing Twine	Casket Cloth	Knit Goods	Towels
Baseballs	Conveyor Belts	Lace Curtains	Trimmings
Bedspreads	Cotton Bags	Lacings (shoe)	Vacuum Cleaner Hose
Braids (woven)	Drapery Fabrics	Pile Fabric Dress Goods	Venetian Blind Cord
Braided Cords	Dynamite Fuse	Rope	Webbing
	Filter Cloth	Swiss Embroidery	

PARTIAL LIST OF WARTIME USES OF ROCKY MOUNT MILLS YARNS

Aircraft Engine Covers	Cooking Outfit Kits	Land Mine Grapnel Cord	Pyrotechnic Parachute Cord
Aircraft Safety Belts	Curtains	Lead Lines (Navy)	Rope
Artillery Covers	Dispatch Cases	Leggings	Rucksacks
Bandoleers	Fatigue Uniforms	Legging Cord	Sails
Barracks Bags	Feed Bags	Machete Sheaths	Sand Bags
Bedding Rolls	First Aid Pouches	Machine Gun Ammunition Slings	Shelter Tops
Belts	Gas Masks	Magazine Pockets	Signal Corps Wire
Camouflage Netting	Gun Slings	Pack Carriers	Stretchers
Canteen Covers	Gun Swabbing	Pack Mule Water Bags	Tarpaulins
Caps	Halyard Cord	Parachute Bags	Truck Tops
Cartridge Belts	Hatch Covers	Pistol Belts	Utility Repair Shops
Coal Bags	Haversacks		Water Bags and Buckets
Command Car Tops	Lacing for WAAC Raincoats		Water Sterilizing Bags
Cooking Bags			

TODAY AND TOMORROW

History is important not for itself but for the light and guidance which it affords for the future. Rocky Mount Mills is proud of its past, of its century and a quarter old traditions of honorable dealings, of the contribution it has made to the prosperity of its home community, and of the position of leadership it has attained in the textile industry.

During every war in which the country has engaged since that of 1812, the production of this plant has been made available for the fighting forces. The variety of products, shown on page 41, into which its yarn is going, will doubtless be surprising even to its customers and stockholders. To the maintenance of that production in a period of critical labor shortage, and of many baffling allied problems, the management dedicates every ounce of its strength.

But after the war a new day will come, a day in which the demand for high grade cotton yarn will shift from Government uses to the regular textile trade. In that day the genius of American industry, adjusting itself to a newly organized world trade, will demand the highest efficiency of operation for dependable quality products, promptly and regularly delivered. Though immersed in the problems of a war economy, the management of Rocky Mount Mills is not forgetful of its long-range obligation to the civilian textile trade. Plans have already been formulated for keeping fully abreast of present and future engineering developments. Whatever may be demanded of the producers of cotton yarns in the years to come, Rocky Mount Mills intends and expects to furnish the best and to maintain its position as an outstanding leader in the cotton yarn industry.

