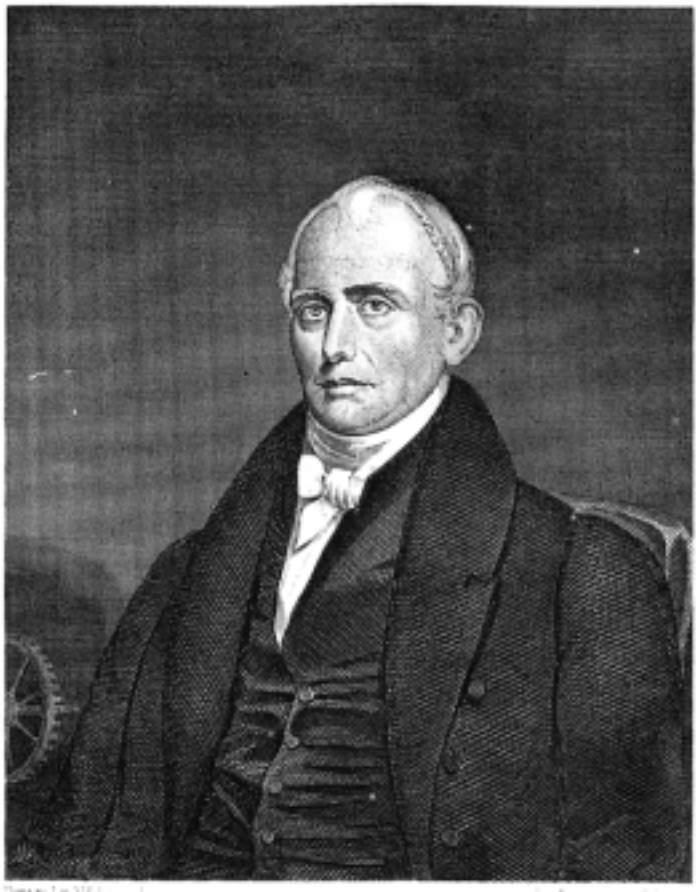


CRESCIT SUB PONDERE VIRTUS

Samuel States

MEMOIR OF SAMUEL SLATER,

The Father of American Manufactures.

CONNECTED WITH A

HISTORY OF THE RISE AND PROGRESS

OF THE

COTTON MANUFACTURE

IN

ENGLAND AND AMERICA.

WITH REMARKS ON THE

MORAL INFLUENCE OF MANUFACTORIES IN THE UNITED STATES.

BY GEORGE S. WHITE.

"Facts truly stated are the best applauses or most lasting reproaches."
"The history of the origin and development or progress of every subject is of great importance, because every thing relating to it can then be shown concentrated, as it were in a mirror, be clearly seen, and correctly judged of."

ILLUSTRATED BY THIRTY ENGRAVINGS.

PHILADELPHIA:
PRINTED AT NO. 46, CARPENTER STREET.
1836.

ADVERTISEMENT.

Being always convinced that without an investigation of the early state and progress of manufactures in Philadelphia, my work would be very imperfect, I resolved on publishing the volume in this city, expecting that, during my residence for the necessary attention to the printing, I should be able to examine the evidences of its early attention to manufactures. But I was not aware of the amount of interest on this subject, which had been manifested in Pennsylvania, from its early settlement. As an entire stranger in the city, I should have been much cramped in my investigations, had it not been for the liberal assistance afforded me by Dr. Mease, who entered into my design with ardour, and with enthusiastic patriotism. I am especially indebted to that gentleman, for opening to me avenues of information, which have enabled me to obtain as much useful matter as would of itself fill a volume :— my limits oblige me to make a selection. But I thus publicly express my obligations to Dr. Mease for the constant and unwearied pains he took to afford me every facility for the attainment of my object, which, as I had no personal claims on his attention, must have arisen from the deep interest he took in the subject. I fear that I have presumed on his goodness, and intruded on time which would otherwise have been devoted to a valuable work that he is preparing for the press, and thereby retard a publication anxiously expected by the citizens of Pennsylvania : in so doing I ought not only to apologise to him, but to ask pardon of the public, considering that he is himself engaged in preparing for the press a work on the Geography and Statistics of Pennsylvania.

To other gentlemen of this favoured city, I return thanks, without taking the liberty of designating them; which, however, if I felt authorised to do, their names would add greatly to the respectability of my work.

Philadelphia, April 18*th*, 1836.

CONTENTS.

LIST OF ENGRAVINGS.

WOOD PRINTS.

DEDICATION.

TO ALEXANDER V. GRISWOLD, BISHOP OF THE EASTERN DIOCESS.

REVEREND SIR,

This memoir of a distinguished layman of the church, in your diocess, who has achieved an important enterprise for our country, is dedicated to you, as his father in God. From his personal acquaintance, and from the knowledge he had, of your useful and abundant services, in the cause of religion, he frequently expressed to me and others a high and permanent regard for you.

If he could now express a wish on the subject, he would approve of my design, at least so far as my presenting this volume to your notice, if he believed it to be in any way worthy of your patronage. I have been anxious for an opportunity respectfully to express my reverence and high estimation, for a character so long beloved, and viewed as a model of what a bishop ought to be. You have emphatically taught us how to live, how to labour, how to suffer, as well as how to pray. You have demonstrated to New England, that prelacy may exist without arrogance or ostentation, and that ecclesiastical authority can be exercised without spiritual tyranny or oppression. No one can be better situated to judge of the moral condition of manufacturing establishments; for your ministerial labours have been extended to nearly every village and hamlet in your diocess. To you, therefore, I can appeal for the correctness of the article on that subject.

It has been my humble supplication, that you may live long to preside in the councils of the church, and teach those in authority how to rule in the fear of God.

Whenever, in obedience to the inspired penman, my mind is led to the contemplation :—" Of whatsoever things are true ; whatsoever things are just ; whatsoever things are honest ; whatsoever things are pure ; whatsoever things are lovely ; whatsoever things are of good report : whatever is virtuous and praiseworthy :"— your example, (which I have observed the last twenty-five years) appears before me, as a practical demonstration of these heavenly principles.

It is only the fear that my work will be very imperfect and unworthy of your notice, which prevents my enjoying the highest pleasure and gratitude in thus publicly assuring you with how much veneration and devotion,

I am, Rt. Rev. Sir, your friend and servant,

GEORGE S. WHITE.

To the Subscribers of "The Memoir of Slater," in New England.

When I first made the proposals of this work, I only promised rising of 300 pages without engravings, at $2 00, and when encouraged by your patronage to procced in the undertaking, I ventured only two or three engravings, not even hoping that I should be able to obtain a steel engraving of the portrait of Mr. Slater.

Your favourable encouragement emboldened me both to proceed in the work, and enlarge my design, till I have produced a volume which is sold at $3 ; and after paying 75 cents a copy to the agent, the remaining is only sufficient to pay all actual expenses attending the work. An inferior edition can, if desired, be printed to be afforded at $2 ; but several gentlemen advised me not to do it till I had offered my first subscribers and patrons, the "History of Manufactures" in its best form. In obedience with that advice, and with this explanation, Mr. Kennie offers the volume ; but for the responsibility of the change in the price, I only am responsible.

GEORGE S. WHITE,
Canterbury, Conn.

PREFACE.

In want of facts, it appears to have been a common propensity of our race to resort to fiction. The ancients, thus influenced, were prone to recur to fabulous ancestry, and to attribute all their *improvements* and *inventions* to deified powers. So, instead of awarding to merit its due, and creating a spirit of enquiry and emulation, all their arts were gratuitously attributed to their fabled Apollo. At this distant period of the world we can perceive at once, that this was done by a prevailing ignorance and through a defect of a suitable means for conveying useful and permanent information.

We know enough of human nature to conclude that it will be nearly the same under similar circumstances, and that so far as it is acted upon by them, similar results may be expected from similar causes.*

* "The Rhode Island papers announce the death, on Monday last, of *Samuel Slater, Esq.*—long known as one of the most enterprising and respected citizens of that state, and as the father of the cotton manufacturing business in this country. The first cotton-mill built in the United States was erected by him, in Pawtucket, and was yet in operation at the time of our last visit. There is a curious anecdote, connected with the original machinery of this factory, which, as it is strictly true, we will relate for the edification of Doctors Abercrombie and Macnish, and other enquirers into the philosophy of dreams. Mr. Slater was an ingenious mechanist, and all the machinery was constructed under his immediate direction. Of course, in the earliest infancy of the business, and before the machinery to be constructed was itself thoroughly understood, or the means for making it as ample as could have been desired, imperfections to a greater or less extent were to be anticipated. At length, however, the work was complete, and high were the hopes of the artist and his employers. All was ready, but the machinery would not move, or at least it would not move as intended, or to any purpose.

Ignorance and superstition produce precisely the same dark and dangerous disguises and consequences, in our day, as they did anciently.

With the aid of letters, and every facility for printing, as yet not a single publication has been presented to the American public to give an account, and perpetuate the rise and progress, of the cotton and other manufactures in this country.

To such an extent have they advanced and probably will advance, without correct information the liability is, for the whole account of their rise and progress at some future period to run into fiction and fable; and the man who was most instrumental in introducing them, instead of being viewed as a plain practical mechanic, using honest means for his own benefit, and at the same time promoting the best interests of this country, to be ranked among fictitious characters, and to have his name and fame some way mysteriously associated with the business which he has permanently established.

Information is surely needed on these points, and this is the author's apology for collecting, compiling, and presenting to the public, a work, including the *Memoir* of *Samuel Slater*, and giving a general account of the rise and progress of manufactures in this country. In going into this unoccupied field much labour was requisite to collect materials. They have been obtained from a variety of sources, all of which the author wishes to acknowledge with due deference.

General credit is due to the following writers:—Hamilton's Report to Congress, 1790; Niles's Register; Edinburgh Encyclopedia;

The disappointment was great, and the now deceased mechanist was in great perplexity. Day after day did he labour to discover, that he might remedy the defect—but in vain. But what he could not discover waking was revealed to him in his sleep.

"It was perfectly natural that the subject which engrossed all his thoughts by day, should be dancing through his uncurbed imagination by night, and it so happened that on one occasion, having fallen into slumber with all the shafts and wheels of his mill whirling in his mind with the complexity of Ezekiel's vision, he dreamed of the absence of an essential band upon one of the wheels. The dream was fresh in his mind on the following morning, and repairing bright and early to his works, he in an instant detected the deficiency!

"The revelation was true, and in a few hours afterwards, the machinery was in full and successful operation. Such is one feature in the history of American manufactures. The machinist has since led an active and useful life—sustaining in all the relations of society an unblemished reputation."—*Com. Advertiser.*

Baines's History of the Cotton Manufactures; "Spinning Master's Assistant;" Results of Machinery; Babbage's Economy of Manuactures; History of Derbyshire; Zec. Allen on Mechanics, and his Practical Tourist: and Ure's Philosophy of Manufactures. To others I am indebted for very important assistance and encouragement, whose names I do not feel at liberty to publish; but the impression of their kindness is recorded on a tablet that but one event can erase.

With all the help afforded me, I have considered it little short of presumption, for one, whose studies have been so devoted to another department, to attempt mechanics. I have been led into the subject gradually and accidentally; at first I only intended a memoir of my friend; but finding his whole life so connected with manufactures, it became necessary that I should have a general knowledge of the subject. Those whose opinions had weight with me, said, the public needed an historical essay on the rise and progress of manufactures; at last a volume is produced. Whether the public will receive my labours in good part, remains to be proved.

The difficulty of understanding the processes of manufactures, has unfortunately been greatly overrated. To examine them with the eye of a manufacturer, so as to be able to direct others to repeat them, does undoubtedly require much skill and previous acquaintance with the subject; but merely to apprehend their general principles and mutual relations, is within the power of almost every person possessing a tolerable education. Those who possess rank in a manufacturing country can scarcely be excused if they are entirely ignorant of principles whose developement has produced its greatness. The possessors of wealth can scarcely be indifferent to processes which nearly or remotely have been the fertile source of their possessions. Those who enjoy leisure can scarcely find a more interesting and instructive pursuit than the examination of the workshops of their own country, which contain within them a rich mine of knowledge, too generally neglected by the wealthier classes.

The more knowledge is accumulated and perfected, the more easily it is acquired and recollected. I find this to be the case in the study of mechanics; what appeared complex and obscure to me at first, now appears pleasing and easy to be understood. The subject is not so inexplicable as many imagine.

Arnott says: "The laws of physics have an influence so extensive, that it need not excite surprise that all classes of society are at last discovering the deep interest they have to

understand them. The *lawyer* finds that in many of the causes tried in his courts, an appeal must be made to physics,—as in the cases of disputed inventions: accidents in navigation, or among carriages, steam engines, and machines generally: questions arising out of the agency of winds, rains, water currents, &c. The *statesman* is constantly listening to discussions respecting bridges, roads, canals, docks, and mechanical industry of the nation. The *clergyman* finds ranged among the beauties of nature, the most intelligible and striking proofs of God's wisdom and goodness:—the *sailor* in his ship has to deal with one of the most admirable machines in existence: *soldiers*, in using their projectiles, in marching where rivers have to be crossed, woods to be cut down, roads to be made, towns to be besieged, &c., are trusting chiefly to their knowledge of physics: the *land-owner*, in making improvements on his estates, building, draining, irrigating, road making, &c. The *farmer* equally in these particulars, and in all the machinery of agriculture: the *manufacturer* of course; the *merchant* who selects and distributes over the world the products of manufacturing industry—all are interested in physics; then also the *man of letters*, that he may not, in drawing illustrations from the material world, repeat the scientific heresies and absurdities, which have heretofore prevailed. It is for such reasons, that natural philosophy is becoming daily more and more a part of common education. In our cities now, and even in an ordinary dwelling house, men are surrounded by prodigies of mechanic art, and cannot submit to use these, as regardless of how they are produced, as a horse is regardless of how the corn falls into his manger. A general diffusion of knowledge, owing greatly to the increased commercial intercourse of nations, and therefore to the improvements in the physical departments of astronomy, navigation, &c., is changing every where the condition of man, and elevating the human character in all ranks of society."

It is my design to make this work permanently interesting and valuable, and render it subservient to the cause of domestic industry. I have raised an argument in favour of the immense importance of manufacturing establishments of every description; and I think the work is calculated to promote a patriotic attention to the general enterprise and prosperity of the country.

