

INTRODUCTION ·  
OF  
THE POWER LOOM,  
AND  
ORIGIN OF LOWELL.

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BY NATHAN APPLETON.

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Printed for the Proprietors of the Locks and Canals  
on Merrimack River.

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LOWELL, MASSACHUSETTS:  
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1858.

## INTRODUCTION.

JUNE 21, 1858.

HON. NATHAN APPLETON:—

DEAR SIR,—

It has often occurred to us that there are many facts connected with the history of the City of Lowell, which either are not known to the present generation, or rest upon uncertain and fast perishing tradition; but which may be gathered up and preserved by persons yet living, who bore an important part in laying its foundations; and are personally acquainted with the most, even of the minute details, of those interesting transactions.

That history, so honorable to its founders, is worthy of preservation. It must speak, not merely of the setting up there of factories and spindles, but of the wise and prudent foresight, so characteristic of the New England character; which in the beginning made provision for religious worship, schools, a hospital for the sick, and established a system of management, well calculated to preserve the morals of the people there to be gathered; a large portion of them the young of both sexes, temporarily brought from their homes in the country, and taken from the immediate care and oversight of their parents and friends, as operatives in the mills, under circumstances peculiarly requiring great care and prudence on the part of their employers, to preserve and maintain the high character of the rural population. How liberally these requirements were met, how generous a provision was from the beginning made by those who laid those foundations, no one knows better than yourself.

You, Sir, were engaged from the first, with the gentlemen who turned their attention to the Pawtucket Falls on Merrimack River, as a power eminently fit for large manufacturing operations; and to the present site of Lowell as a proper locality for the use of that power; and for the building of a city, as consequent upon the placing there of those large establishments, which form the principal source of its growth and support. And you acted so prominent a part, in the formation and conduct of the Companies that purchased the land and water-power there, and have continued to the present time, not only your pecuniary interest, but a personal participation in the management of the principal establishments, that you have it in your power to furnish information upon the subject we have mentioned, of great value, not only at the present time, but which will increase with the lapse of years.

We hope, therefore, that you will, in such form as may be most agreeable to you, write out and publish, such things as occur to you as likely to be desirable; and we venture the suggestion, that things which may perhaps seem trifling in themselves, become interesting in such a connection. We trust too, that you will not be restrained in the narration, by the fact that you will often have occasion to speak of yourself, and of your own acts, as otherwise, much of that which is most valuable will be omitted or imperfectly stated.

Should you feel willing to give us, as you are able to do, a more extended view of the rise and progress of the Cotton manufacture in this country, than would necessarily be embraced in the history of Lowell, it would have a still wider interest, and would make known, more generally, the value and importance of the services of some of those distinguished men, who so largely contributed to its successful establishment, with whom you were so intimately associated.

Be assured, that by complying with our request, you will perform a most useful work, and gratify many of your numerous friends and acquaintances, but none more than,

Your Ob'dt Serv'ts,

F. B. CROWNINSHIELD,

*Treas. Merrimack Man'g Co.*

THOS. G. CARY,

*Pres't Prop'rs of Locks & Canals.*

JAMES B. FRANCIS,

*Agent Prop'rs of Locks & Canals.*

v  
21  
BOSTON, SEPT. 1, 1858.

DEAR SIRS:—

I have given particular attention to your interesting communication, on the subject of committing to paper, my reminiscences of particulars connected with the early history of Lowell, and the cotton manufacture.

The idea of doing so has frequently been pressed upon me, and has naturally attracted my attention. My greatest obstacle has been, the necessity which it involves, of using so much the personal pronoun, which would appear more properly in a posthumous autobiography. Your very kind urgency has however, overcome my scruples, connected with the circumstance, that I am now approaching the age of pardonable garrulity, which allows the octogenarian a license of talk of himself. I am, it is true, the survivor of my early associates in this matter. I can claim for myself no other merit, than a cordial co-operation with Messrs. Lowell, Jackson, Boott and others the more active parties in establishing the cotton manufacture, on the principle of making every possible provision for the moral character and respectability of the operatives. I naturally feel a degree of satisfaction, in the part which I have thus performed in the introduction of this manufacture, so important in every point of view to the interest of the whole country. With these views I submit the accompanying manuscript to your disposition, and am very truly

Your very Ob'dt Ser'vt,

NATHAN APPLETON.

Messrs. F. B. CROWNINSHIELD,  
THOMAS G. CARY, AND  
JAMES B. FRANCIS.