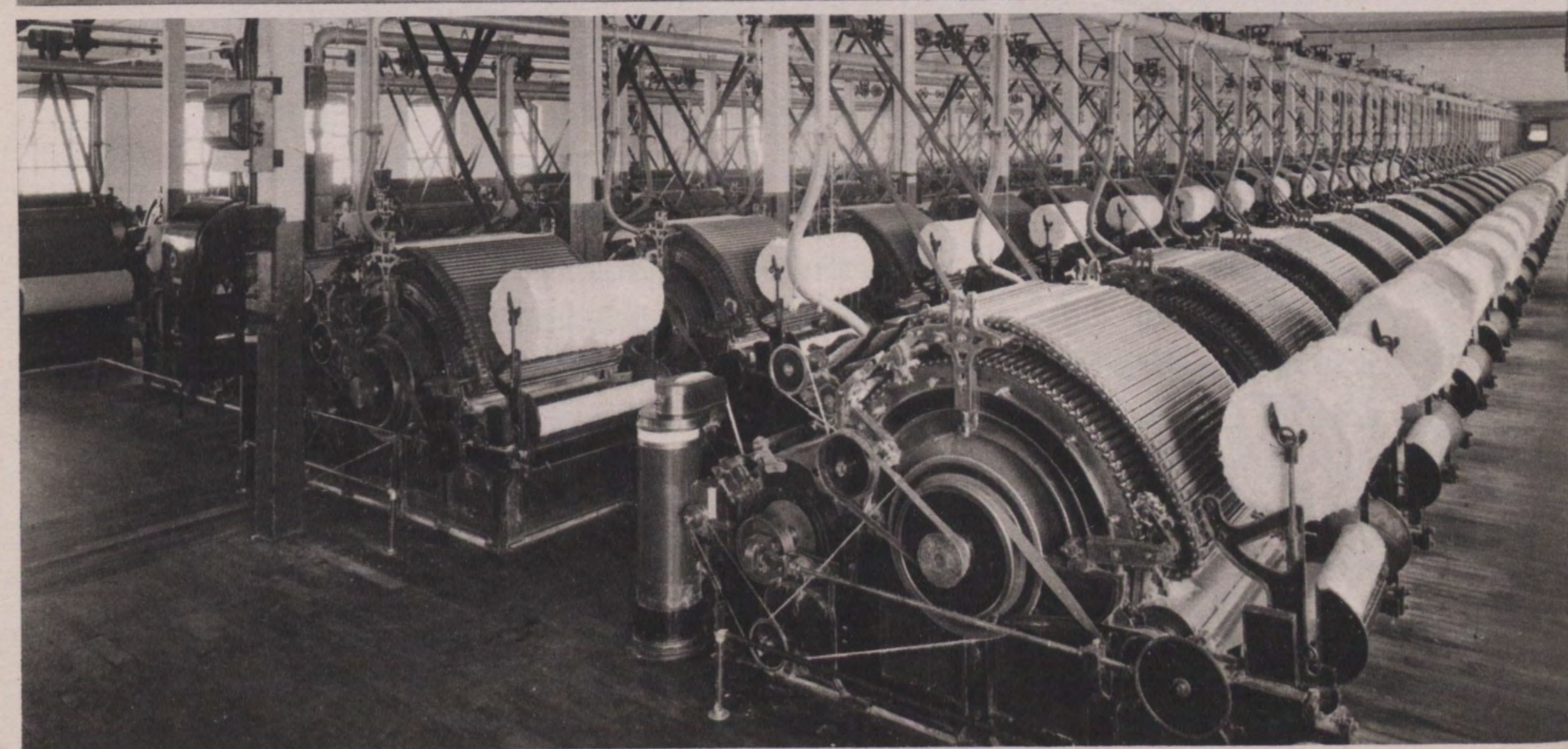
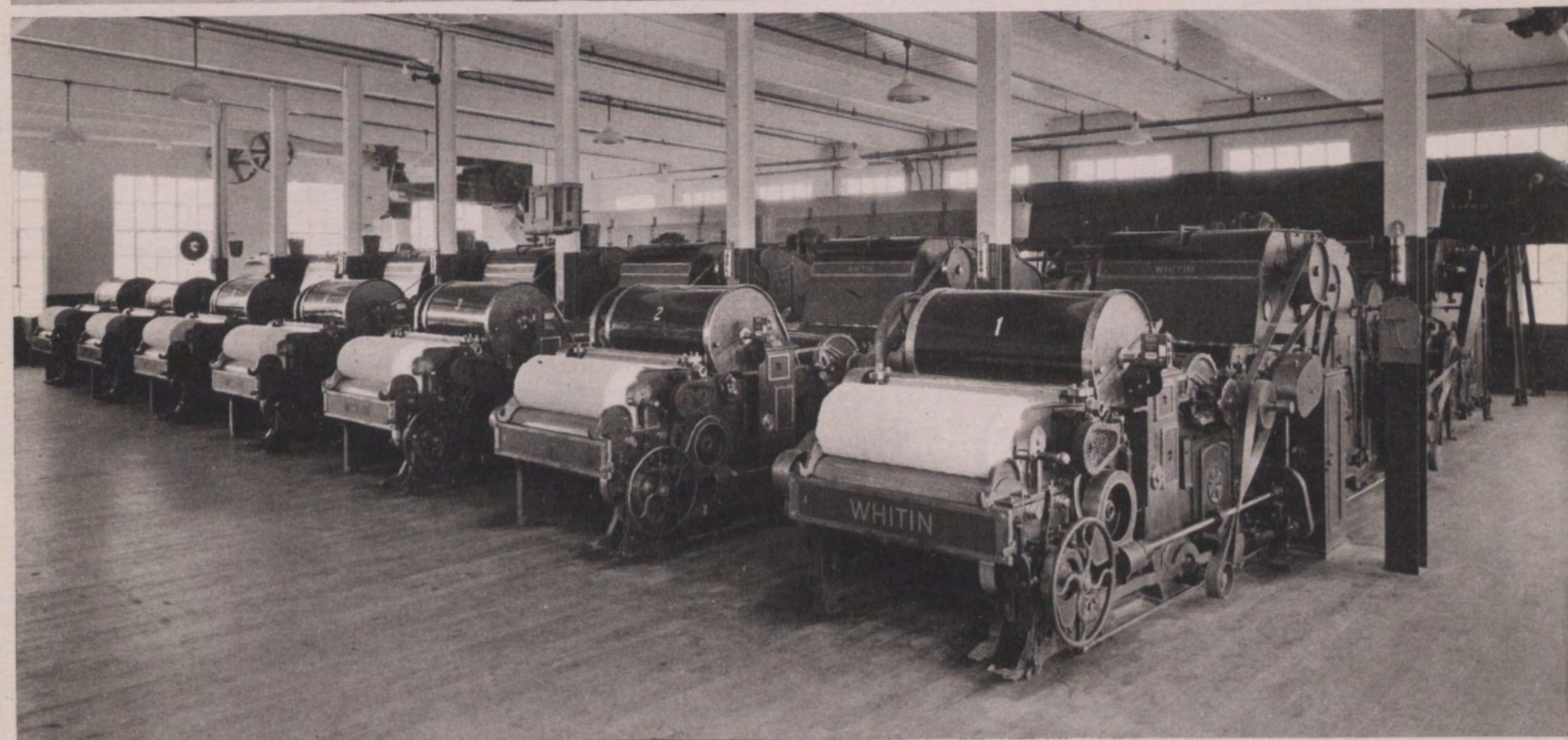
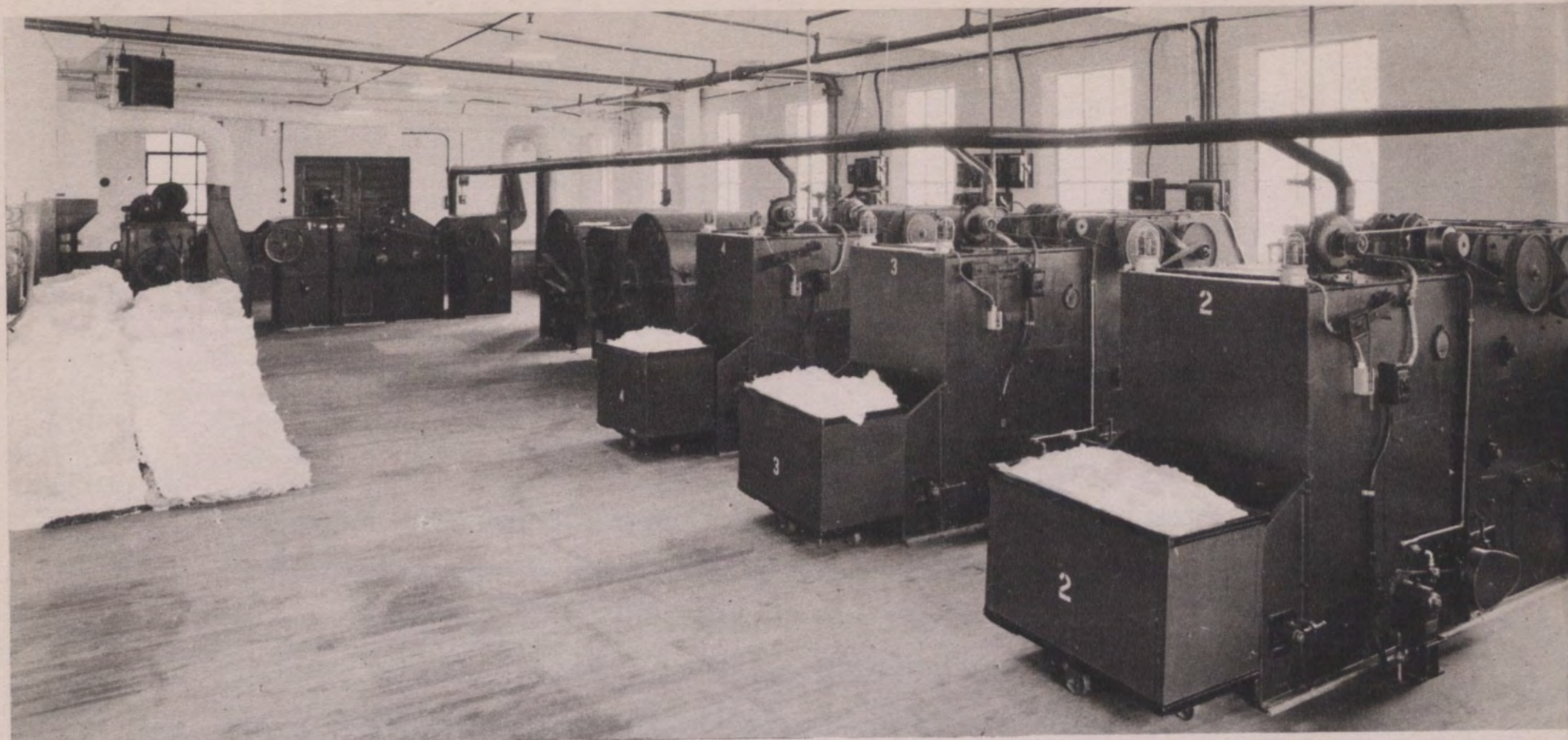
Its plant is large enough to compete with the best, yet small enough for flexibility of operation and close personal cooperation between the executive heads and the company's customers. That policy of Today shall likewise be the policy of Tomorrow.