The following remarks, first made in reference to Edmund Burke, are not inapplicable to one who was his great admirer:—

"Few things interest the curiosity of mankind more, or prove so instructive in themselves, as to trace the progress of a powerful mind, by the honourable exertion of its native energies, rising, in

the teeth of difficulties, from a very private condition to important standing in society, with power to influence the destiny of nations. Such a person, as sprung not from the privileged few, but from among the mass of the people, we feel to be one of ourselves. Our sympathies go along with him in his career. The young imagine that it may possibly be their own case; the old, that with a little more of the favour of fortune it might have been theirs; and, at any rate, we are anxious to ascertain the causes of his superiority, to treasure up his experience, to profit by what he experienced to be useful, to avoid what he found to be disadvantageous. And the lesson becomes doubly instructive to that large class of society who are born to be the architects of their own fortune; when it impresses the great moral truth, that natural endowments, however great, receive their highest polish and power, their only secure reward, from diligent study—from continued, unwearied application: a plain, homely faculty, within the reach of all men, one which is certain to wear well, and whose fruits bear testimony to the industry of the possessor, and to the intrinsic value of the possession."

Should the present attempt enable the citizens of the United States to appreciate more justly the powers of one to whom this country is under very important obligations, the writer will not deem his labour misapplied. His testimony at least is impartial. He has no party purpose to answer, no influence to court, no interest to push; except it be the common interest felt by every generous mind, of rendering to a distinguished and deserving character those honours which are its due.*

The great importance of manufactures, is exciting a vast interest in England, and on the continent of Europe; this year has produced valuable publications in this new department of literature, and a series of volumes are promised by Dr. Ure, the author of the Philosophy of Manufactures. France is alive to the all absorbing subject, which they perceive has given England a pre-eminence among the nations of the earth; the comparative advantages between the two nations are nicely drawn, but in view of these, England boasts that she shall be able to maintain her superiority, against France and the world.

* At Grand Cairo in Egypt, they have such a profound respect to new inventions, that whoever is the discoverer of any new art or invention is immediately clad in cloth of gold, and carried in triumph throughout the whole city, with trumpets and other musical instruments playing before him, and presented to every shop to receive the joyful acclamations and generous presents of his fellow citizens.

Will any one, with the whole of this absorbing topic before him, doubt, whether England could have advanced, and gained ground against the nations on the continent which had long been superior to her, without the cherishing protection and patronage which has been carefully granted to every branch of her trade and commerce? Those who are well informed on this subject, can have no remaining doubts. Home manufactures, in order to their existence and perfection, must be protected—either by prohibitory duties, or by a preference and patronage of the people; the latter mode is the most effectual and the most advisable, in the present state of American finances. And what American, who feels the importance attached to the growing interest of the United States, who will not exercise patriotism enough, so far to prefer our own manufactures as to render us entirely independent of Europe in any emergency? Are we for ever to be the dupes of European influence, and the fantastic vagaries of their customs and fashions, ever varying, for the express purpose of making merchandise of our weakness and vanity, and the faculty of imitation? Let us rather assume a national character, a national costume. If we are to be guided by fashion, let that fashion be American; the produce of American soil, of American invention and skill, and of American industry and enterprise. The day is past and gone, when any of our citizens will think it best to have our *work-shops* in Europe; indeed America will soon learn the extent of her resources to be such, as to render her independent of the old world, and thus establish our independence on a basis that can neither be shaken by the implements of war, nor by the stratagems of peace. For it is now avowed that those strifes are in full operation, aiming at universal conquest. A conquest made of our resources, rendering our labour and skill and raw materials ineffective, would effectually impoverish and ruin us as a people, making us the dupes of superior energy and capital. America is already alive to those circumstances, but she must never be off her watch-tower—for the enemy is ever on the alert, making a breach at every weak point, and taking advantage of our inadvertence and inactivity.

But if Americans make good use of their natural capabilities, and take advantage of their free institutions, they may cope with the whole world, in deriving the benefits of skill and enterprise; and thus establish on a permanent basis, such establishments of industry and wealth as shall render America independent of the world.

"A machine, receiving at different times and from many hands,

new combinations and improvements, and becoming at last of signal benefit to mankind, may be compared to a rivulet swelled in its course by tributary streams, until it rolls along, a majestic river, enriching in its progress provinces and kingdoms. In retracing the current, too, from where it mingles with the ocean, the pretensions of even ample subsidiary streams are merged in our admiration of the master flood, glorying, as it were, in its expansion. But as we continue to ascend, those waters which, nearer the sea, would have been disregarded as unimportant, begin to rival in magnitude, and divide our attention with, the parent stream; until at length, on our approaching the fountains of the river, it appears trickling from the rock, or oozing from among the flowers of the valley. So also, in developing the rise of a machine, a coarse instrument, or a toy, may be recognised as the germ of that production of mechanical genius, whose power and usefulness have stimulated our curiosity to mark its changes, and to trace its origin. And the same feeling of reverential gratitude, which attached holiness to the spots whence mighty rivers sprung, also clothed with divinity, and raised altars in honour of, the inventors of the saw, the plough, the potter's wheel, and the loom. To those who are familiar with modern machinery, the construction of these implements may appear to have conferred but slight claim to the reverence in which their authors were held in ancient times, yet, artless as they seem, their use first raised man above the beasts of the field; and, by incalculably diminishing the sum of human labour, added equally to the power and enjoyment of the barbarous tribes of those ages to which their discovery is referred. In their rudest form, they are nearly all the mechanical aids that were necessary for the wants of nations, of shepherds and of husbandmen. For refinement, in the formation of even these simple contrivances, or for the invention and use of more complex mechanism, we must look to communities that have made considerable advances in the career of civilisation; to those regions where men, congregating in large masses, create numerous artificial wants, and, by this peculiarity in their social position, excite the natural rivalry of individuals to devise expedients to remove them. Accordingly it is found, that the dense population of some eastern countries, had there produced a state of society eminently calculated to call forth the resources of inventive power. From a remote period, the great wealth of the Egyptians, particularly, had generated a taste for luxurious magnificence, which that people early displayed in the erection of colossal and sumptuous buildings. The remains of their vast pyramids, temples, and

palaces, evince a skilful practice of numerous devices to abridge and facilitate labour, and to give a permanence, almost eternal, to their gorgeous structures."—*Stuart's Anecdotes.*

"The introduction of new inventions seemeth to be the very chief of all human actions. The benefits of new inventions may extend to all mankind universally, but the good of political achievements can respect but some particular cantons of men; these latter do not endure above a few ages, the former for ever. Inventions make all men happy without either injury or damage to any one single person. Furthermore, new inventions are, as it were, new erections and imitations of God's own works."—*Bacon.*

March 1, 1836.

INTRODUCTION.

A retrospective view of the colonial policy of Great Britain may not be inapplicable to some introductory remarks to this work.

It has always been the well known policy of that powerful nation, to supply her colonies with the home manufactures. They have of course, as a part of this plan, prevented the introduction of machinery and of all mechanical operations and improvements. Through the influence of fashion, as well as by other means, they have rendered their various dependencies entirely subservient to the mother country; affording them a constant supply, not only of articles of necessity, but those of ornament and fashion. This was the avowed condition of the North American colonies, previous to the war of the revolution.* Chatham said, he "would

* The state of the country, the state of the government, and the state of manufactures at this period, may be learned from the following letter written by John Adams, Dec. 19, 1816.

Extract of a letter from President Adams to Wm. E. Richmond, Esq. Providence. Dec. 14th, 1819.

Sir,—I have received your polite favour of the 10th, the subject of which is of great importance. I am old enough to remember the war of 1745, and its end. The war of 1755, and its close. The war of 1775, and its termination. The war of 1812, and its pacification. Every one of these wars has been followed by a general distress, embarrassments on commerce, destruction of manufactures; fall of the price of produce and of lands, similar to those we feel at the present day—and all produced by the same causes:—I have wondered that so much experience has not taught us more caution. The British merchants and manufacturers, immediately after the peace, disgorged upon us all their stores of merchandise and manufactures—not only without profit, but at a certain loss for a time—with the express purpose of annihilating all our manufactories and ruining all our manufacturers. The cheapness of the articles allures us into extravagances, and at length produces universal complaint. What would be the consequences of the abolition of all restrictive, exclusive, and monopolising laws, if adopted by

not have the Americans make a "*hobnail*;" and they will not have "a razor to shave their beards," was an expression in debate, by a member of the English parliament. Such was the condition of these colonies, previous to their declaration of independence; hence, the inhabitants found themselves bare even of necessary clothing, and of common utensils for the use of their domestic economy. This rendered the war more oppressive, and increased the privations of the Provincials, altogether beyond the sufferings of a state of warfare in modern times. The citizens had, from their first settlement, looked to the other side of the Atlantic for their clothing, their luxuries, &c.; in fact, for every thing, except their fire wood, meats, and bread stuffs. So that at the commencement of their resistance, they were nearly left without a tool to work with; the women were driven to the use of thorns, when their supply of pins failed them. All kinds of hardware and crockery were generally unattainable. Even the article of leather, was very imperfectly prepared. So that not only the army were badly shod, but many of the citizens were *bare-footed*, and *bare-headed*. The following remarks will show, that these restrictions on trade constituted a part of the complaints and grievances of the colonies. It was not easy for them to see by what principle their removal to America should deprive them of such rights and privileges. They could not comprehend the justice of restrictions so materially different from those at "home;" or why they might not, equally with their elder brethren in England, seek the best markets for their products, and like them manufacture such articles as were within their power, and essential to their comfort. But the selfish politicians of Britain, and her still more selfish merchants and manufacturers, thought otherwise. A different doctrine was accordingly advanced, and a different policy pursued. Acts were therefore early passed, restricting the trade with the

all the nations of the earth, I pretend not to say: but while all the nations with whom we have intercourse, persevere in cherishing such laws, I know not how we can do ourselves justice without introducing, with great prudence and discretion however, some portions of the same system. The gentlemen of Philadelphia have published a very important volume upon the subject, which I recommend to your careful perusal. Other cities are co-operating in the same plan. I heartily wish them all success, so far as this, at least—that congress may take the great subject into their most serious deliberation, and decide upon it according to their most mature wisdom.

JOHN ADAMS.

Note—A meeting was held in London, to assist cotton manufacture, headed by Earl Grosvenor, Lord Folkstone, H. Brougham, Sir Robert Peel, &c., and liberal subscriptions collected.

plantations, as well as with other parts of the world, to British built ships belonging to the subjects of England, or to her plantations. Not contented with thus confining the colonial export trade to the parent country, parliament in 1663 limited the import trade in the same manner. These acts, indeed, left free the trade and intercourse between the colonies. But even this privilege remained only a short period. In 1672 certain colonial products, transported from one colony to another, were subjected to duties. White sugars were to pay five shillings, and brown sugars one shilling and sixpence, per hundred ;—tobacco and indigo one penny, and cotton wool a half-penny, per pound. The colonists deemed these acts highly injurious to their interests. They were deprived of the privilege of seeking the best market for their products, and of receiving in exchange the articles they wanted, without being charged the additional expense of a circuitous route through England. The acts themselves were considered by some as a violation of their charter rights; in Massachusetts they were, for a long time, totally disregarded. The other colonies viewed them in the same light. Virginia presented a petition for their repeal; and Rhode Island declared them unconstitutional, and contrary to their charter. The Carolinas, also, declared them not less grievous and illegal. The disregard of these enactments on the part of the colonies—a disregard which sprung from a firm conviction of their illegal and oppressive character—occasioned loud and clamorous complaints in England. The revenue it was urged would be injured; and the dependence of the colonies on the parent country would, in time, be totally destroyed. Here much interesting matter might be introduced, but nothing more than a general sketch is intended.

A similar sensibility prevailed on the subject of *manufactures*. For many years after their settlement, the colonies were too much occupied in subduing their lands, to engage in other business. When, at length, they turned their attention to them, the varieties were few, and of coarse and imperfect texture. But even these were viewed with a jealous eye. In 1699, commenced a systematic course of restrictions on colonial manufactures, by an enactment of parliament, "That no wool, yarn, or woollen manufactures of their American plantations, should be shipped there, or even laden, in order to be transported thence, to any place whatever." Other acts followed, in subsequent years, having for their object the suppression of manufactures in America, and the continued *dependence* of the colonies on the parent country. In 1719, the house of commons declared, "That the erecting of manufactories in the

colonies, tended to lessen their dependence on Great Britain." In 1731, the board of trade reported to the house of commons, "That there were more trades carried on, and manufactures set up, in the provinces on the continent of America, to the northward of Virginia, prejudicial to the trade and manufactures of Great Britain, particularly in New England;" they suggested "whether it might not be expedient, in order to keep the colonies properly *dependent* upon the parent country, and to render her manufactures of service to the government, "to give those colonies some encouragement." From the London company of hatters, loud complaints were made to parliament, and suitable restrictions demanded upon the exportation of hats, which were manufactured in New England, and exported to various places, to the serious injury of their trade. In consequence of these representations, the exportations of hats from the colonies to foreign countries, and from one plantation to another, were prohibited; and even restraints, to a certain extent, were imposed on their manufacture. In 1731, it was enacted, that hats should neither be shipped, nor even laden upon a horse-cart or other carriage, with a view to transportation to any other colony, or to any place whatever; no hatter should employ more than two apprentices at once, nor make hats, unless he had served as an apprentice to the trade seven years; and, that no negro should be allowed to work at the business at all. The complaints and the claims of the manufacturers of iron were of an equally selfish character. The colonists might reduce the iron ore into pigs—they might convert it into bars—it might be furnished them duty free; but the English must have the profit of manufacturing it, beyond this incipient stage. Similar success awaited the representations and petitions of this trade. In this year, 1750, parliament allowed the importation of pig and bar iron from the colonies, into London, duty free; but prohibited the erection or continuance of any *mill* or other *engine*, for slitting or rolling iron, or any *plating* forge, to work with a tilt-hammer, or any furnace for making steel, in the colonies, under the penalty of two hundred pounds. Every such mill, engine, or plating forge, was declared a *common nuisance*; and the governors of the colonies, on the information of two witnesses, on oath, were directed to cause the same to be removed within thirty days, or to forfeit the sum of £500. It appears that no sooner did the colonies, emerging from the feebleness and poverty of their early settlements, begin to direct their attention to commerce and manufactures, than they were subjected by the parent country to many vexatious regulations, which seemed to indicate, that with regard to those subjects, the

colonies were expected to follow that line of policy, which she in her wisdom should mark out for them. At every indication of colonial prosperity, the complaints of the commercial and manufacturing interests of Great Britain; were loud and clamorous. Repeated demands were made upon the government, to correct the growing evil, and to keep the colonies in due subjection. "The colonies," said the complainants, "are beginning to carry on trade; they will soon be our formidable rivals; they are already setting up manufactures; they will soon set up for independence." To the increase of this feverish excitement in the parent country, the English writers of those days contributed not a little. As early as 1670, in a work entitled, "Discourse on Trade," published by Sir Joshua Child, is the following language, which expresses the prevailing opinion of the day:—"New England is the most prejudicial plantation to this kingdom; of all the American plantations, his majesty has none so apt for the building of shipping, as New England; nor any comparably so qualified for the breeding of seamen, not only by reason of the natural industry of that people, but principally by reason of their fisheries; and in my poor opinion, there is nothing more prejudicial, and in prospect more dangerous to any mother kingdom, than the increase of shipping in her colonies." Such was their condition, that if they made a hat, or a piece of steel, an act of parliament calls it a nuisance; a tilting hammer, a steel furnace, must be removed as a nuisance. Cutting off our trade with all parts of the world, was a principal reason that originated the declaration of independence. All Europe, who dreaded America, were urging England forward in her restrictive policy with the colonies.