## INTRODUCTION OF THE POWER LOOM.

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My connection with the Cotton Manufacture takes date from the year 1811, when I met my friend Mr. Francis C. Lowell, at Edinburgh, where he had been passing some time with his family. We had frequent conversations on the subject of the Cotton Manufacture, and he informed me that he had determined, before his return to America, to visit Manchester, for the purpose of obtaining all possible information on the subject, with a view to the introduction of the improved manufacture in the United States. I urged him to do so, and promised him my co-operation. He returned in 1813. He and Mr. Patrick T. Jackson, came to me one day on the Boston exchange, and stated that they had determined to establish a Cotton manufactory, that they had purchased a water power in Waltham, (Bemis's paper mill,) and that they had obtained an act of incorporation, and Mr. Jackson had agreed to give up all other business and take the management of the concern.

The capital authorized by the charter was four hundred thousand dollars, but it was only intended to raise

one hundred thousand, until the experiment should be fairly tried. Of this sum Mr. Lowell and Mr. Jackson, with his brothers, subscribed the greater part. They proposed to me that I should take ten thousand of this subscription. I told them, that theoretically I thought the business ought to succeed, but all which I had seen of its practical operation was unfavorable; I however was willing to take five thousand dollars of the stock, in order to see the experiment fairly tried, as I knew it would be under the management of Mr. Jackson; and I should make no complaint under these circumstances, if it proved a total loss. My proposition was agreed to, and this was the commencement of my interest in the cotton manufacture.

On the organization of the Company I was chosen one of the Directors, and by constant communication with Messrs. Lowell and Jackson, was familiar with the progress of the concern.

The first measure was to secure the services of Paul Moody, of Amesbury, whose skill as a mechanic was well known, and whose success fully justified the choice.

The power loom was at this time being introduced in England, but its construction was kept very secret, and after many failures, public opinion was not favorable to its success. Mr. Lowell had obtained all the information which was practicable about it, and was determined to perfect it himself. He was for some months experimenting at a store in Broad street, employing a man to turn a crank. It was not until the

new building at Waltham was completed, and other machinery was running, that the first loom was ready for trial. Many little matters were to be overcome or adjusted, before it would work perfectly. Mr. Lowell said to me that he did not wish me to see it until it was complete, of which he would give me notice. At length the time arrived. He invited me to go out with him and see the loom operate. I well recollect the state of admiration and satisfaction with which we sat by the hour, watching the beautiful movement of this new and wonderful machine, destined as it evidently was, to change the character of all textile industry. This was in the autumn of 1814.

Mr. Lowell's loom was different in several particulars from the English loom, which was afterwards made public. The principal movement was by a cam, revolving with an eccentric motion, which has since given place to the crank motion, now universally used; some other minor improvements have since been introduced, mostly tending to give it increased speed.

The introduction of the power loom made several other changes necessary in the process of weaving. The first was in the dressing, for which Mr. Horrocks of Stockport, had a patent, and of which Mr. Lowell obtained a drawing. On putting it in operation, an essential improvement was made, by which its efficiency was more than doubled. This Waltham dressing machine continues in use, with little change from that time. The stop motion, for winding on the beams for dressing, was original with this Company.

The greatest improvement was in the double speeder. The original fly-frame introduced in England, was without any fixed principle for regulating the changing movements necessary in the process of filling a spool. Mr. Lowell undertook to make the numerous mathematical calculations necessary to give accuracy to these complicated movements, which occupied him constantly for more than a week. Mr. Moody carried them into effect by constructing the machinery in conformity. Several trials at law were made under this patent, involving with other questions, one, whether a mathematical calculation could be the subject of a patent. The last great improvements consisted in a more slack spinning on throstle spindles, and the spinning of filling directly on the cops, without the process of winding. A pleasant anecdote is connected with this last invention. Mr. Shepherd, of Taunton, had a patent for a winding machine, which was considered the best extant. Mr. Lowell was chaffering with him about purchasing the right of using them on a large scale, at some reduction from the price named. Mr. Shepherd refused, saying "you must have them, you cannot do without them, as you know, Mr. Moody." Mr. Moody replied—"I am just thinking that I can spin the cops direct upon the bobbin." "You be hanged," said Mr. Shepherd. "Well, I accept your offer." "No," said Mr. Lowell, "it is too late."

From the first starting of the first power loom, there was no hesitation or doubt about the success of this manufacture. The full capital of four hundred



thousand dollars was soon filled up and expended. An addition of two hundred thousand was afterwards made, by the purchase of the place below in Watertown.