HOW COTTON IS SPUN

There is presented in the following pages a pictorial tour of Rocky Mount Mills, together with a brief description of the process of manufacture from the arrival of the raw cotton at the mill to the final winding or warping of the twisted yarn preparatory to delivery.

The genesis of a cotton yarn would properly begin with the farmer plowing his field in the spring. Long straight parallel furrows would await the seed, sown by a mechanical planter drawn by mule or horse. In March or April, the seed will be planted and, at the same operation, covered by several inches of soil, impregnated with commercial fertilizer. Thenceforth, the result is a gamble in which the farmer pits his luck and diligence against vagaries of weather, weed, and weevil. The smiles of Fortune vary, but the outcome in the cotton-growing states of this country is a crop ranging roughly from nine to fifteen million bales of lint cotton, averaging 500 pounds to the bale. Despite a long series of inventions of cotton-picking machines, the crop is still picked by human beings, stooping with tired backs over the plants, and pulling with dexterous fingers the fleecy fibers from the tough seed-pods or bolls. Each pound of lint requires two and a half pounds of raw cotton, of which more than half the weight is represented by seed, portions of bolls, and other trash, which is taken out by the cotton gin.

Into the storage warehouse of Rocky Mount Mills, the baled lint cotton, thirty-odd thousand bales of it per year, comes by truck and train. It has been purchased under strict specifications and is carefully "sampled" on arrival to test for grade and staple. To meet the standard of quality required, the grade must be "middling" or better, and the fiber not less than one inch in length. By use of selected seed, the farmers in North Carolina have in recent years markedly improved the fiber. Rocky Mount Mills is usually able to fill its requirements from local cotton and the great bulk of it is raised within a radius of fifty miles of the plant.



OPENING AND BLENDING Cotton as it is received in bales is considerably compressed and it must be thoroughly opened before it can be cleaned. In the opening room, the bagging and ties are removed from the bales and the cotton begins its first process. To insure uniformity of the finished yarn, a small amount of cotton is fed into the blending feeders from each of a large number of bales. These feeders, shown in the foreground of the picture opposite, thoroughly open and mix the cotton, and also eliminate a considerable amount of the heavier foreign matter. From these feeders, the cotton is conveyed by air to a battery of cleaning machines in the background which continue the cleaning process. From these machines it is blown several hundred feet in metal piping across the State Highway to the picker room in the main mill.