These restrictions led to grievances, and complaints from the colonies, which finally ended in their independence.

As soon as the United States were recognised and acknowledged in her national compact, other nations as well as England crowded their manufactures into the new and hungry market. The country was then bare of European commodities. The flooding of the country with foreign articles rendered it unnecessary and impracticable to establish manufactures in any part of the Union. The condition of Europe soon called for the products of the soil, and the activity of commerce caused the merchants to flourish, and these, by furnishing a market, enriched the farmers and other inhabitants. This enabled them to give enormous prices for European and India goods: so nothing was done of importance, even to lay a foundation for future supplies of American domestic goods.

French and English fabrics were introduced, by all the interest of commercial men, and they were encouraged by all the rage of fashion. With such seeming kindness, the power of the states were rendered inoperative, and their resources expended. Their condition was similar to that of the Corsicans, who after they had gained and substantiated their independence under the patriotic and heroic Paoli, were swindled out of their liberty and reduced to servitude by an influx of Italian silks and trinkets from Naples. (*See Boswell's History of Corsica.*)

Nothing but a particular exigence, and the state of European affairs, during the reign of Napoleon, prevented the ruin of this republic, by the astonishing importation of foreign productions. The non-intercourse and non-importation laws raised the prices of all articles, before any energetic means were used to manufacture for ourselves. The rage for English goods, and for the luxuries of the East, had become so general, that no cost could prevent their use, and not merely a common use, but even an extravagant expenditure.

The daughters of the self-denying matrons, known to fame, in the stories of the first resistance to Great-Britain, in renouncing the use of *tea*—used profusely the best hyson and gunpowder imperial; so that these expensive kinds were more generally used, in the States, than in any other country in the world. Instead of the homespun coats and gowns formerly prided in, British broad cloths and French silks, were in common use, and the thirst and demands of fashion were insatiable. The people had passed from one extreme to another. No laws, either of non-importation or non-intercourse, could prevent such articles finding a way into our principal cities, and from thence into our country villages, where they brought an exorbitant price. So that millions of dollars were taken from us annually, to supply our wives and daughters with chips from Italy, and bonnets from Leghorn.

Even the war of 1812 with Great Britain, did not stop the use, but rather increased the desire for every thing foreign.

The restrictive policy failing, the state of the treasury urged to the expedient of an equalised tariff, upon the goods of all foreign nations at peace with the United States. This policy soon restored the exhausted revenue, and enabled the government to sustain the war, till a peace could be had on honourable terms.

The suddenness of the peace, unexpected and unforeseen, caused a flood of every description of articles, so that the markets were completely glutted. Many goods on hand, fell to one third of their previous prices on the merchant's hands. This dis-

couraged the infant establishments, which had been called into existence, by the emergency of war, to supply our necessities; they were not only disheartened but ruined, and many companies failed and lost their all. This state of affairs even threatened their total dissolution; a few only weathered the storm, and maintained a firm standing. To the undaunted perseverance of those few establishments, we owe the present progress and triumph of our improved manufactures.

By the introduction of the best and latest machinery, and with the advantages of New England water-power, they have survived every attack, surmounted every obstacle, and overcome every difficulty. Irish linens and India cottons, which once supplied our markets, are now but little known. An immense quantity of our cotton cloths are sold at a very low price, and are consumed in all parts of the Union, both plain and printed; as well as large exportations to South America, where they are in high repute, and have driven the British and India goods out of those markets.

Samuel Slater, the father of our manufacture of cotton, lived to see this astonishing change, and the successful operation of what he had first introduced, by unwavering firmness, under various and now unknown discouragements; which may teach us "Not to despise the day of small things." Slater commenced with seventy-two spindles, in a clothier's shop at Pawtucket, and did not find ready sale for his yarn after he had spun it. The first students of the university of Oxford in England first recited in a barn, in the time of Alfred; and the most splendid establishments, as well as the greatest of empires, commenced from small beginnings. We cannot, at present, foresee the wonderful extension of our manufactures; they are destined to supersede all that have ever existed before them in any part of the world.

A cold indifference on this subject exists, even in the manufacturing districts. There is not that decided preference, and patriotic attachment, to our own productions, as there undoubtedly ought to be, but a deplorable infatuation, after every thing foreign and *far fetched.*

"Are you sure that it is *not* American?" is the question often put, when articles are offered for sale. Domestic goods have been treated with too much contempt, even by those who earn their bread by their production. This apathy, this monstrous destitution of patriotism, must be removed, and the predilection for the fabrics of Europe and India goods, must be frowned down, before our manufactures of fine goods and silks can be established on a permanent basis. If they ever arrive at greater perfection; if they

are to be enabled to vie with the old world, with their accumulated capitals and cheapness of labour, they must be nurtured and cherished at home. This would be the most "judicious" course. Let us all unite, as the heart of one man, in the resolution, to prefer, and use nothing but the work of our own hands, and the business will be completed: we have the power to say it shall be done. This will be the final and effectual "tariff," that shall settle this subject of long and loud debate. This course must follow the "compromise or pacification," and all will be well. Employment will be necessary for our immense increase of population, and the influx of strangers, from every part of the world, invited to our shores, by the promise of liberty and plenty, must find work to exercise their various abilities and habits of industry. Many of them are valuable mechanics and artisans, of infinite variety of skill, well adapted to assist in the rapid improvements now commencing, unexampled in ancient or modern history. Who knows but other Slaters may come over to us, and assist in feeding and clothing the population that is forming new states in the vast wilderness, destined to be great empires, to exist for many generations—when Rome, and Paris, and Berlin, shall be no more. The prospect of national greatness is as sure as that of national existence. We are too contracted in our conceptions, when we talk of the southern and eastern interests. The rise and progress of empires and nations yet unborn, are connected with our prosperity.

Columbus first led the way, and opened a path for the oppressed to find freedom and peace. The old world had become tyrannical and despotic, and the groans of the children of men had come up into the ears of the Lord God of the universe. He inspired his servant with wisdom and courage, and afforded him all necessary means to open a new world to the eyes of astonished millions, to whom it was marvelous and almost miraculous. The wisdom of the wise men was turned backward, their knowledge turned to foolishness. All the maxims of political and spiritual tyranny were turned upside down; and Luther and others, exhibiting a mighty spirit of reformation, believed there would be deliverance, though they saw not the way. Their faith saved them, and it has happened according to their word. The iron arm has been broken; and the weak and despised have fled for refuge, and have found a quiet habitation.

May Americans remember their mercies and deep responsibilities! Let us lay aside every weight, and the sin that doth so easily beset

us; and let us run with patient perseverance in every good work, and we shall become the praise of the whole earth.

Had Columbus been discouraged, and turned back, at the mutiny of his crew, or had he then hearkened to the timid caution of his friends, we never should have reaped the wonderful harvest of benefits, from their disinterested labours, that we now enjoy. It is by constant self-denial and unconquered perseverance, that we can obtain any great object: we shall reap if we faint not, but if we are not faithful to the end, we cannot obtain the reward.

The strong and prominent trait of character in Slater, was his unwavering and steadfast perseverance, and his constant application to the fulfilment of his object. Had he failed in constructing the Arkwright machinery, or had he finally failed in his extensive business, the cause of manufactures would have been retarded; indeed, no one can calculate the evil consequences of such an event; but he held on his way; he fainted, but yet pursued. And he has left us an example, to those engaged in the same cause, or in a similar enterprise, to be stedfast, unmoveable, and faithful; till America shall rival, in the perfection of her manufactures, as she does now in the freedom of her institutions, the nations of the earth! We are richly supplied, and we possess, in a high and superabundant degree, all the natural capabilities for the purpose; all that is necessary, is the application of them to the proper object. Those philosophers who deny the bounties of Providence, in their rich and exhaustless abundance, by teaching that this globe is unable to support and sustain the natural increase of its inhabitants, have the most contracted and degraded view of the resources of nature, and the arrangement of her laws, not to insist upon the inspiration. They contradict the realities of all ages, by an unbelieving scepticism, fostered by a selfish policy, and a misrepresentation of matters of fact. We have resources for hundreds of millions. He is the true patriot who developes those mines and riches, and who gives employment to the species, to dignify society and ornament the country. We envy not those self styled patriots, whose thirst for office and distinction allows them to deceive and cajole their fellow citizens, by prejudicing them against the talented and enterprising part of society. Thus teaching them discontent, and prejudicing them against the necessary arrangements to promote the general welfare, making them the tools of their sordid and selfish policy; and yet these *patriots* imagine that their exaltation is essential to the honour and safety of their country. The path-way of virtue and truth, which only leads to honour and immortality, is too hard for their tender feet. They are astonished

that any person should go the round about way of self-denial, and they declare that none do, *with which a conscientious regard to actions and motives is always connected.* A state of society, not founded on the principles of honest industry, must be degraded and low; and, like the inhabitants of South America, must be wretched and miserable. Mankind must be usefully and honourably employed, in order to be virtuous and happy. In proof of this position, compare the condition of South America with the United States, and more especially with that part of the United States, where manufacturing establishments have come into being and risen to eminence. The mighty contrast in the condition and character of the people, is altogether greater than that formed by the hand of nature in the two countries themselves. South America, particularly that part in the neighbourhood of the La Plata, in the hands of New Englanders, would at once become the paradise of the world, did they retain their moral and intellectual habits. Without these habits, we can pronounce what they would be, from what a resident well acquainted with the country affirms the South Americans are. With governments in distraction, and so enfeebled as to exert no force except by the sword and bayonet, vice, disorder, and confusion, every where prevail. The finest fields in the world for agriculture are suffered to remain barren and desolate, or to be traveled by wandering herds. Indolence and ignorance enfeeble the hands and put out the eyes of the inhabitants. Roaming in poverty, filth, and pollution, they are totally blind to their advantages and privileges: they are tossed about by every wind of prejudice and passion. Trained to view labour as a degradation, while trampling the most prolific fields and possessing every thing requisite, and of the first qualities, for food and clothing, they would be obliged to go naked and starve, were it not for the industry of other nations. As it now is, robbers and assassins fill their streets, and thousands are disappearing by the only species of industry for which they have an adaptation, that of destroying each other. The inhabitants of New England, barren and rugged as she is, comparing her with this picture, and contrasting it with their own condition, will bless that Providence which has placed them as they are, and see at once that an introduction of the manufacturing interest has added in no small degree to their dignity and happiness.

Slater, by the introduction of machinery, and by his arrangements in the various deparments of the manufacturing establishments, opened the means of employment, and excavated a mine more valuable than those of Peru, or than all the precious metals

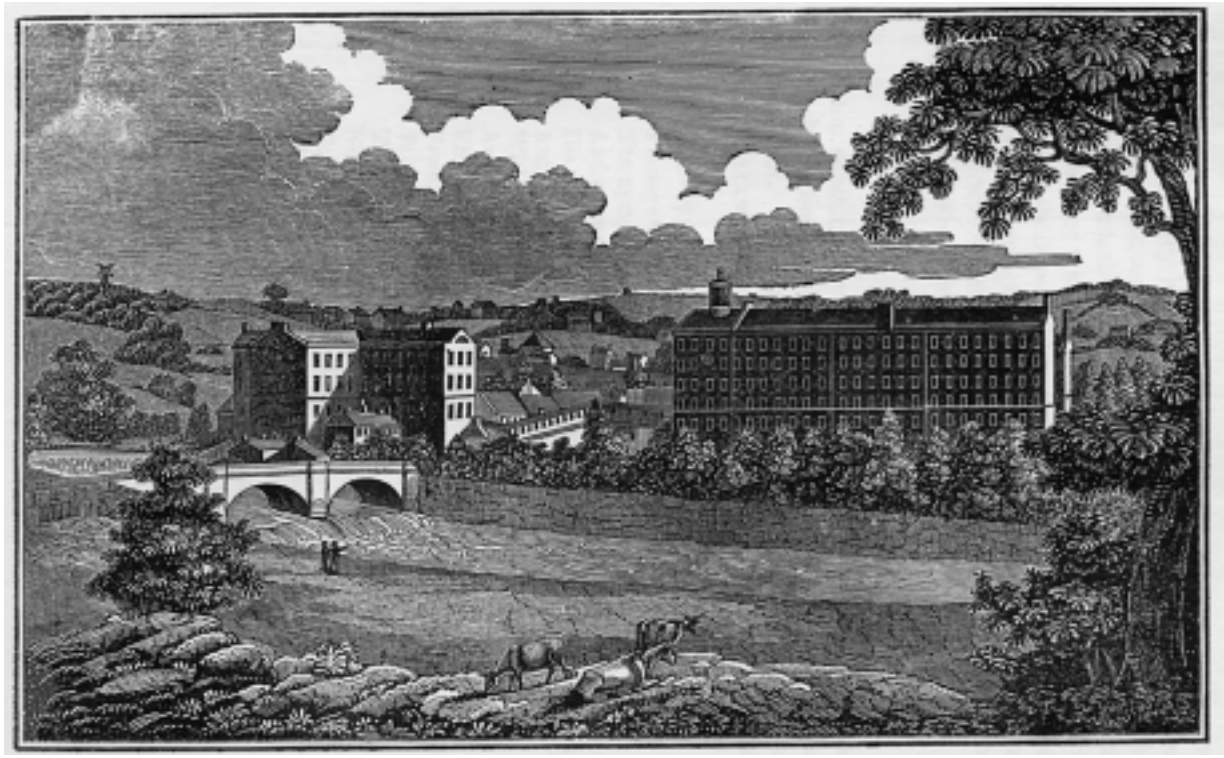
of the earth; because the human capabilities are brought into exercise. This gives to man his full enjoyment, in the pursuit of happiness. In contrast with South America, it is pleasing to see the spirit of enterprise and improvement rising in every part of our country. This spirit, if not now universal, is rapidly becoming so. We see it breaking out every where, in the middle states, in the northern, in the southern, in the western; and like the kindling of fire, we see it gathering strength, as it rises and spreads. Who does not see in this rising spirit, a subject of national felicitation? Perhaps the greatest this country ever had before; certainly greater than any other country ever possessed. Was even the spirit of liberty itself, which produced the revolution, and gave us our independence, more a subject of national congratulation? Who can estimate the value of this new born spirit which now animates our country, when we consider our great and rapidly increasing population, their characteristic ardour in every lucrative pursuit, and the boundless scope which our country affords for the range of this spirit? Here we have every thing to invite to enterprise and encourage hope; the great and growing market afforded by our commerce and our manufactures is rendering every article of produce valuable and productive. Thus every department of wealth aids and unites in replenishing the boundless resources of our happy country.