After the peace in 1815, I formed a new copartnership with Mr. Benjamin C. Ward. I put in the capital for the purpose of importing British goods, with the understanding that I was not to perform any part of the labor of carrying on the business. I was content with a moderate fortune, but not willing to disconnect myself entirely from business. An accidental circumstance occasioned the continuance of this copartnership until 1830.

At the time when the Waltham Company first began to produce cloth there was but one place in Boston at which domestic goods were sold. This was at a shop in Cornhill kept by Mr. Isaac Bowers, or rather by Mrs. Bowers. As there was at this time only one loom in operation, the quantity accumulating was not very great. However, Mr. Lowell said to me one day that there was one difficulty which he had not apprehended, the goods would not sell. We went together to see Mrs. Bowers. She said every body praised the goods, and no objection was made to the price, but still they made no sales. I told Mr. Lowell, the next time they sent a parcel of the goods to town, to send them to the store of B. C. Ward & Co., and I would see what could be done. The article first made at Waltham, was precisely the article of which a large portion of the manufacture of the country has continued to consist; a heavy sheeting of No. 14 yarn, 37 inches wide, 44

picks to the inch, and weighing something less than three yards to the pound.

That it was so well suited to the public demand, was matter of accident. At that time it was supposed no quantity of cottons could be sold without being bleached; and the idea was to imitate the yard wide goods of India, with which the country was then largely supplied. Mr. Lowell informed me that he would be satisfied with twenty-five cents the yard for the goods, although the nominal price was higher. I soon found a purchaser in Mr. Forsaith, an auctioneer, who sold them at auction at once, at something over thirty cents. We continued to sell them at auction with little variation of the price. This circumstance led to B. C. Ward & Co. becoming permanently the selling agents. In the first instance I found an interesting and agreeable occupation in paying attention to the sales, and made up the first account with a charge of one per cent. commission, not as an adequate mercantile commission, but satisfactory under the circumstances. This rate of commission was continued, and finally became the established rate, under the great increase of the manufacture. Thus, what was at the commencement rather unreasonably low, became when the amount of annual sale, concentrated in single houses amounted to millions of dollars, a desirable and profitable business.

Under the influence of the war of 1812, the manufacture of cotton had greatly increased, especially in Rhode Island, but in a very imperfect manner. The

effect of the peace of 1815 was ruinous to these manufacturers.

In 1816 a new tariff was to be made. The Rhode Island manufacturers were clamorous for a very high specific duty. Mr. Lowell was at Washington, for a considerable time, during the session of Congress. His views on the tariff were much more moderate, and he finally brought Mr. Lowndes and Mr. Calhoun, to support the minimum of  $6\frac{1}{2}$  cents the square yard, which was carried.

In June 1816, Mr. Lowell invited me to accompany him in making a visit to Rhode Island, with a view of seeing the actual state of the manufacture. I was very happy to accept his proposition. At this time the success of the power loom, at Waltham, was no longer matter of speculation or opinion: it was a settled fact. We proceeded to Pawtucket. We called on Mr. Wilkinson, the maker of machinery. He took us into his establishment — a large one; all was silent, not a wheel in motion, not a man to be seen. He informed us that there was not a spindle running in Pawtucket, except a few in Slater's old mill, making yarns. All was dead and still. In reply to questions from Mr. Lowell, he stated, that during the war the profits of manufacturing were so great, that the inquiry never was made whether any improvement could be made in machinery, but how soon it could be turned out. We saw several manufacturers; they were all sad and despairing. Mr. Lowell endeavored to assure them that the introduction of the power loom would

put a new face upon the manufacture. They were incredulous; — it might be so, but they were not disposed to believe it. We proceeded to Providence, and returned by way of Taunton. We saw, at the factory of Mr. Shepherd, an attempt to establish a vertical power loom, which did not promise success.

By degrees, the manufacturers woke up to the fact, that the power loom was an instrument which changed the whole character of the manufacture; and that by adopting the other improvements which had been made in machinery, the tariff of 1816 was sufficiently protective.