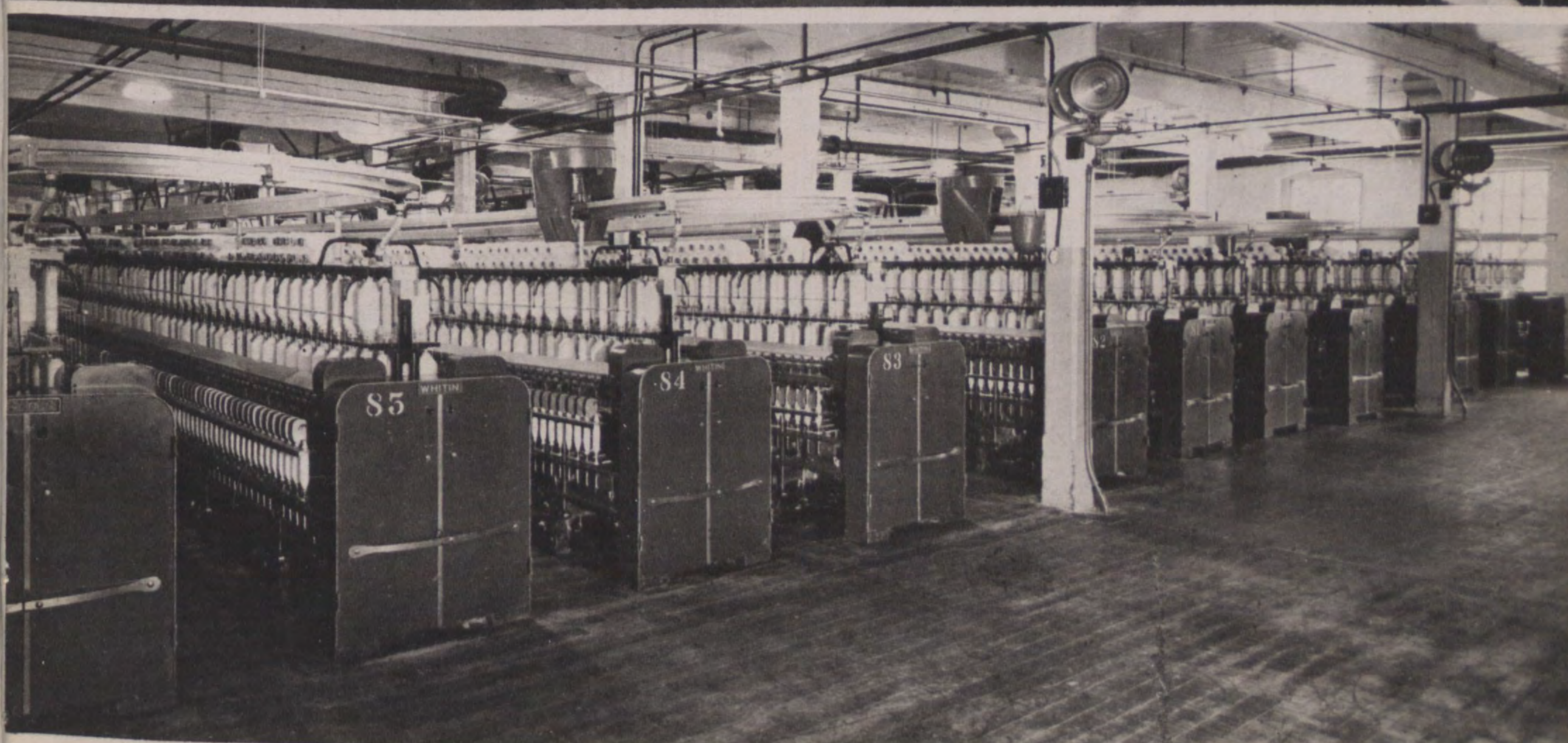
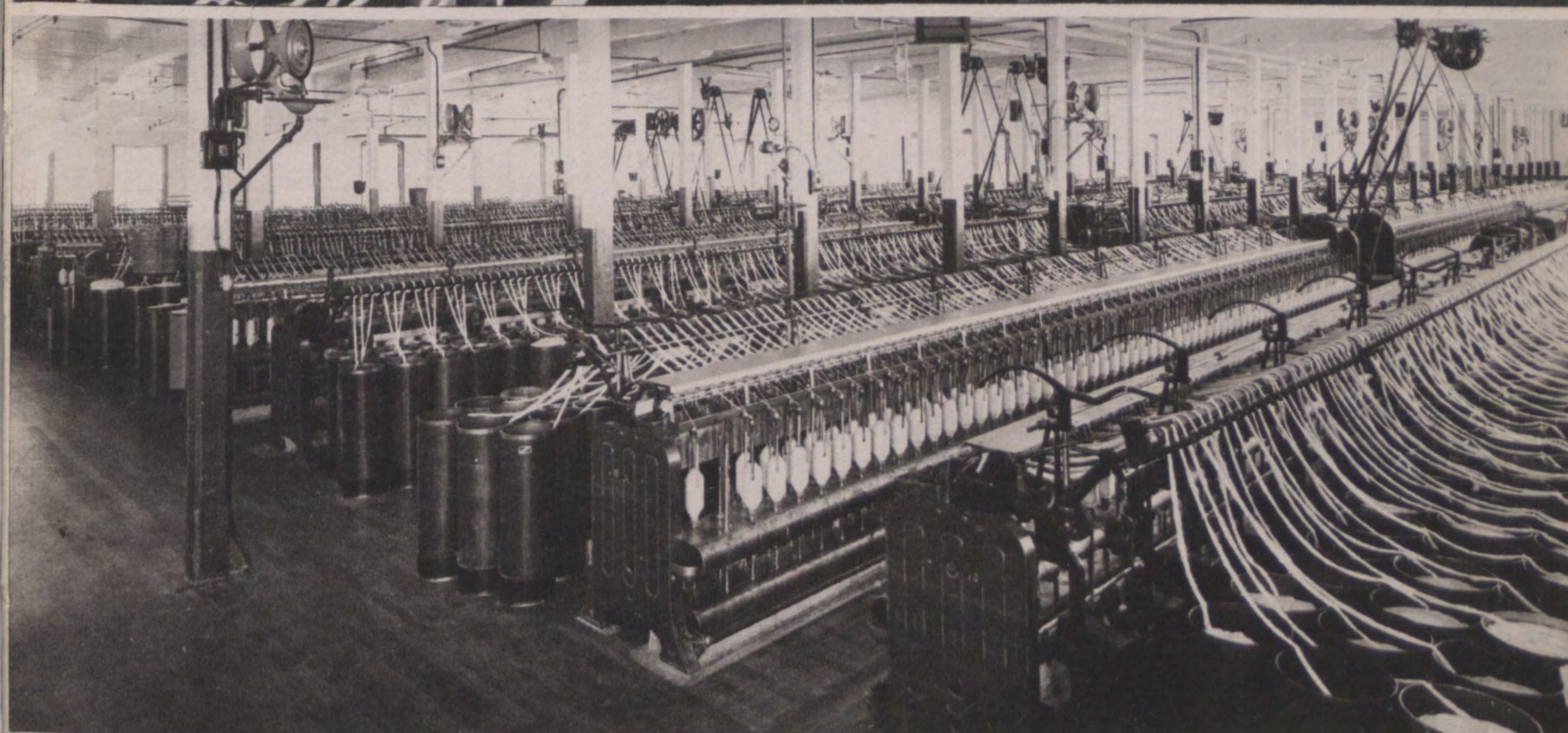
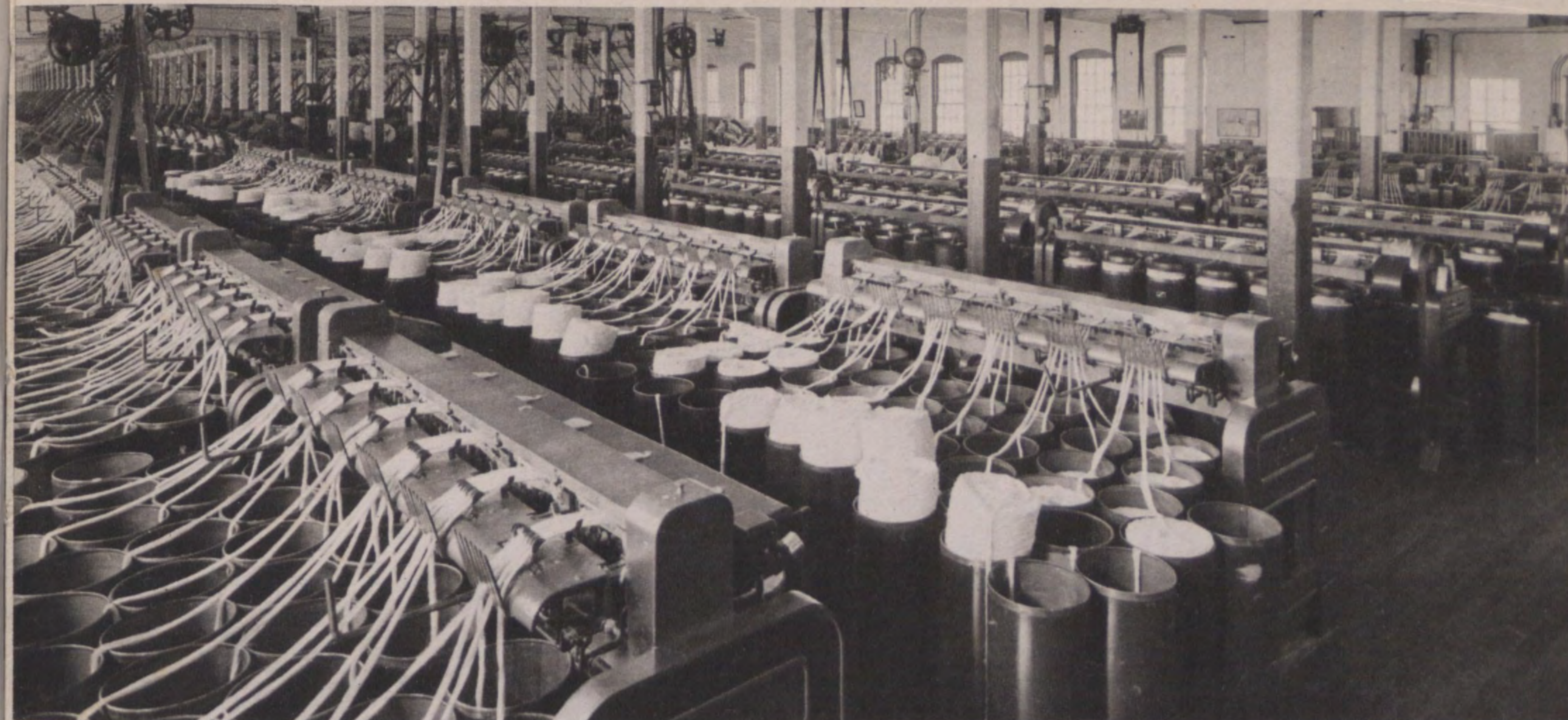
PICKING The picker, or lapper, achieves a further cleaning of the cotton and its arrangement in a continuous sheet or lap, shown at the delivery end of the machines opposite. Until recently, there were breaker, intermediate and finisher pickers, but in modern mills these are combined into single process pickers. At the back of each, a return air condenser discharges air back into the room free from the lint and dust accumulated in the cleaning operation. The single process picker has the advantage of permitting the cotton to pass through the process in an open state, thus preventing injury to the staple and providing a more even lap for the carding machine. Much of the future excellence of the end product depends upon thoroughness and careful control in the picking operation.