"An object is not insignificant, because the operation by which it is effected is minute: the first want of men in this life, after food, is clothing, and as this machinery enables them to supply it far more easily and cheaply than the old methods of manufacturing, and to bring cloths of great elegance and durability within the use of the humble classes, it is an art whose utility is inferior only to that of agriculture. It contributes directly and most materially to the comforts of life, among all nations where manufactures exist, or to which the products of manufacturing industry are conveyed; it ministers to the comfort and decency of the poor, as well as to the taste and luxury of the rich. By supplying one of the great wants of life with a much less expenditure of labour than was formerly needed, it sets at liberty a larger proportion of the population, to cultivate literature, science, and the fine arts. To England, these inventions have brought a material accession of wealth and power. They are not confined in their application to one manufacture, however extensive, but that they have given

nearly the same facilities to the woollen, the worsted, the linen, the stocking, and the lace manufactures, as well as to silk and cotton; and that they have spread from England to the whole of Europe, to America, and to parts of Africa and Asia: it must be admitted that the mechanical improvements in the art of spinning have an importance which it is difficult to over-estimate. By the Greeks, their authors would have been thought worthy of deification; nor will the enlightened judgment of moderns deny that the men to whom we owe such inventions deserve to rank among the chief benefactors of mankind."—*Baines.*

"Cotton spinning, the history of which is almost romantic, has been made poetical by Dr. Darwin's powers of description and embellishment. In his 'Botanic Garden' he thus sings the wonders of Arkwright's establishment on the Derwent, at Cromford."

——"Where Derwent guides his dusky floods
Through vaulted mountains, and a night of woods,
The nymph Gossypia treads the velvet sod,
And warms with rosy smiles the wat'ry god,
His pond'rous oars to slender spindles turns,
And pours o'er massy wheels his foaming urns,
With playful charms her hoary lover wins,
And wields his trident while the monarch spins.
First, with nice eye, emerging Naiads cull
From leathery pods the vegetable wool:
With wiry teeth *revolving cards* release
The tangled knots, and smooth the ravel'd fleece:
Next moves the *iron hand* with fingers fine,
Combs the wide card, and forms the eternal line;
Slow, with soft lips, the *whirling can* acquires
The tender skeins, and wraps in rising spires;
With quickened pace *successive rollers* move,
And these retain, and those extend the *rove;*
Then fly the spokes, the rapid axles glow,
While slowly circumvolves the labouring wheel below."



BELPER.

MEMOIR OF SAMUEL SLATER.

CHAPTER I.

FROM HIS BIRTH TO HIS LEAVING ENGLAND.

"Nothing is here for tears, nothing to wail,
Or knock the breast; no weakness, no contempt,
Dispraise or blame; nothing but well and fair,
And what may quiet us, in death so noble."

MILTON.

In writing the volumes of biography so frequently presented to the world, the motives of their authors have been various, and the subjects diversified. Mankind take an interest in the history of those, who, like themselves, have encountered the trials, and discharged the duties of life. Too often, however, publicity is given to the lives of men, splendid in acts of mighty mischief, in whom the secret exercises of the heart would not bear a scrutiny. The memoirs are comparatively few of those engaged in the business and useful walks of life.

Biography, of late years, has been rendered interesting, chiefly, by an extensive and learned correspondence; so that the compilers have scarcely room for narrative or reflection. These collections of letters from eminent persons are read with avidity, as a matter of curiosity, and as an indulgence to the inquisitive desire to enter into the private moments and opinions of individuals extensively known to fame. It is of a man well known in the business transactions of this country that we write. Notwithstanding his business and acquaintance were so extensive, and his success so complete, the materials for writing his memoir are scanty

and few. This is a complaint with all writers of biography who write the lives of persons that have passed through life in a uniform course, being little subjected to serious and important changes. To make it up from letters is out of the question, as there are only a few in existence, excepting those on business; so that this volume will be a counterpart to the publications above referred to.* So that if I had not been favoured, in a personal acquaintance with my deceased friend, I could not, in any satisfactory manner, have accomplished my purpose, in wishing to give the public an account of a man whom they have long heard of, as the father of our manufactures; and as one who had been successful in establishing the cotton business, on an improved and permanent basis.

I am writing of a man of business; not of a man devoted to literature, or what has been called the liberal arts; whose fame has been spread by means of publications, or who had in any way sought publicity, or made claim to any pretensions, *but of one who all his lifetime avoided it.* It is well known, that the late Samuel Slater, Esq. of Webster, Massachusetts, and for many years a resident citizen in the village of Pawtucket, Rhode Island, was a native of England. I have the most direct information of the place of his birth, and of his parentage. His father, William Slater, inherited the paternal estate, called "Holly House," near

* "The life of this gentleman presents nothing of that eclat and splendour by which mankind are most commonly attracted and fascinated; nothing of the 'pomp and circumstance,' or stirring incidents of war; of murder and pillage, burning and havoc, which, pursued on the large scale, makes the man a hero; but, followed on a less extensive plan, would brand him as a felon. His glory is not the flitting ignis fatuus that rises from the charnel house, to dazzle and mislead; but the bright, cheering, and durable halo of a well spent life; passed in successful efforts to better the condition of our race; in the cultivation and extension of those useful arts, which, by multiplying our comforts and conveniences, advance the empire of civilisation, and add to the sum of human enjoyment. If the mass of mankind were wise; if the chosen few, who sit in moral judgment on the actions of the great, and record their sentence on the page of history, were just—then would the false tinsel of military glory fade before the touchstone of truth, and that 'shadow of renown,' which has followed the destroyers of our race, 'from Macedonia's madman to the Swede,' be no longer regarded. The true interests of humanity, and the dictates of political justice and wisdom, require, alike, that this should be the case; and that none but the real benefactors of mankind should be held up as objects of our gratitude, or examples for our imitation."—*Short sketch of the life of Samuel Slater.*

Belper, in the county of Derbyshire, England. This estate is now owned and occupied by his son, William Slater.

The father of Samuel Slater was one of those independent yeomanry, who farm their own lands, now almost peculiar to that part of the country, as a distinct class from the tenantry of England. He did not, however, confine himself altogether to the business of agriculture, but added to his estate by the purchase of lands. He did so for the sale of timber, and was in fact a timber merchant.

Being a neighbour of Jedediah Strutt, of whom we shall have occasion to speak, he once made a considerable purchase for him containing a water-privilege, on which there is now a very extensive establishment. He was otherwise engaged with Mr. Strutt in making purchases of consequence, who had a high opinion of his abilities and integrity as a man of business. This acquaintance, and these transactions, led to the connection of Mr. Strutt with Samuel, who was the fifth son, and is said to have resembled his father in his person, and to have inherited his talents. This enterprising son transplanted a branch of the Slater family into the new world, where we trust they will grow and prosper for many generations. The mother of Mr. Slater was a fine looking woman, and lived a short time since with her third husband, whom she survived, and often observed, she had been favoured with "three good husbands." She had by her first husband, William Slater, a large family; William, who now lives on the paternal estate with many children, bids fair to keep up the family name on the other side of the Atlantic. John Slater, son of the subject of this memoir, visited him a few years since, at the Holly House farm, the place of his father's nativity, and viewed the establishment where his honoured parent served his long and important apprenticeship, as he did also the other mills owned by Messrs. Arkwright and Strutt, at Crumford, six miles from Belper. When on my last visit to Mr. Slater at Pawtucket, in 1833, he showed me the prints of Arkwright and Strutt, and pointing to that of Strutt, said, "Here is my old master," and pronounced it a good likeness.

Perhaps nothing could have had more influence on the subject of this memoir, to induce him to leave his business, than the desire to visit his aged mother, of whom he spoke always most affectionately, and corresponded with her.* And to have viewed

* The following letter is just such an one as we should expect an affectionate son would write to his mother, on the loss of a beloved and interesting

the place and scenes of his early days; his brothers and sisters, and their little ones, to the third generation; his school-fellows,

child. And it is expressive of that strong parental affection, which was peculiarly striking in Mr. Slater toward all his offspring. Towards his mother, Mr. Slater retained the fondest affection.

Extract of a letter sent by S. Slater to his mother at Belper, England, March 28th, 1801.

Providence, R. I.

Dearly Beloved Parent,—In December last, I answered yours of June, 1800, in which I wrote you, that my little family enjoyed a good state of health. But now, under the most weighty load of sorrow and affliction, I have to inform you that my first born and only son, William, was numbered among the dead, January 31st, aged four years and five months. He was taken sick with a severe cold, on Jan. 23d; the next day he had a bad cough, but was playful, and anxious to ride about four miles, to see one of my particular acquaintances. Therefore, to gratify him, I told him to go and tell the boy to put the horse in the chaise, and we would ride; accordingly he readily went to give his orders; but finally, we did not go to ride, and he never went out of the house afterwards. In the evening he was very much troubled with a shrill cough, and rested but little during the night. On the 25th he still grew worse, and on the 26th, in the afternoon, we called for a physician; he gave him some powerful medicine, but the operation of it was trifling, and his cough and hoarseness kept increasing during the day and night following. On the 27th, he was more troubled with hard breathing; and of course a more particular attention was paid by the physician, and medicine increased, but, alas! to no purpose. During this day and night, and on the 28th also, all our efforts and hopes were baffled. On the morning of the 29th, the physician judged him very dangerous, and from his knowledge of my great love and affection for my delightful child, he informed me that his case was very precarious, and said he knew I should take every method to have him restored. He said if I wished for further medical aid to assist and advise with him, he was entirely willing. Therefore I sent immediately for the most eminent physician, and on his arrival, they conversed, and pronounced his disorder the quinsey. They proceeded to give large and strong doses of medicine, which put him in the most deplorable misery; together with his most excruciating disorder. By this time his breath was so far stopped that he could not remain more than two or three minutes in one place, and remained so that day and all night following. On the morning of the 30th, his load of affliction was increased, but he bore all with calmness, and appeared lovely. Towards noon death had approached very near unto him, and about one o'clock his eyes were nearly closed, his little fingers stiff and almost cold, and his breath seemingly gone. He remained in that state till nearly three o'clock, then he appeared to revive for a little while, and sat up in the bed, and called for things to eat, and did eat freely; which gave us some flattering hopes of his recovery. But, behold, he was again seized as violently as ever, and remained so until the morning of the 31st, when, about three o'clock, he was summoned to quit this habitation of sorrow and trouble, for that of joy

Stamp

This Indenture Witnesseth. That Samuel Slater of Belper in the County of Derby, doth put himself Apprentice to Jedediah Strutt of New Mills in the Parish of Duffield in the said County of Derby Cotton Spinner, to learn his Art and with him (after the Manner of an Apprentice) to serve from the day of the date of these presents unto the full End and Term of Six Years and an half from thence next following to be fully compleat and ended During which Term the said Apprentice his Master faithfully shall serve his Secrets keep his lawful commands every where gladly do he shall do no Damage to his said Master nor see to be done of others; but to his Power shall let or forthwith give Warning to his said Master of the same he shall not waste the Goods of his said Master nor lend them unlawfully to any. he shall not commit fornication nor contract Matrimony within the said Term he shall not play at Cards Dice Tables or any other unlawfull Games whereby his said Master may have any loss With his own Goods or others during the said Term without Licence of his said Master he shall neither buy nor sell he shall not haunt Taverns or Play Houses nor absent himself from his said Master's Service day or Night unlawfully, But in all things as a faithfull Apprentice shall behave himself towards his said Master and all his during the said Term.

Five Pence Pr. Pair

B

And the said Jedediah Strutt in consideration of the true and faithful Service of the said Samuel Slater his said Apprentice in the Art of Cotton Spinning which he useth, by the best Means that he can, shall teach and instruct or cause to be taught and instructed, Finding unto the said Apprentice Sufficient Meat Drink Washing and Lodging during the said Term And for the true Performances of all and every the said Covenants and Agreements either of the said Parties bindeth himself unto the other by these Presents In Witness whereof the Parties above named to these Indentures interchangeably have put their Hands and Seals the Eighth Day of January and in the Twenty Third Year of the Reign of our Sovereign Lord GEORGE THE THIRD by the Grace of God of Great Britain France and Ireland KING Defender of the faith &c and in the Year of our Lord One Thousand Seven Hundred and Eighty Three

Sealed and delivered being first duly Stamped in the presence of

J. Lowther
Geo. Williams

Samuel Slater

Jed Strutt

Seal

Seal

his playmates, his schoolmaster, Jackson, who was then living; the sons and grandsons of his old master, Strutt; the old mill; the meadows and orchards, &c. that surrounded Holly house. He left them all, in the bloom of youth, and retained a vivid recollection of every particular. These early remembrances would cause the tear to escape, even in his old age. But the state of his health, the multiplicity of his concerns, and his *concentrativeness*, bound him to Webster, and forbade the thought of a voyage across the Atlantic. He refrained, denied himself, sent his love by his son, and never returned to his father's land. But he ever retained a strong affection and lively concern in the welfare of his native country.

As is usual, Samuel went on trial to Mr. Strutt, previous to his indenture of apprenticeship, and during this probation his father fell from a load of hay. This fall was the occasion of his death. During his father's sickness, and perceiving that he was dangerously ill, he wished his father to article him to Mr. Strutt, as both parties were satisfied. As a proof that his father had confidence in him, and that there was stability in the boy, he said to him, "You must do that business yourself, Samuel, *I have so much to do, and so little time to do it.*" It is believed that this was his last interview with his beloved parent.