Mr. Lowell adopted an entirely new arrangement, in order to save labor, in passing from one process to another; and he is unquestionably entitled to the credit of being the first person who arranged all the processes for the conversion of cotton into cloth, within the walls of the same building. It is remarkable how few changes have since been made from the arrangements established by him, in the first mill built at Waltham. It is also remarkable, how accurate were his calculations, as to the expense at which goods could be made. He used to say, that the only circumstance which made him distrust his own calculations, was, that he could bring them to no other result but one which was too favorable to be credible. His calculations, however, did not lead him so far as to imagine that the same goods which were then selling at thirty cents a yard, would ever be sold at six cents, and without a loss to the manufacturer, as has since been

done in 1843, when cotton was about five or six cents a pound. His care was especially devoted to arrangements for the moral character of the operatives employed. He died in 1817, at the early age of 42, beloved and respected by all who knew him. He is entitled to the credit of having introduced the new system in the cotton manufacture, under which it has grown up so rapidly. For, although Messrs. Jackson and Moody were men of unsurpassed talent and energy in their way, it was Mr. Lowell who was the informing soul, which gave direction and form to the whole proceeding.

The introduction of the cotton manufacture in this country, on a large scale, was a new idea. What would be its effect on the character of our population was a matter of deep interest. The operatives in the manufacturing cities of Europe, were notoriously of the lowest character, for intelligence and morals. The question therefore arose, and was deeply considered, whether this degradation was the result of the peculiar occupation, or of other and distinct causes. We could not perceive why this peculiar description of labor should vary in its effects upon character from all other occupation.

There was little demand for female labor, as household manufacture was superseded by the improvements in machinery. Here was in New England a fund of labor, well educated and virtuous. It was not perceived how a profitable employment has any tendency to deteriorate the character. The most efficient guards

were adopted in establishing boarding houses, at the cost of the Company, under the charge of respectable women, with every provision for religious worship. Under these circumstances, the daughters of respectable farmers were readily induced to come into these mills for a temporary period.

The contrast in the character of our manufacturing population compared with that of Europe, has been the admiration of the most intelligent strangers who have visited us. The effect has been to more than double the wages of that description of labor from what they were before the introduction of this manufacture. This has been, in some measure, counteracted, for the last few years, by the free trade policy of the government; a policy, which fully carried out, will reduce the value of labor with us, to an equality with that of Europe.

The following are the changes in the price of the article first manufactured at Waltham.

1816,	- - - - -	30 cents per yard.
1819,	- - - - -	21 " " "
1826,	- - - - -	13 " " "
1829,	- - - - -	8 $\frac{1}{2}$ " " "
1843,	- - - - -	6 $\frac{1}{2}$ " " "

From that time, the price has fluctuated with the price of cotton, from 7 to 9 cents per yard.

## THE ORIGIN OF LOWELL.

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The success of the Waltham Company made me desirous of extending my interest in the same direction. I was of opinion, that the time had arrived, when the manufacture and printing of calicoes might be successfully introduced into this country. In this opinion Mr. Jackson coincided, and we set about discovering a suitable water power. At the suggestion of Mr. Charles H. Atherton, of Amherst, N. H., we met him at a fall of the Souhegan river, a few miles from its entrance into the Merrimack, but the power was insufficient for our purpose. This was in September, 1821. In returning, we passed the Nashua river, without being aware of the existence of the fall, which has since been made the source of so much power by the Nashua Company. We only saw a small grist mill standing near the road, in the meadow, with a dam of some six or seven feet.

Soon after our return, I was at Waltham one day, when I was informed that Mr. Moody had lately been at Salisbury, when Mr. Ezra Worthen, his former partner, said to him, "I hear Messrs. Jackson and Appleton

are looking out for water power. Why dont they buy up the Pawtucket Canal? That would give them the whole power of the Merrimack, with a fall of over thirty feet." On the strength of this, Mr. Moody had returned to Waltham by that route, and was satisfied of the extent of the power which might be thus obtained, and that Mr. Jackson was making inquiries on the subject. Mr. Jackson soon after called on me, and informed me that he had had a correspondence with Mr. Thomas M. Clark, of Newburyport, the Agent of the Pawtucket Canal Company, and had ascertained that the stock of that Company, and the lands necessary for using the water power, could be purchased at a reasonable rate, and asked me what I thought of taking hold of it. He stated that his engagement at Waltham would not permit him to take the management of a new Company, but he mentioned Mr. Kirk Boott as having expressed a wish to take the management of an active manufacturing concern, and that he had confidence in his possessing the proper talent for it. After a consultation, it was agreed that he should consult Mr. Boott, and that if he would join us we would go on with it. He went at once to see Mr. Boott, and soon returned to inform me that he entered heartily into the project; and we immediately set about making the purchases. Until these were made, it was necessary to confine all knowledge of the project to our own three bosoms. Mr. Clark was employed to purchase the necessary lands, and such shares in the Canal as were within his reach,