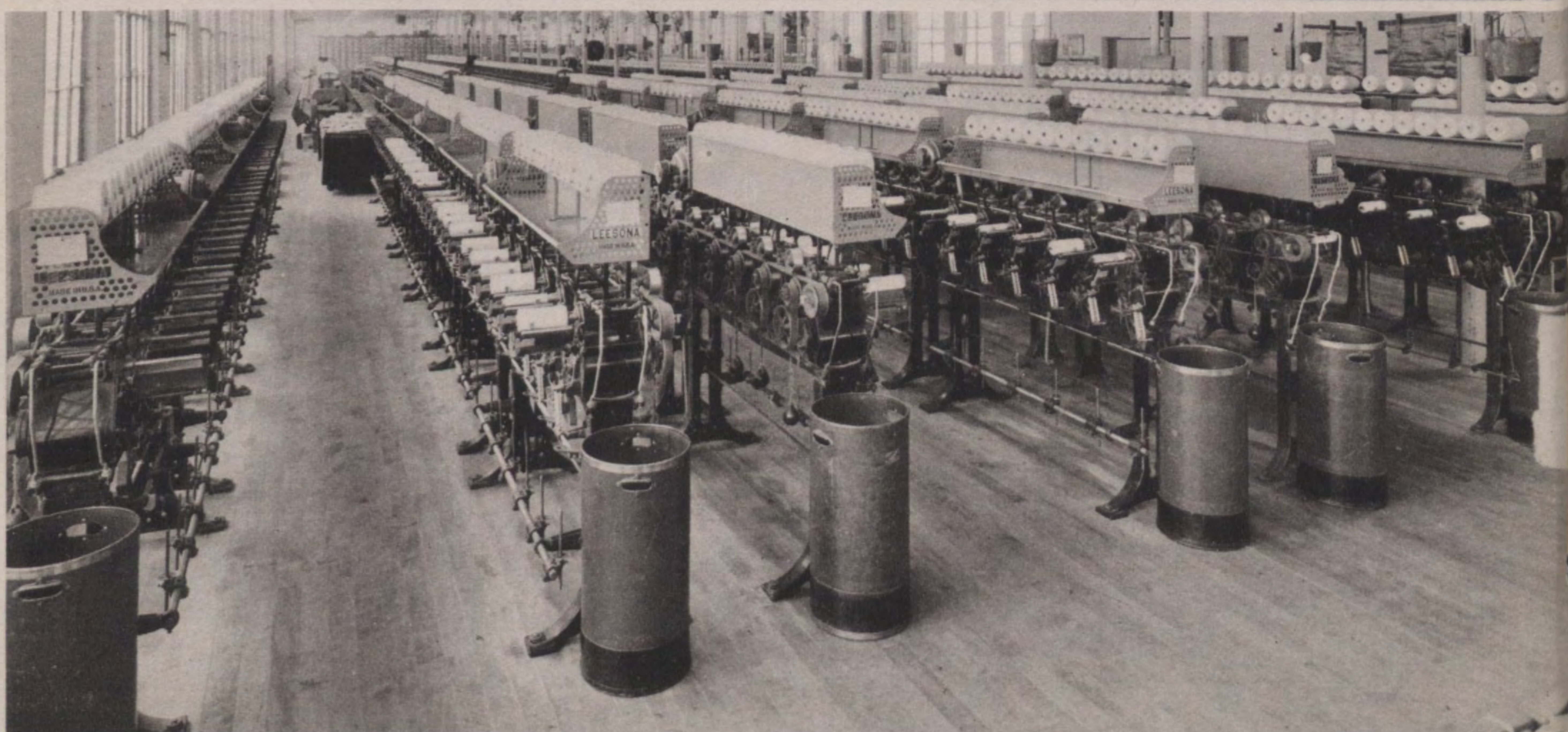
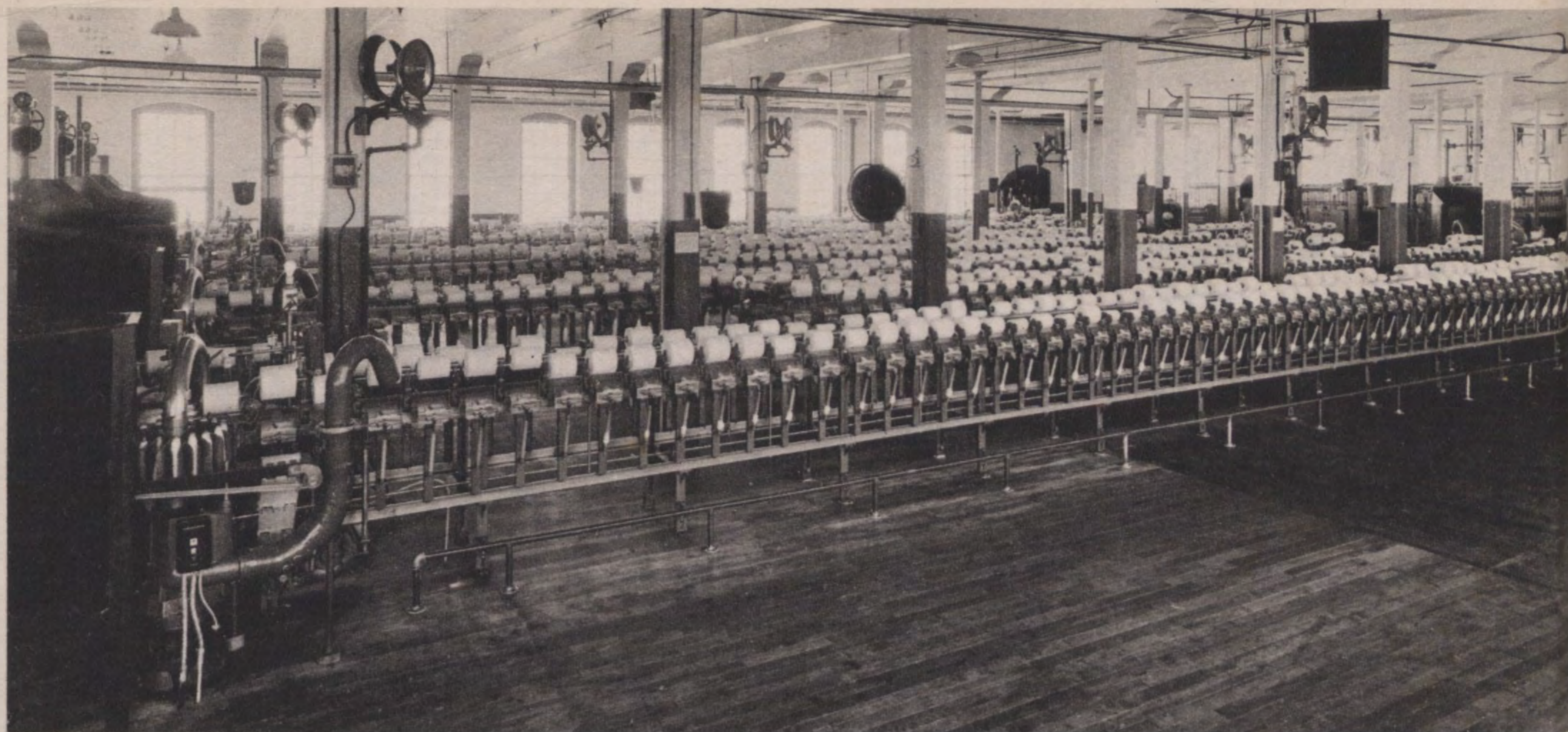
CARDING Carding is probably the most important of all processes in cotton manufacture. If poorly performed, the defect can never be corrected by subsequent operations. Its function is to complete the cleaning process, remove the short and immature fibers, and begin the prolonged procedure of arranging them in parallel position. The principle of carding is the combing action received by the cotton fiber when drawn between two card surfaces moving in opposite directions. These surfaces are covered by card "clothing," which consists of canvas strips driven full of bent wire staples, so arranged as to oppose each other. The lap from the picker room placed at the back of the cards, as shown in the picture opposite, passes through these complicated but highly efficient machines, each equipped with an individual vacuum cleaning unit. It emerges as a continuous sliver of cotton about an inch in diameter with a fairly high degree of parallelism. By special mechanism, it is coiled in a cylindrical can in which it is transported to the next stage of its journey.