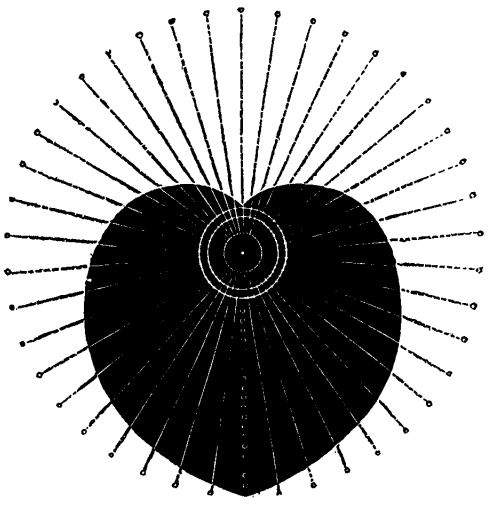
He lost his father in 1782, when he was fourteen years of age, at a time when a father's care and advice are much needed. A boy left without guardianship, or watchful eye to restrain him, is frequently exposed and led into temptation and ruin. Young Slater, however, had an indulgent and faithful mother, and elder brothers, so that he was not left entirely to his own resources. The plate opposite is an engraved copy from the original indenture, which is preserved in the family, as a relic of their father's early fidelity, and as a proof of his favoured means of knowledge..

Mr. Strutt was then building a large cotton factory at Milford, and was a partner with Sir Richard Arkwright, in the cotton spinning business; the latter having been induced to this connection by the prospect which Strutt's machines afforded, of an increased consumption of yarn. Samuel Slater asked Mr. Strutt, before he went into the business, whether he considered it a *permanent* business. Mr. Strutt replied, "It is not probable, Samuel,

and perfect peace for ever. And we thereby are deprived of one of our brightest earthly gems, the glittering of which, time will never efface. But the Lord gave him, and he hath taken him away; and from henceforth and for ever, blessed be his name."

that it will always be as good as it is now, but I have no doubt it will always be a *fair* business, if it be well managed." It will be recollected, that this was before Mr. Peel invented the printing cylinder. Indeed the whole cotton business of England was, at that time, confined to a small district in Derbyshire, and its whole amount not greater than that which is done at the present day in a single village in New England.

In the early part of our young apprentice's time, he manifested the bent of his mind, for he frequently spent his Sundays alone, making experiments in machinery. He was six months without seeing his mother, or brothers and sisters, though he was short of a mile from home. Not that he lacked in filial or fraternal affections; but he was so intent, and so devoted to the attainment of his business. To show the expertness and the propensity of his mind, the following circumstance is related. Mr. Strutt endeavoured to improve the *heart-motion*, that would enlarge or raise the yarn in the middle, so as to contain more on the bobbin. Jedediah Strutt was unsuccessful in his experiments, and Samuel saw what was wanting, and went to work the next Sunday, (the only time he had to himself,) and formed such a motion, (a diagram of which is given below) to the satisfaction of his master, who presented him with a guinea.



Mr. Strutt was an economist, and enforced his maxims on Samuel, cautioning him against waste, and assuring him that it was

by savings that a fortune in business was to be made.* During this time, Samuel became an excellent machinist, as he had an opportunity of seeing the latest improvements. Arkwright and Strutt were in company, and it was at a time when there was much excitement and lawsuits on the patent rights; so that he was initiated into all the crooks and turns of such controversies. This may have prevented him applying for a privilege as the introducer of Arkwright's patents into the United States.

Slater served his indenture with Mr. Strutt, and faithfully performed his part of the contract to the last day of the term, and there was a good understanding between the parties to the last. This accomplishment of his *full time* was characteristic of him, and was praiseworthy and beneficial, as it laid the foundation of his adaptation to business, and finally to his perfect knowledge of it. He was different from those restless youths, who think they know every thing before they have cut their eye teeth, and who set up for themselves before their beards are grown, without either knowledge or capital, and who fail and defraud their creditors, during the time they ought to have been serving an apprenticeship. Such boys break their engagements, forfeit all confidence, and follow the example of Franklin, in that particular, though they cannot be compared to him in any thing else. And in this, Franklin was to be blamed; I praise him not. He himself acknowledges it to have been a great error in his life. A conscientious regard to contracts is a principle by which every person ought to be influenced, and without which, there is no hope of their arriving at eminence in their profession. Mr. Slater told me a short time before his death, that after his time was out, he engaged with Mr. Strutt to have the oversight of the erection of some new works, in addition to the mill, and this general employment, with his close observation (for he always saw and heard every thing, nothing could escape his notice,) and retentive memory, was of great service to him in afterwards assisting him to erect his first mill in Pawtucket. If he had been confined to one branch of business, as is usual with an apprentice in England, his knowledge would have been inadequate to perform what he

* The following anecdote is told:—"When Mr. Slater was yet a boy, with Mr. Strutt, he passed by some loose cotton on the floor without picking it up; Mr. Strutt called him back and told him to take up the cotton, for it was by attending to such small things that great fortunes were accumulated; and Mr. Strutt observed to his wife, by way of still impressing the subject on the mind of his favourite apprentice, 'that he was afraid that Samuel would never be rich.'"

did on his first coming to America. But his residing in Strutt's family, his being the son of his deceased friend and neighbour, as well as his close application to business, his ingenious experiments, and his steady habits, gave him the character of the "industrious apprentice."

He had the confidence of his master, and became his *right-hand man*, and he might have attained the highest eminence by a continuance in England. Mr. Strutt afterwards declared that had he known his intentions, nothing should have induced him to part with him. But Mr. Slater told me that he contemplated trying America for some time; and that his object was, to get a general knowledge of the business, in order to come to this country and introduce the manufacture of cotton, on the Arkwright improvement, and that he remained after the time of his indenture with that special object in view.

There were early indications that he designed embarking in business for himself, and it is said, that he used to enquire of Arkwright and others, if they thought the business would be overdone in England. Yet it does not appear that he ever made known to any person his intention of leaving England. The father of Samuel Slater must have been a man of considerable property and business for those times, from the fact of his supporting so large a family respectably, and giving them such an education as was equal to any children who were calculated for business, sixty years ago. After making provision for his widow, he left to each of his children what was then a considerable sum for persons in business. There was included, in Samuel's portion, two houses in Belper, a nail store, and another building; all of which sold as they were, under many disadvantages, for nearly two thousand dollars. He did not touch this property when he left home, but probably reserved it for a retreat in case of failure of his object in coming to the United States. He had always that kind of generalship which provides for a retreat in case of accident, or as he would say, "to lay up for a rainy day."

Few persons who are extravagant when apprentices, ever gain in business; and it has been said, that few who saved money then but what succeeded in after life. The following copy of a note*

* "*Four-pence Stamp.*

£2 2*s.*—I promise to pay to Samuel Slater, or order, upon demand, the sum of two pounds two shillings, for value received, with lawful interest for the same, as witness my hand this tenth day of January, 1768.

Signed in the presence of us, WILLIAM ASHMOLE.

Wm. More, J. Pratt."

which I have in my possession, shows the early savings of Slater: economy and indefatigable industry were the foundation principle of his fortune. Not by speculation, or by any circumstances peculiarly favourable to the accumulation of wealth, but by the dint of persevering attention to business for half a century.

The motive, or inducement, and first occasion of his thinking of leaving Mr. Strutt, and what finally determined him, was his observing* in a Philadelphia paper, a reward offered by a society for a machine to make cotton rollers, &c. This convinced him that America must be very bare of every thing of the kind, and he prepared himself accordingly. He probably knew the risk he should run in attempting to leave England as a *machinist*, and it was characteristic of him, never to talk of his business—where he was going, or when he intended to return. John Slater, a surviving brother, says he remembers his coming home, and telling his mother that he wished his clothes, as he was going by the stage to London; this was the last time his mother, or any of the family, saw him, till his brother John joined him in Pawtucket. He was aware, that there was danger of his being stopped, as the government restrictions were very severe, and very unjust; the officers were very scrupulous in searching every passenger to America. He therefore resolved not to take any pattern, nor have any writing or memorandum about him, but trusted wholly to his acquirements in the business and to his excellent memory. His appearance was also in his favour, it being that of an English farmer's son, rather than that of a mechanic. He told me himself he had nothing about him but his indenture, which he kept concealed, and this was his only introduction and recommendation in the new world.

Though he left home for London, without making known his intentions, he did not design leaving his friends in suspense; he therefore prepared a letter for his mother informing her of his destination; which, however, he did not venture to put in the

* During the last year or two of his apprenticeship, his thoughts as to his future course, and the establishment of the business on his own account, were turned towards this country, by various rumours and reports which reached Derbyshire, of the anxiety of the different state governments, here, to encourage manufactures. The newspaper account of a liberal bounty (£100) granted by the legislature of Pennsylvania, to a person, who had imperfectly succeeded in constructing a carding machine, to make rolls for jennies, and the knowledge that a society had been authorised by the same legislature for the promotion of manufactures, induced him finally to push his fortune in the western hemisphere.

post-office, till just before he went on board the ship bound to New York.

While waiting in London till the captain was ready to embark, which appears to have been a week or ten days, he spent his time in seeing the curiosities; the Cathedrals, the Tower, and other London shows. Of these he often spoke, in familiar conversation, with a great deal of interest. He told of a circumstance that happened to him in London :—a Jew accosted him, perceiving him to be from the country, and told him, in a private manner, that he had some silk stockings, that he would sell remarkably low, but he wished the bargain to be *between themselves;* which overture our young adventurer listened to rather incautiously; and found, on examination, after he went to his tavern, that he had bought *stockings without feet.* When he told this anecdote, he said, it served to "sharpen his eye teeth." Few countrymen, strangers in London, spend even a short time there, without experiencing some similar adventure; the above, however, was not of serious importance, and served only to laugh at, as a proof of his credulity.

Young people should be cautious how they spend their time in great cities, without the acquaintance of some of the resident inhabitants. The best way for strangers who only remain a short time in a city, is to put up at one of the most respectable hotels.

We cannot help reflecting on the unforeseen changes which take place in human life. When we are boys, we know not where our lot will be cast, nor what will be our destiny in this changing world. Nor is it proper we should—it is wisely ordered that it should be otherwise; "sufficient for the day is the evil thereof." It is for us to do our every day's duty, and leave the event; "what a man soweth, that shall he also reap." If we do well, we shall receive the reward of our labours, even in the pleasure of well doing. If young Slater had foreseen the difficulties he had to encounter, before he spun the first cotton yarn in America, he never would have undertaken it; but it is well that we have no such foresight, and that our strength is according to our day. Those who have left their native country, know something of the trials of parting. Young Slater's heart was full, when he looked the last time on Holly House, and all that was within; but a youthful ambition fired his soul, and enabled him to overcome his feelings. He took a last look of his mother, he tore himself away from his brothers and sisters, with whom he had taken sweet counsel, and with whom he was closely united in fraternal affection. The emigrant can understand all this, and feel it most in-

tensely, and it is better felt than expressed; words are cold and imperfect to delineate such beatings of the heart, or the natural attachment we feel to our nation, "for with all its faults, we love it still;" it is our country, and no trifling consideration should cause a person to leave his native land for another. But emigration is the fashion of the day, for the traveling organ was never more active, not even in Arabia.

The cotton business was then in its infancy; if Mr. Slater had continued in England, and used the same exertions, and the same economy as he has done here, he would have realised a fortune there, equal to what Arkwright did himself; as the father of Sir Robert Peel did, and several others far inferior to Samuel Slater—in business talents, and mechanical genius. He himself entertained this opinion; but he was afraid the cotton spinning would be overdone in England, and listened to the overtures held out from the United States; we shall see how far his footsteps were prospered, and how far the country has been benefited by his labours. He brought with him all Arkwright's improvements in use at that time, and made articles equal to those made in England. He was not ashamed to send his first yarn home to Mr. Strutt, as it would bear a comparison with his, and with any made elsewhere.*

Mrs. Mary Wilkinson, of Providence, R. I., has a pattern of cotton check cloth, and presented me with a part of an apron, of the first check made by Mr. Slater, which she says she paid for in covering his rollers with leather; a specimen of which is in the Philadelphia Museum. I keep it by me as a curiosity, and it is quite equal to the same article made in England. Genius usually receives its early bias from some circumstances, in the general character of the age, and some in the particular condition of the person to whom it belongs: this observation is exemplified in the genius of Slater.

There were early indications of the genius of Samuel: when a child he gave a patient attention to whatever he attempted. The "boy is the father of the man;" he was his mother's best boy to wind worsted, for which purpose he made himself a polished steel spindle; his inclination led him to the machine shop. His schoolmaster admired him as a good writer, and as good at arithmetic; observing that scholars well versed in duodecimals and vulgar fractions, made more business men, than attention to the other rules. Such early acquisitions gave indications of his great cal-

* A specimen of the first yarn, stocking and twist, is deposited in the Philadelphia Museum.

culation, and his talents as an accountant, in which he afterwards so much excelled.

When Jedediah Strutt, the partner of Arkwright, applied to his neighbour Slater for one of his sons, expressing a wish to have the eldest, which after some consultation was refused, Mr. Slater, who had perceived his son Samuel's inclination, told his friend he had better take Samuel on trial, then not fourteen years of age, observing that he "wrote well, and was good at figures." This proved a judicious selection, which is a matter of great importance in a parent apportioning his sons to proper employments. None could have been more appropriate nor more successful, than the choice which was made in this instance. It appears there were strong and early developments of the bent of his mind. He became extraordinary for comprehensive calculations, and never forgot his good, plain, old-fashioned hand-writing.

Samuel was put to school to a Mr. Jackson, a very approved teacher in Belper, of whom he acquired the rudiments of a common business education, and like most of Mr. Jackson's scholars, learned to write a good hand, and a free and easy style. He always in after life spoke of this worthy gentleman with gratitude and affection, and maintained a correspondence with him after he came to America. This old schoolmaster, who was proud of his scholar, never forgot him; and the following letters were preserved by Mr. Slater.

BELPER, 21st Feby. 1790.

Dear Sir,—I am glad to have so favourable an account of your health when your letters left the western world, the seat of patriotism and independence; your long and dangerous voyage I shall pass over in silence, as I suppose the reflection will now afford you pleasure. There is something truly pleasing in thinking upon calamities which we have surmounted and are passed away. You are in a sphere of action now where you are likely to see a considerable portion of this dirty globe: let me enjoin you to keep an exact and regular journal of every day's transactions and observations. It will be an amusement for you at the time you do it. The other advantages of it I need not point out, your own good sense will soon point them out: I know from your particular turn, that you are well fitted for it. A number of observations will often occur to you which would not be noticed by most other people—make private remarks upon the leading features in the characters of all you have to deal with. I hope to live to see you in Britain once again. Be particularly careful of your health; the countries you are likely to visit, demand some adherence to regularity and care. I shall at all times be happy to hear of your welfare. I have no local news to send you; I think Derbyshire wears much the same aspect (the difference of seasons allowed for) as when you turned your back upon it. At all events I can assure you, that the morals of a particular set are not at all improved since you left them. I am far from being well; I have the scurvy very ill, and am

at this time troubled with a cold; however, I intend this night drinking your health in a bumper. Let us hear from you as often as convenient; your opportunities will be frequent, perhaps as in your nautical travels you will frequently meet with ships bound to England.