DRAWING The function of the drawing frame is to subject the fibers to a gentle pulling and thus to secure a greater parallelism by the attenuation of the fibers. Coincidentally, uniformity of the product is attained by blending and doubling the slivers. There are two processes of drawing. The first process combines six card slivers into one sliver, and the second process combines six of these slivers into the finished drawing sliver. This combining of slivers is done by a series of drawing rolls revolving at increasing speeds, which reduces the combined sliver to its original size. Tests must be made here at regular intervals to keep the sliver at its proper weight in order that the finished yarn may be the correct size or count. The picture opposite shows the card slivers passing into the frames from their containers.

ROVING The term "roving" designates a group of machines in which the form of the cotton is reduced to a much smaller volume, and a mild degree of twist is imparted to the fibers. Slivers from the drawing frames pass into a roving frame, which exerts sufficient draft or pull to reduce considerably the amount of material, and the roving is wound in perfect order upon cylindrical bobbins. This is done by a high-speed, revolving flyer which serves to introduce a soft twist while winding the roving. Such machines must include many composite motions. For instance, as the bobbin increases in size, it must move relatively more slowly. The roving must not be allowed to snarl and must unwind with the utmost degree of ease and uniformity. These and other requirements are accomplished by automatic mechanisms of the highest order. The most modern long draft equipment in this category is shown on the opposite page.

SPINNING The last process in the production of single yarn is spinning, accomplished at Rocky Mount Mills by long draft spinning frames equipped with overhead traveling cleaners here shown. The soft roving is subjected to a considerable draft or pulling, and the desired twist is imparted. This is done by a series of rolls, the last two pairs being connected by endless belts of sheepskin or other soft material. Thus the advancing weft of cotton is grasped by drafting bands in close contact, and the higher speed of the last pair of rolls imparts a "slip draft" to the product. By the long draft system, the increased draft permits the reduction of coarse roving to comparatively fine yarn, with a consequent saving in labor, floor space and machinery. The spun yarn is wound by the machine on spinning bobbins.





SPOOLING Single yarn from the spinning frame can be used as such, or it can be twisted into ply yarn, as is done at Rocky Mount Mills. Since the content of each spinning bobbin is limited, it is necessary that the yarn on it be transferred to a larger package for the twisting operation, and this is generally done on spoolers, machines which merely transfer the yarn from numerous spinning bobbins to one large cylinder-shaped tube. Rocky Mount Mills uses high-speed automatic winders, recently developed, and almost human in their dexterity. The operative is merely required to keep the magazine at the end of the winder filled with spinning bobbins, and the automatic head picks up the ends from the bobbins and tubes and ties them together as the tubes to be wound are traversing around the machine.

TWISTING This operation known as "twisting" is the process by which two single yarns are uniformly twisted together, and the number of turns of twist per inch specified by the customer is put into the yarn. Rocky Mount Mills uses large ring twisters which produce plied yarn containing a minimum of knots, and this lack of knots is of great importance to certain yarn-consuming trades. On a ring twister the required twist is imparted by a small steel traveler running at a mile a minute speed around a highly polished metal ring. After being twisted the yarn is then wound by the twister on twister bobbins. Incidentally, here, as throughout the manufacturing procedure, the proper relative humidity, or percentage of moisture in the air, must be maintained regardless of outside conditions. Human ingenuity and modern machinery have proved themselves equal to this exacting requirement.

WINDING The special need of each customer must be considered not only in the manufacture of the yarn, that is, its size, twist, number of plies, etc., but in the manner in which it is put up for his use. Serving a wide diversity of users, Rocky Mount Mills must be equipped to adjust the "put-up" to the customer's technique of manufacture. Much of the yarn is wound on "precise" tubes, but other users require "open wind" tubes or cones, Jumbo tubes or cones, skeins of various sizes, or tubes perforated to permit dyeing. Precise or "close wind" winders are here shown. On them the yarn is rewound from the twister bobbins to the tubes or cones of the size specified.