I am, dear sir, with every sincere wish for your welfare,

Yours, &c. THOMAS JACKSON.

The Historical Society of Rhode Island voted, to request Mr. Slater to give them such particulars as he should think proper, in relation to his coming to this country;* and the following was found among his papers; which shows, that had he lived, he intended to have granted their petition. "Samuel Slater was born in the town of Belpèr, in the county of Derby, June 9th, 1768. In June 28th, 1782, being about fourteen years of age, he went to live with Jedediah Strutt, Esq., in Milford, near Belper, (the inventor of the Derby ribbed stocking machine, and several years a partner of Sir Richard Arkwright in the cotton spinning business,) as a clerk; who was then building a large factory at Milford, where said Slater continued until August 1789. During four or five of the late years, his time was solely devoted to the factory as general overseer, both as respected making machinery and the manufacturing department. On the 1st day of September 1789, he took his departure from Derbyshire for London, and on the 13th he sailed for New York, where he arrived in November, after a passage of sixty-six days. He left New York in January 1790, for Providence, and there made an arrangement with Messrs. Almy and Brown, to commence preparation for spinning cotton at Pawtucket.

* PROVIDENCE, R. I. Dec. 13th, 1834.

Sir—At a late meeting of the board of trustees of the Rhode Island Historical Society, a resolution was passed of which the subjoined is a copy. Any communication that you may feel inclined to make in consonance with the request, will, if addressed to me, be promptly laid before the board.

I am, sir, respectfully yours,

THOMAS H. WEBB.

In board meeting—At the instance of the secretary, it was resolved, that Mr. Samuel Slater be requested to draw up and present to this society, a history of the first introduction of cotton spinning into this country, together with an account of the difficulties attendant thereupon, and of such other incidents in respect thereunto, as he may deem important or interesting to have preserved for the information of posterity.

A true copy from the records.

Attest,
THOMAS H. Webb,
Secretary R. I. Hist. Soc.

Mr. Samuel Slater.

"On the 18th day of the same month, the venerable Moses Brown took him out to Pawtucket, where he commenced making the machinery principally with his own hands, and on the 20th of December following, he started three cards; drawing and roving, and seventy-two spindles, which were worked by an old fulling mill water wheel in a clothier's building, in which they continued spinning about twenty months; at the expiration of which time they had several thousand pounds of yarn on hand, notwithstanding every exertion was used to weave it up and sell it.

"Early in the year 1793, Almy, Brown and Slater built a small factory in that village, (known and called to this day the old factory,) in which they set in motion, July 12, the *preparation* and seventy-two spindles, and slowly added to that number as the sales of the yarn appeared more promising, which induced the said Slater to be concerned in erecting a new mill, and to increase the machinery in the old mill." The above was written by Mr. Slater a short time before his death, and it is to be regretted that he did not live to give a full account of the progress of his business.

From the preceding account of Samuel Slater's early history, connections, and his enterprise and perseverance in laudable pursuits, it appears that he came to this country in honour and respectability. From his connections, advantages, and business turn, it is obvious that he might and in all probability would have reached a fortune in his own country. In leaving his own country with such promising appearances, and making America the theatre of his operations, he manifests in his early life a spirit of enterprise which all admire. With a keen discernment, he undoubtedly had premonitions of future prosperity, and ultimately of planting himself permanently in America.

The invention ascribed to Arkwright, and on which his renown for mechanical genius mainly rests, is said, by Mr. Baines, "To have been previously described, with the utmost distinctness, in the specification of the machine invented by John Wyatt, and that cotton had for some years been spun by those machines. The patent for the invention was taken out, in the year 1738, in the name of Lewis Paul, with whom Mr. Wyatt had connected himself in partnership, but there is evidence to show that the latter was the inventor."

The following accounts of Messrs. Arkwright and Strutt will be read with much interest, and this place appears to be appropriate for their insertion.

RICHARD ARKWRIGHT, was one of those great characters, whom nature seems to have destined, by the endowment of superior powers, to be the benefactor of their fellow-creatures. Born of parents who were classed among the inferior rank of society, and brought up to one of the most humble occupations in life, he yet, by the aid of genius and perseverance, rose to affluence and honour. Richard Arkwright, who was the youngest of thirteen children, was born in Preston, in Lancashire, some time in the year 1732. In that neighbourhood there was a considerable manufactory of linen goods, and of linen and cotton mixed, carried on; and his acquaintance with the operations he witnessed there, seems in early life to have directed his thoughts to the improvement of the mode of spinning. This, however, he did not accomplish, till many years had elapsed, for prior to the year 1767, he followed his trade, which was that of a barber; but at that period he quitted his original business and situation at Wirksworth, and went about the country buying hair. Coming to Warrington, he projected a mechanical contrivance for a kind of perpetual motion. A clock-maker of that town, of the name of John Kay, dissuaded him from it, and suggested that much money might be gained by an engine for spinning cotton, which Kay promised to describe. Kay and Arkwright then applied to Peter Atherton, Esq. of Liverpool, for assistance in the construction of such an engine, who, discouraged by the mean appearance of the latter, declined, though he soon afterwards agreed to lend Kay a smith and watch-tool maker to prepare the heavier part of the engine, whilst Kay himself undertook to make the clock-maker's part of it, and to instruct the workmen. In this way Arkwright's first engine, for which he afterwards took a patent, was made. Mr. Arkwright experienced many difficulties before he could bring his machine into use; and even after its completion had sufficiently demonstrated its value, its success would have been for ever retarded if his genius and application had been less ardent. His circumstances were far too unfavourable to enable him to commence business on his own account, and few were willing to risk the loss of capital on a new establishment. Having at length, however, the good fortune to secure the co-operation of Mr. Smalley, of Preston, he obtained his first patent for spinning cotton by means of rollers; but their property failing, they went to Nottingham, and there, by the assistance of wealthy individuals, erected a considerable cotton-mill turned by horses; but this mode of procedure being found too expensive, another mill, on a larger scale, was erected at Cromford, the machinery of which was put in motion by water. This patent right was contested about the year 1772, on the ground that he was not the original inventor. He obtained a verdict, however, and enjoyed the patent without further interruption, to the end of the term for which it was granted. Soon after the erection of the mill at Cromford, Mr. Arkwright made many improvements in the mode of preparing the cotton for spinning, and invented a variety of ingenious machines for effecting this purpose in the most correct and expeditious manner; for all which he obtained a patent in the year 1775. The validity of this second patent was tried in the court of king's bench, 1781, and a verdict was given against him on the ground of

the insufficiency of the specification; but in 1785 the question was again tried in the court of common pleas, when he obtained a verdict. This verdict, however, raised up an association of the principal manufacturers, who instituted another cause, by writ of *scire facias*, in the court of king's bench, when Mr. Arkwright was cast, on the ground of his not being the original inventor. Conscious that this was not the case, he moved for a new trial; the rule, however, was refused, and on the 14th of November, 1785, the court of king's bench gave judgment to cancel the letters patent. The improvements and inventions in cotton spinning, for which we are indebted to the genius of Sir Richard Arkwright, and which complete a series of machinery so various and complicated, are so admirably combined and so well adapted to produce the intended effect in its most perfect form, as to excite the admiration of every person capable of appreciating the difficulty of the undertaking. And that all this should have been accomplished by the single efforts of a man without education, or even mechanical experience, is most extraordinary, and affords a striking instance of the wonderful powers displayed by the human mind when its powers are steadily directed to one object. Yet this was not the only employment of this eminent man; for at the same time that he was inventing and improving machinery, he was also engaged in other undertakings, which any person, judging from general experience, must have pronounced incompatible with such pursuits. He was taking measures to secure to himself a fair proportion of the fruits of his industry and ingenuity; he was extending the business on a larger scale; he was introducing into every department of manufacture, a system of industry, order, and cleanliness, till then unknown in any manufactory where great numbers were employed together. These advantages he so effectually accomplished, that his example may be regarded as the origin of almost all similar improvements. When it is considered that during this entire period he was afflicted with a violent asthma, which was always extremely oppressive, and threatened sometimes to put an immediate termination to his existence, his great exertions must excite astonishment. For some time previous to his death, he was rendered incapable of continuing his usual pursuits, by a complication of diseases, which at length deprived him of life, at Cromford, on the 3d of August, 1792, in the sixtieth year of his age. In the infancy of the invention, Sir Richard Arkwright expressed ideas of its importance, which to persons less acquainted with its merits appeared ridiculous; but he lived long enough to see all his conceptions more than realised in the advantages derived from it, both to himself and to his country; and the state to which those manufactures dependent on it have been advanced since his death, makes all that had been previously effected appear comparatively trifling. The merits of Sir Richard Arkwright may be summed up by observing, "that the object in which he was engaged, is of the highest public value; that though his family were enriched, the benefits which have accrued to the nation have been incalculably greater; and that upon the whole he is entitled to the respect and admiration of the world."—*Rees's Cyclopedia. Arkwright and Cotton.*

Jedediah Strutt, the ingenious inventor of the machine for making ribbed stockings, was a native of Normanton, where he was born in the year 1726. His father, who was a farmer and maltster, is represented as a severe man, who paid but little attention to the welfare of his offspring, whose education

JEDEDIAH STRUTT.

he neglected during their early years, and in whose establishment in the world when arrived at the years of maturity, he took no interest. Nature, however, had invested them with understandings superior to those of the class of society in which they ranked, and notwithstanding the many disadvantages under which they laboured, their abilities became conspicuous in their ultimate success and prosperity. This remark is more strictly applicable to his son Jedediah. Early in life he discovered an ardent desire for his own improvement, which at last grew into an habitual and strong passion for knowledge; and unassisted by the usual aids for the acquisition of learning, he, by the powers of his own genius alone, acquired a considerable acquaintance with literature and science. In the year 1754, Mr. Strutt took a farm at Blackwell, in the neighbourhood of Normanton, and married. Soon after this, about the year 1755, an event occurred which may be considered as the foundation of his future prosperity—it was to him that moment which the poet describes as the

"——— tide in the affairs of men,
Which taken at the flood leads on to fortune."

Wm. Woolat, his wife's brother, who was a hosier, informed him of some unsuccessful attempts that had been made to manufacture ribbed stockings on the stocking-frame, which excited his curiosity, and induced him to investigate that curious and complicated machine, with a view to effect what others had attempted in vain. After much attention, labour, and expense, he succeeded in bringing the machine to perfection, and in the year 1756, in conjunction with his brother-in-law, obtained a patent for the invention, and removed to Derby, where he established an extensive manufacture for ribbed stockings. The advantages resulting from this invention were not confined to the patentees, for a very short time after the patent was obtained, another was granted to the Messrs. Morris of Nottingham, for a machine on a similar principle, but applied to the making of silk lace, a business which since has been carried on to a very great extent. Subsequently, the principle of the invention has been applied to a considerable variety of other work. About the year 1771, Mr. Strutt entered into partnership with the celebrated Sir Richard Arkwright, who was then engaged in the improvement of his improved machinery for cotton spinning. But though the most excellent yarn, or twist, was produced by this ingenious machinery, the prejudice which often opposes new inventions was so strong against it, that the manufacturers could not be prevailed upon to weave it into calicoes. Mr. Strutt, therefore, in conjunction with Mr. S. Need, another partner, attempted the manufacture of this article in the year 1773, and proved successful; but after a large quantity of calicoes had been made, it was discovered that they were subject to double the duty (six-pence per yd.) on cottons with linen warp, and when printed, were prohibited. They had, therefore, no other resource than to ask relief of the legislature, which after great expense, and a strong opposition from the Lancashire manufacturers, they at length obtained. In the year 1775, Mr. Strutt began to erect the cotton works at Belper, and afterwards at Milford, at each of which places he resided many years. These manufactures were carried on for a number of years by Mr. Strutt himself, and since by his sons and grandsons.

Mr. Need was partner of Mr. Strutt of Derby, and Mr. Strutt having seen Arkwright's machine, and declared it to be an admirable invention, only wanting an adaptation of some of the wheels to each other, both Mr. Need and Mr. Strutt entered into partnership with Arkwright. Mr. Strutt was brought up a farmer, but having a passion for improvement, and a mechanical genius, he succeeded in adapting the stocking-frame to the manufacture of ribbed stockings. He established an extensive manufacture of ribbed stockings at Derby, and after his connection with Mr. Arkwright he erected cotton works at Milford, near Belper; he raised his family to great wealth. Some of the circumstances connected with Arkwright's settling at Nottingham, were communicated by the late Mr. Wm. Strutt, the highly gifted and ingenious son of Jedediah Strutt, to the editor of the "Beauties of England and Wales."

Even to the present time, the course of improvement has not stopped. Mules have been constructed, which do not require the manual aid of a spinner, the mechanism being so contrived as to roll the spindle-carriage out and in at the proper speed, without a hand touching it; and the only manual labour employed in these machines, which are called "self-acting mules," is that of the children who join the broken threads. The first machine of this nature was invented by the ingenious Mr. William Strutt, F. R. S., of Derby, son of Jedediah Strutt, the partner of Arkwright; and the following mention is made of it in a memoir of that gentleman, written by his son, Mr. Edward Strutt, at present member for Derby. William Strutt died on the 29th of December, 1830, and the memoir appeared shortly after in a periodical journal:—"Among his other inventions and improvements, we may mention a self-acting mule for the spinning of cotton, invented more than forty years ago, but we believe the inferior workmanship of that day prevented the success of an invention, which all the skill and improvement in the construction of machinery in the present day has barely accomplished." This William Strutt was the early companion of Slater, they were boys in the mill together.

CHAPTER II.

THE STATE OF MANUFACTURES PREVIOUS TO 1790.

"Neither affecting to conceal the smaller rills by which the stream was fed, nor to bring them so much into view as to deprive the principal object of its consequence."