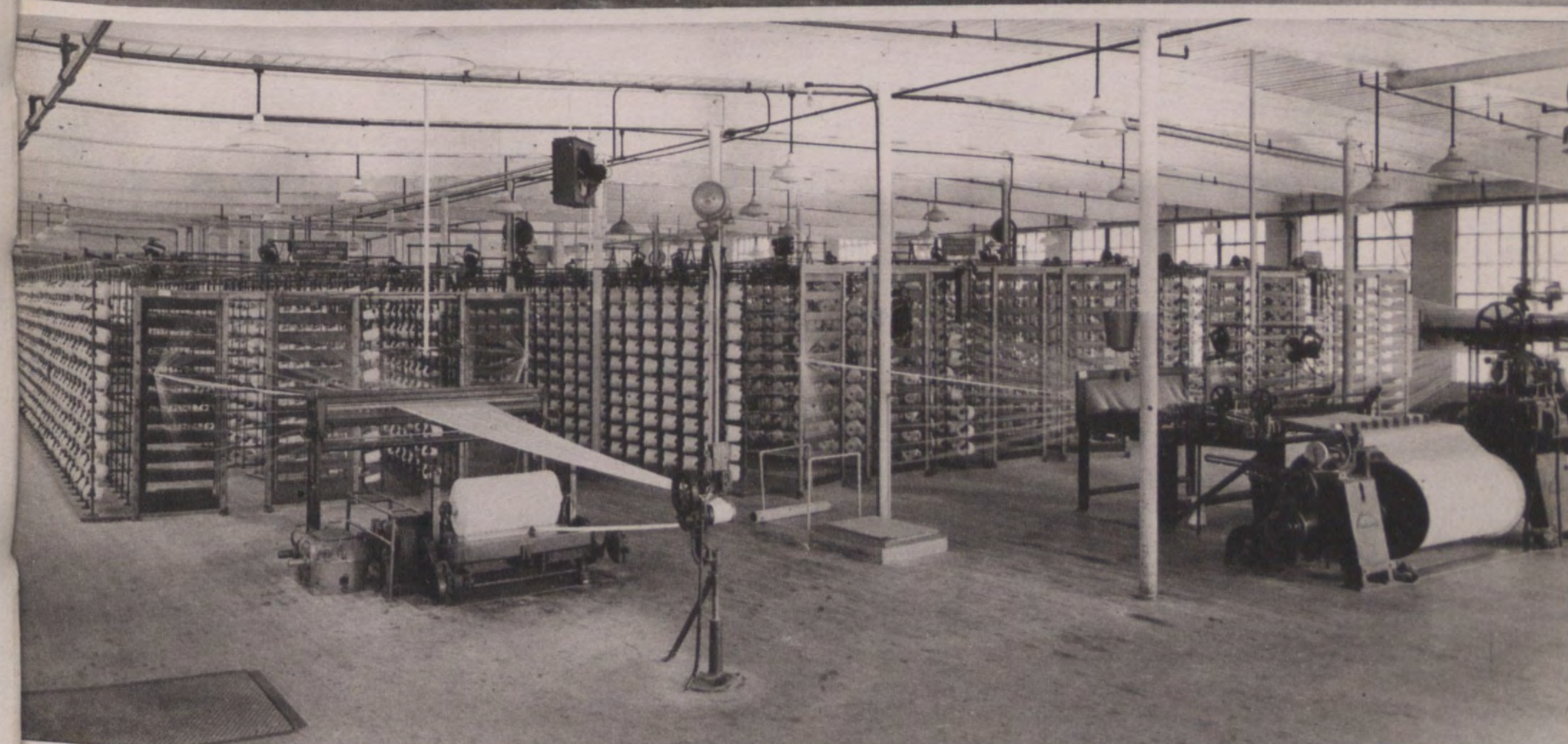
WARPING If the yarn is to be warped, it must be first put on cork-covered wooden cones, and this is done by high-speed cone winders here shown. On all winders, the operatives tie only "weavers knots," a small tight knot which will not slip in later processing of the yarn. These are tied by an ingenious machine strapped to the operative's hand and working faster than human fingers. Elaborate precautions are taken throughout the mill to prevent mixing of the various counts and plies, and every process and package is under the observation and examination of trained inspectors.

Warping might be considered the first process in the weaving of cloth instead of the last process in the spinning of yarn, but it is a considerable convenience to some customers to receive their yarn in ball warps, snaked warps or on beams. Rocky Mount Mills is equipped to meet such needs of its customers by the use of high-speed warpers, served by magazine cone creels which permit the operative to replace a cone that has been emptied with a full cone without stopping the warper. The function of warping is to lay the threads in parallel order preparatory to their introduction into the loom. From 300 to 1400 cones of yarn, according to customer requirements, are placed in the magazine creel, and the ends are led forward through stop wires and a comb to establish parallelism. The ball warper and beamer here shown are so built that when an end breaks, the machine automatically stops and an enunciator shows the location of the broken end.

Warps, unlike cones, tubes or skeins, are sold on a theoretical weight or yardage basis. Close control over every phase of manufacture of last year's production of over 4,000,000 pounds of warps kept the actual weight within less than 1/10 of 1% of the theoretical weight.

WASTE In the manufacture of high-grade yarn, there is unavoidably a considerable percentage of "waste," that is, cotton fibers rejected and expelled by the machines in the course of manufacture because of inadequacy of fiber length or strength. In Rocky Mount Mills, this waste is not thrown away or sold as such. It is accumulated into a separate department and again cleaned, blended, and blown into a separate spinning unit, where it is made into a coarse waste yarn which commands a ready sale.

In 1939, Hyman L. Battle went to Poland to make a study of advanced methods in the utilization of waste, superior to anything in use in this country or others parts of Europe. As a result of this trip, a part of the waste machines here shown were purchased in that tragic country. Mr. Battle was on the last train to leave Czechoslovakia before its borders were closed at the beginning of the war, and the machines arrived in New York on the last Italian ship discharging a cargo at that port before Italy made her historic miscalculation in entering the war.



PREPARED AND PRINTED BY WILLIAM E. RUDGE'S SONS

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