In collecting the facts relative to the early attempts at manufacture of cloths of various descriptions, I was much impressed with the struggles which were to be made against obstacles nearly of an insurmountable nature. The commencement was with imperfect machinery, obtained at great expense; ignorance of their operations; difficulties of constructing even from patterns and models, by such persons, who had no practical knowledge, and no means of knowing the theory or philosophy of the machinery. In addition to these perplexities, they had to encounter the free importations of articles from Europe, at a much lower rate than the home manufacturers could afford them. No wonder that they did not succeed, but we may be astonished that they persevered in their attempt. And we can now perceive, that from those small beginnings the present brightened prospects received their foundation. From the best information that I can gather, the jenny spinning, (with cards for rolls, and roving by hand), was first commenced in Beverly or Bridgewater, Mass.; and to the honour of that state it must be recorded, that the proprietors received assistance from the legislature. But even legislative protection could not support those small establishments against the superior machinery of England. Much individual sacrifice was endured, but these losses and vexatious experiments eventuated in the public good. We can now only record, to the praise of those brave spirits of untiring enterprise who laid the foundation of our present prosperity, such facts which must be their lasting praises. Few can now imagine the privations and disappointments, that attended these incipient measures; but immense establishments have grown out of them, matured and perfected by all the improvements of the age.*

* The manufacturing business in this country, small as it began, is now the first business of the age. It has already whitened the fields at the south with the growing of cotton; and covered the hills of the north with flourishing flocks; while the north is made alive with the busy hum of industry, and

Previous to the war of the revolution, notwithstanding the restrictions which the colonies laboured under, manufactures kept gaining ground; but the war greatly retarded and embarrassed many branches. Silk had made a good beginning at the south, as well as at the north; and was receiving encouragement from the mother country, in order to rival the French, in that important national resource. Other manufactures in their incipient state, were discouraged, and entirely failed. There was a great want of mechanics, and but few emigrations from Europe. Even tools and implements of husbandry were exceedingly scarce, and sold at enormous prices.

Every attempt therefore to recommence, or begin anew any domestic manufacture, had not only to contend with importations from the East Indies, and from Europe; but the want of machinery, and the lack of artisans skilled in the various branches. This is evident in the first attempts of the jenny spinning, and the carding of rolls for woollen cloths. The evidence that will be

a great proportion of its population provided with an honest and lucrative employment; and with suitable economy, made contented and happy with the luxury of abundance. It was the being a witness of such mighty and benevolent changes in the condition of our country, and in the character and appearance of its inhabitants, that operated, not as a moderate impulse with the writer to present to the public the biography of the man who, amid disasters and difficulties, first put their springs in motion; and to present before the public some of the surprising results.

The following document is the earliest of any direct proof of an association to aid domestic industry, and as such it is worthy of preservation: "A number of inhabitants of the city and liberties of Philadelphia, having entered into an agreement of co-partnership, under the name of the United Company of Philadelphia, for promoting American manufactures, this is to certify, that Tench Coxe hath paid his full subscription of ten pounds towards the joint stock of the said company, whereby he is entitled to a vote in the business of the company; of all the profits arising from the said manufactures, agreeable to the articles:—As witness my hand this eighth day of November 1775. JOSEPH STILES, Treasurer."

The above Mr. Coxe was appointed to congress, as R. Peters's letter from the house of assembly, Philadelphia, shows:

Honourable Tench Coxe, Esq.

Sir,—I have the honour to enclose a copy of the minute of the general assembly, by which it will appear that you are appointed a delegate to represent this state in congress, until the constitution for the government of the United States shall be in operation. I am, sir,

Your very obedient serv't,

RICHARD PETERS, Speaker.

incidentally produced in this volume, will show the weak and deficient state of all kinds of manufactures, previous to 1790. This period will be considered the era of their national commencement. It was in this year that the legislature of Massachusetts resolved more effectually to aid the Beverly company.* About the same time, Jan. 15th, 1790, the house of representatives in congress called on the secretary of the treasury to collect information on the subject, which led to a full and extensive enquiry, and resulted in the report of Alexander Hamilton, Dec. 5, 1791.

In examining American writers on this subject, I find no individual who commenced so early, and who continued with such unwavering perseverance, in the patriotic promotion of the growth of cotton, as the only redundant staple which this country could produce; and in the commencement and forwarding the cotton manufacture, under every disadvantage and embarrassment—I find no one appearing at the head and front of these measures equal to Tench Coxe. From his refutation of Lord Sheffield,† to his last draft of petition to congress on behalf of the tariff he continued the same undeviating champion, through an active and useful life, of domestic industry and economy; and not even Hamilton himself deserves greater praise, in laying the foundation and in raising the superstructure of the American system, than that enlightened and energetic statesman. Incessantly engaged as he was, in those departments of government which demanded the exertion of all his energies, we find him always with the labouring oar; and there can be no doubt that Washington's first secretary of the treasury is indebted for those valuable statistics, which enabled

* The following advertisement, April 3d, 1782, is from the Pennsylvania Gazette. A brief notice of the patriotic individual, who undoubtedly made the first "Jeans, fustians," &c. in America, will be inserted in the Appendix:—

"PHILADELPHIA MANUFACTURES—suitable for every season of the year, viz: Jeans, Fustians, Everlastings, Coatings, &c., to be sold by the subscriber at his dwelling house and manufactory, (which is now standing), in South Alley, between Market street and Arch street, and between Fifth and Sixth streets, on Hudson's square. SAMUEL WETHERILL."

† The misconceptions in regard to American affairs, which prevailed in many parts of Europe in the year 1791, and particularly in the British dominions, were deemed to be very great: they appeared to be founded, in no small degree, on the disquisitions of Lord Sheffield. Tench Coxe demonstrated the errors of this writer, (whose observations had gone through six editions, from 1783 to 1791), first in the "Museum," and then in his "View of the United States."

him to draw up his report on manufactures, to the important assistance of Tench Coxe. If my limits would allow me to insert his correspondence with every department of government, the above remarks would be clearly demonstrated; but I must confine myself to a few.

The various disorders of 1787, and the want of a national system, affected very severely a number of persons in the large towns who were engaged in the different branches of manufactures. These were more numerous and much more important than was at that time perceived by persons of the closest observation. The laws of some of the states imposed considerable duties upon the fabrics of all the rest, in some instances as high as the impost on similar articles manufactured in foreign countries. The remains of the excessive importations of the four preceding years were constantly offered for sale at prices lower than their cost in Europe, and less than they could be made for in America. From a deep sense of these inconveniences, exertions were commenced in various parts of the United States, by persons of all descriptions, to relieve the manufacturing citizens; which appeared the more desirable to many, because the necessary measures tended at the same time to promote the great cause of union among the states, and to repress habits of expense which the war, and the peace likewise, though from very different causes, had introduced into most of the towns, and too many parts of the country. The citizens of Philadelphia took a very active part in these salutary measures, and instituted a society, which afterwards proved of considerable utility, to carry their views into execution. An address was delivered by Tench Coxe to an assembly of the friends of American manufactures, convened for the purpose of establishing a society* for the encouragement of manufactures and

* *The Plan of the "Pennsylvania Society for the Encouragement of Manufactures and the Useful Arts," founded in* 1787.

The wealth and prosperity of nations principally depend on a due attention to agriculture, manufactures and commerce. In the various stages of her political existence, America has derived great advantages from the establishment of manufactures and the useful arts. Her present situation in the world calls her, by new and weighty considerations, to promote and extend them. The United States, having assumed the station of an independent government, require new resources to support their rank and influence, both abroad and at home. Our distance from the nations of Europe,—our possessing within ourselves the materials of the useful arts, and articles of consumption and commerce,—the profusion of wood and water, (those powerful and necessary agents in all arts and manufactures,) the variety of natural productions with which this extensive country abounds, and the number of people

the useful arts, in the University of Pennsylvania, on Thursday, the 9th of August, 1787, and published at their request.

in our towns, and most ancient settlements, whose education has qualified them for employments of this nature,—all concur to point out the necessity of our promoting and establishing manufactures among ourselves. From a conviction of the truth and importance of these facts, a number of persons have agreed to associate themselves. Every member, on his admission, shall pay to the treasurer the sum of ten shillings, and the same sum annually, which shall go into the general fund, to defray the necessary expenses of the society, to confer premiums, and to accomplish every other salutary measure consistent with the design of the institution. For the better employment of the industrious poor, and in order to render the society as useful as possible, a subscription, for sums of not less than ten pounds, from any one person or company, shall be immediately opened to all persons whatever, for the purposes of establishing factories in such places as shall be thought most suitable; to be called, "The Manufacturing Fund."

The Hon. Tench Coxe, Esq., Philadelphia.

BOSTON, June 14, 1792.

My dear sir,—I have perused with renewed pleasure your remarks on the state of the Union, which you have obligingly inclosed to me. I shall think it useful on every account to cause them to be republished in our gazettes. The principles and facts are valuable as an acquisition to our political literature. But their tendency to foster an affection for the Union, in which self-love so plainly co-operates with patriotism, and their efficacy against the silly charges of our own malcontents, render them peculiarly useful and seasonable. A Briton, too, is ready enough to believe that the civilised world reaches no further than the Land's-End. You have furnished good physic to cure him of his prejudices. It has been too long the fashion to listen to the rant of eloquent ignorance. Our newspapers were formerly stuffed with declamation, almost without a single fact. Your publication not only furnishes knowledge to the public mind, but it establishes principles of discipline, which will assist in producing more for itself. Accordingly I beg you to accept my thanks for your work.

The bank mania, though checked, is not cured. This state has rejected a proposal for a state bank. But the defeated still hope success in some other form. Happily, our interests as a state are better founded than our opinions. Trade prospers, ships are in demand; the rate at which they are chartered is said to be high beyond what has been known in common times.

Produce sells readily, and at a good price; yet the merchants complain that trade is overburdened. In short, there is scarcely any thing that seems to languish.

I am, with sentiments of esteem and regard, your obliged and obedient humble servant, FISHER AMES.

The Hon. Tench Coxe, Esq., Philadelphia.

BOSTON, July 11th, 1793.

My dear sir,—You will please, with my thanks for the inclosure of the ingenious remarks on the scheme of a manufacturing town, to accept an

From the petition to the legislature of Massachusetts, and other collateral facts, the evidence is conclusive that cotton spinning in this country, further than the hand-card and one thread wheel, was carried through its first struggles by the Beverly company in Massachusetts. What was done in Bridgewater, must have been a small concern. In accordance with the general spirit of enterprise and indefatigable exertions among the citizens of Massachusetts, in all local and national concerns, the Beverly company, with tremendous obstacles in view and at the risk of their fortunes, made an attempt to accomplish an object which they knew would ultimately promote and extend the wealth and establish the independence of the united colonies—who had just emerged from European oppression, and declared to the world that they were, of right, free and independent; the monarchs of the world having acknowledged their national existence. The eagle-eyed legislature of the old Plymouth colony foresaw, that, without protection of their national industry, their independence was but a name, and that they had

apology for the delay of an answer. Knowing that printers are more fond of publishing amusing than instructive tracts, I had doubts of the punctual insertion of the piece, and I chose to delay my answer till it had been done. The Centinel has at length given it to the public. While the discussion of the subject affords pleasure and instruction to the political economists, it coincides perfectly well with the prevailing temper and views of the eastern states. Even if it should be doubted whether manufacturing companies will prove profitable to the adventurers, yet as a very efficient means of introducing and perfecting the arts among us, there can be no question of their ultimate usefulness. The spirit of enterprise has of late been uncommonly ardent. Your observations are well adapted to the making it both inquisitive and cautious. I cannot forbear noticing, also, the great propriety and advantages of interesting the hopes of our citizens in the operations of a government of sufficient energy to protect and reward their industry and enterprise. So much is done by incendiaries to make the people hate and fear it, I think it a task worthy of a patriot and philosopher, to hold up the bright side of the case. You have done so well heretofore, especially in the refutation of Lord Sheffield, that the federal men have placed a reliance on your continued attention to the same subjects, as time and circumstances may render their further elucidation necessary. It is not many years since the encouragement of the arts was deemed an Utopian scheme in our country. One would think experience had fully proved the solidity of the principles of the advocates for manufactures. But even yet the southern gentlemen hold it up as a bugbear of usurpation of power, and dissipation of public money. You have stated facts which ought to have the effect of undeceiving them; and if the spirit of party could be reasoned down, I should suppose you had done it. I am, dear sir, with sentiments of esteem, &c. &c.

FISHER AMES.

lost the bravest of their sons, had fought and conquered, and still remained subservient to the aggrandisement of their enemies.

Rhode Island caught her spirit of manufacturing from the Beverly company, which had been formed in Massachusetts, and from this company she received her patterns of machinery and the mode of operating the machinery; though it must be acknowledged, that both states were indebted to foreign emigrants for instruction and assistance in spinning and weaving, and also in preparing the cotton.

At the recent great meeting in Boston, on the subject of opening a rail road to Albany, the infant difficulties of domestic manufactures were thus adverted to by Mr. Hallet:—

"We talk now of the future, in regard to railways, with doubt, as of an experiment yet to be tested, and many look upon the calculations of the sanguine as mere speculating dreams. Here is a new avenue about to be opened to the development of resources, and yet men hesitate to go forward. Let us test what we can reasonably anticipate in this, by what we know has happened, in the development of resources once deemed quite as visionary, through another medium of industry and enterprise—domestic manufactures. There is not an adult among us who cannot remember the time when it was a source of mortification to be dressed in homespun. Now, our own fabrics are among the best and richest stuffs of every day consumption, and the products of our looms are preferred even in foreign countries. Forty years ago, who would have dared to conjure up the visions of such manufacturing cities as Lowell, and Fall River, your Ware, Waltham, and the hundreds of flourishing villages which now constitute the most prosperous communities in this commonwealth? How small and feeble was the beginning of all this! In 1787, the first cotton mill in this state was got up in Beverly, by John Cabot and others, and in three years it was nearly given up, in consequence of the difficulties which the first beginning of the development of the vast resources of domestic industry, in our state, had to encounter. I hold in my hand," said Mr. Hallet, "a document of uncommon interest, on this subject, found in the files of the Massachusetts senate; which will show the early struggles of domestic manufactures, and the doubts entertained of their success, more forcibly than any fact that can be stated. It is the petition of the proprietors of the little Beverly cotton mill, in 1790, for aid from the legislature to save them from being compelled to abandon the enterprise altogether.

Petition of the Proprietors of the Beverly Cotton Manufacture.

"To the senate and house of representatives of the commonwealth of Massachusetts, in general court assembled, June 2, 1790—The proprietors of the Beverly Cotton Manufactory beg leave to represent, that the establishment of a manufacture of cotton, in imitation of the most useful and approved stuffs which are formed of that material in Europe, and thence continually imported into this country at a very great expense, has been attempted by the said proprietors. This attempt commenced in the year 1787, from a consideration of the extensive public advantages to be obtained by it; and on this occasion your petitioners may be permitted to declare that in that view of the subject, the hazard of their private property, and the many obstacles which have since deprived them of every hope of present emolument to themselves, were overlooked. The design has been prosecuted, although it has proved much more arduous and expensive than was at first conceived, and under very discouraging circumstances, so far as to demonstrate that it is practicable; and that the manufacture, being once established, will be sufficiently lucrative to support and extend itself, and will afford not only a supply for domestic consumption, but a staple for exportation. The general use within the United States of imported cotton goods is well known to this court. It may be necessary to suggest for their reflection, that articles of this extensive consumption among us have been provided by foreigners, whose commerce we have thus encouraged, and that in this, as in other instances, we have been draining our country of a circulating medium to contribute to the wealth and populousness of Great Britain. Removing the occasion of this destructive traffic is not the only public advantage to be derived from the manufacture of cotton, as undertaken by the said proprietors. The raw material is procured in exchange for fish, the most valuable export in the possession of this state, and, at this time, in great need of encouragement. It must be evident that the cod fishery will be essentially encouraged by extending the demand for the imports to be obtained by it. This manufacture finds employment and support for a great number of persons, and among others for infirm women and children. In its immediate operation, and in the commerce and navigation connected with it, this honourable court will not fail to discover the beneficial influence of this manufacture, and especially upon the landed interest, by the increase of people and national wealth, which may be expected from it. The said proprietors, in the prosecution of their design, have necessarily incurred a variety of expenses and losses, which succeeding adventurers cannot be liable to. Among those experienced by us, are the following, viz:—The extraordinary price of machines unknown to our mechanics, intricate and difficult in their construction, without any model in the country, and only to be effected by repeated trials, and long attention; one instance among many of the kind is a carding machine, which cost the proprietors eleven hundred dollars, and which can now be purchased for two hundred dollars. The extraordinary loss of materials in the instruction of their servants and workmen, while so many are new, and the additional losses sustained by the desertion of these, when partly informed, and by the increase of wages to prevent it, in consequence of the competition of rival manufactories. The present want of that perfection and beauty in their goods, which long established manufactories can exhibit, from the skill of their workmen, but principally from the use of

machines which your petitioners have as yet found too expensive for them to procure; (meaning the Arkwright patents). But not to trouble your honours with details which would encroach too much on the time of this court, your petitioners have ever conceived that the government of this commonwealth would at least indemnify them for these extraordinary expenses and losses; which cannot be reimbursed by any future success of their design, since the models of machines, and the essential information obtained at their expense, is open to every succeeding adventurer. The expenditure of the said proprietors has already amounted to nearly the sum of £4,000, the value of their remaining stock is not equal to £2000, and a further very considerable advancement is absolutely necessary to obtain that degree of perfection in this manufacture, which alone can ensure its success. This necessary addition to their stock will enable the proprietors to rival in beauty, perfection, and cheapness, the European manufactures; and in that case, they shall willingly trust in the prudence and patriotism of their countrymen for a preference. But the proprietors having already hazarded, some their whole fortunes, and others very large sums, are obliged to declare, that, without aid from this honourable court, no further advancement can be made. And, mortifying as it is, they feel themselves in the necessity of relinquishing a design highly beneficial to the public, and undertaken by them from the purest motives. The intended aid by a grant of land, made by a former legislature to the said petitioners, has not in any degree answered the purpose of it. Your proprietors now pray, that, in lieu of that grant, some more real and ready assistance may be afforded them; submitting to the wisdom of the honourable court the particular mode of effecting it. Your petitioners conceive that the establishment of a manufacture, which gives encouragement to the most valuable branch of commerce possessed by this state, which must in its operation increase the number of people, and prevent those emigrations which have become so frequent, and are so dangerous to the landed interest; a manufacture which, once established, will retain amongst us large sums of our circulating medium, and greatly increase the wealth of our country, cannot fail of the attention and protecting influence of this honourable court, and in this confidence they still anticipate the success of their design; and as in duty bound will ever pray, &c.

JOHN CABOT,
JOSHUA FISHER, } Managers.

"This petition," said Mr. Hallet, in a discussion of a proposed rail road, in Faneuil Hall, Boston, "was referred to the committee of both houses for the encouragement of arts, agriculture, and manufactures, (of which Nathaniel Gorham was chairman,) and with all the lights which that intelligent committee then had on this subject, destined to become one of the greatest means of developing resources ever opened to national prosperity, they cautiously reported that 'from the best information we can obtain, we are of opinion that the said manufactory is of great public utility. But owing to the great expenses incurred in providing machines, and other incidents usually attending a new business, the said manufactory is upon the decline, and unless some public

assistance can be afforded, is in danger of failing. Your committee therefore report, as their opinion, that the petitioners have a grant of one thousand pounds, to be raised in a lottery:' on condition that they give bonds that the money be actually appropriated in such a way as will most effectually promote the 'manufacturing' of cotton piece goods, in this commonwealth. . . . . Where now is the little Beverly cotton mill? And what has been the mighty development of resources in domestic industry in forty-five years, since the date of that petition, when the wisest men among us had got no farther than to a belief that the said manufactory was of great public utility! Is there any vision of the great public utility of railways," said Mr. Hallet, "which can go beyond what now is, and what will be in forty years, that can exceed in contrast what we know once was and now is, in the development of resources by the investment of capital and industry in domestic manufactures? The petitioners for the little Beverly cotton mill were doubtless deemed to be absurdly extravagant, when they hinted that the manufacture of cottons would one day, not only afford a supply for domestic consumption, but a staple for exportation. But what do we now see? Our domestic fabrics find a market in every clime, and vessels, lying at your wharves, are receiving these goods to export to Calcutta.

"The world is beginning to understand the true uses of wealth, to develope the resources of the country; and it is in great enterprises, which benefit the public more than those immediately concerned in them, that we have a practical demonstration of the doctrine of the greatest good of the greatest number. Much is said, and more feared, about the divisions of the rich and the poor. But in truth, in our happy institutions, we need have no poor, forming a distinct class among the citizens. Where is your populace, your rabble? is an enquiry which has often puzzled the foreigner who has passed through our streets when thronged by a multitude. We have no populace—no rabble, but free and independent citizens. What has made them so? The development of our resources. What has stopped the tide of emigration that once threatened to depopulate New England? The development of our resources. Go on developing these resources, and there need be no fear of setting the poor against the rich, for there will be no poor to set against them. All will be rich, for they will have enough; and no man is in reality any richer for possessing what he cannot use. When men of capital are found hoarding it, holding it back from enterprises, and cautious of doing any

thing to develope the resources of a community, there is then just cause to fear the operation of unequal and injurious distinctions. Take from industry and enterprise the means of acquiring wealth, cut off commerce, manufactures, canals, and railways, and you will lay the surest foundation possible for the despotism of one class over another. But open all these great resources to all—extend your facilities of intercourse throughout the country, and you cannot repress the energies of men; you cannot keep them poor long enough to mark them as a class. Your gradations in society will be stepped over, forward and backward, so often, that no distinct line can be kept up. This is the vast moral power, which is exerted on society by the investment of capital for public benefit, without unjust privileges; in great projects. Here are the true uses of wealth, in a government like ours, and this great specific lies at the bottom of the philosophy of our political economy. Develope the resources of the country—place the means of wealth within the reach of industry, and you produce the happy medium in society. All will then move forward evenly, as on the level of a rail road, with occasional inclined planes and elevations, but none that can stop the powerful locomotives which impel forward every New Englander—enterprise and moral energy."

The action on this petition, and the previous grant of land, are the first acts on record of direct legislative encouragement to domestic manufactures in the state of Massachusetts; and therefore it is a document of great interest highly honourable to the enterprise of the citizens of Massachusetts, and to the sagacity of her legislature. Some assistance appears to have been granted to Mr. Orr* of Massachusetts, and it is thought to have been done previous to the grant to Beverly.

* In 1786, Robert and Alexander Barr, brothers, from Scotland, were employed by Mr. Orr, to erect carding, spinning, and roping machines in his works at East Bridgewater, where they were made. On the 16th Nov. 1786, the general court of Massachusetts, to encourage the machinists, made them a grant of 200*l.*, lawful money, for their ingenuity, and afterwards added to the bounty by giving them six tickets in the state land lottery in which there were no blanks.

In March 1787, Thomas Somers, (an English midshipman,) under the direction of Mr. Orr, also constructed a machine, or model, and by a resolve of the general court of the same date 20*l.* lawful money, was placed in the hands of Mr. Orr to encourage him in the enterprise.

The above machines and model remained in Mr. Orr's possession, for the inspection of all disposed to see them; and he was requested by the

As there are several claimants from states and individuals, for the honour of having commenced the first carding and spinning of cotton, it will probably be more satisfactory to the parties concerned, and to the public, to insert their own accounts of their first operations, from which a judgment can be formed of the merits of the case.

"*To the Board of Managers of the Pennsylvania Society for promoting Manufactures and Useful Arts.*

"The report of the committee for manufactures:—This committee, considering that the business in which they are engaged had attracted the public notice, and that it would be expected some account should be given of the progress and present state of the institution, in August began an enquiry into the state of their funds, their stock of goods, machines, and utensils, by which they are enabled to lay before you the following statement, and they flatter themselves it affords a pleasing prospect of future success. It is now about twelve months since this society was formed, and subscriptions were entered into, some of which, for various causes, have not yet been paid. They therefore state the amount of the subscriptions received to the 23d August, and show the manner in which the money hath been applied.

"Amount of cash received of contributors, when exchanged for specie.	£1327 10*s.* 6*d.*
From this, deduct for machines, utensils and fitting up the house for the manufactory,	£453 10*s.* 2*d.*
Which leaves a circulating capital of	£874 0*s.* 4*d.*

"With a view to meet one idea of the subscribers, the employment of the poor, and to promote the other objects of the institution, the committee purchased a quantity of flax, and employed between two and three hundred women in spinning linen yarn during the winter and spring, and also engaged workmen to make

general court to exhibit them, and to give all information and explanation in his power respecting them.

It is believed that the above, in 1786, was the first jenny and stock card made in the United States.

It is said that the first muskets ever made in America were made by Mr. Orr. Also the first nails made by machinery were manufactured at Bridgewater, Massachusetts.

a carding engine, and four jennies, of forty, forty-four, sixty, and eighty spindles, for spinning of cotton ; and, as soon as the season would permit the house to be fitted up, they were set to work. It is unnecessary to observe on the difficulties which occur in so arduous an undertaking as attempting to establish manufactures in a country not much acquainted with them—such as finding artists, and making machines without models, or but imperfect ones. The committee have further had various obstructions thrown in their way by foreign agents, of which you have already been informed. From these causes, it happened, that it was the 12th of April, 1788, before the first loom was set to work ; the number has been since increased to twenty-six, and in them have been wrought the following goods, to August 23d :—

"Of jeans, 2959½ yards, corduroys, 197½, federal rib, 67, beaver fustian, 57, plain cottons, 1567½, linen, 725, tow linen, 1337½—total 7111 yards. Besides in the looms two hundred yards of jeans, corduroys, cottons, and linen ; out of which manufactured goods they had sold, at this time, of jean, dyed cotton and linen yarn, fine and tow linen, &c. to the amount of four hundred and forty-eight pounds, five shillings, and eleven pence half-penny, besides which, in order to show the state of the factory to the 23d of August, 1788, in a clearer light, they subjoin the following statement of the stock account :—

STOCK, DR.			
To cash,	£1327	10	6½
To debts due sundry persons,	375	9	0
To profit,	72	4	9½
	£1775	4	4

CR.			
By utensils, &c.	£453	2	6
Goods on hand at the bleachers and printers,	732	14	11
Materials and linen yarn on hand,	550	2	6
Outstanding debts,	38	16	9
	£1775	4	4

"In addition to the enumerated articles manufactured to the 23d of August, we annex the following to Nov. 1 :—Jeans, 759½ yards, corduroys, 383½, flowered cotton, 39, cottons, 2095, flax

linens, 123, tow linens, 494, bird eye, 123—total, 4016 yards. And about two hundred and forty yards of different kinds of goods now in the looms, the whole amounting to eleven thousand three hundred and sixty seven yards; and there has also been manufactured by the twisting mill, about one hundred and eighty five pounds of plain, coloured, and knitting thread; since the first of August, also, a hundred and ninety yards of cottons have been printed; and it may be observed, that the want of proper bleach-yards, and the difficulty of procuring persons well skilled in bleaching, contributed to prevent the quantity being printed which was intended.

"The committee have now laid before you a statement of their proceedings, and might adduce many arguments to prove the propriety, and indeed the necessity, of giving every encouragement to establish this valuable branch of internal trade; but they apprehend that the motives which gave birth to the association have not lost their energy, either from the result of these experiments, or the prospect of future success, and they do not hesitate to add, that every view of the subject fully proves the peculiar importance of the cotton manufacture to this country, and the possibility (with proper exertions) of giving it a permanency, which, they doubt not, will prove a source both of private and public wealth. Impressed with these sentiments, and feeling sensibly our late dependence on foreign nations for many of the most useful articles of life, it is certain that, unless there are great exertions of virtue and industry, we must still remain in the same disadvantageous situation; whilst on the other hand, if we pursue the plan of establishing manufactures amongst ourselves, we thereby open an extensive field of employment for persons of almost every description.*

SAMUEL WETHERILL, JR.
Chairman pro tem."

* The views which led to the early encouragement of manufactures, are in part expressed in the following extract from Hamilton's Report.

"The expediency of encouraging manufactures in the United States, which was not long since deemed very questionable, appears at this time to be pretty generally admitted. The embarrassments about the period of 1791, are very generally acknowledged. The obstructions of our external trade have led to serious reflections on the necessity of enlarging the sphere of our domestic commerce; the restrictive regulations, which in foreign markets abridge the vent of the increasing surplus of our agricultural produce, serve to beget an earnest desire that a more extensive demand for that surplus may be created at home; and the complete success which has rewarded manufacturing enterprise in some valuable branches, conspiring with the promising symptoms which attend some less mature essays in others, justify

Notwithstanding the laudable and persevering efforts made by the people of Massachusetts and Rhode Island, and soon after, of Pennsylvania, New York, and Connecticut, they entirely failed, and saw their hopes and prospects prostrate. In looking for the causes of such disasters, we find no deficiency of enterprise or exertion, none of funds, and none of men who were ready and willing to engage in the business, and no lack of patronage from the governments, they having learned from experience the privations during

a hope, that the obstacles to the growth of this species of industry, are less formidable than they were apprehended to be; and that it is not difficult to find, in its further extension, a full indemnification for any external disadvantages which are or may be experienced, as well as an accession of resources, favourable to national independence and safety.

"It ought readily to be conceded, that the cultivation of the earth—as the primary and most certain source of national supply; as the immediate and chief source of subsistence to man; as the principal source of those materials which constitute the nutriment of other kinds of labour; as including a state most favourable to the freedom and independence of the human mind; one, perhaps, most conducive to the multiplication of the human species—has intrinsically a strong claim to pre-eminence over every other kind of industry. But that it has a title to any thing like an exclusive predilection, in any country, ought to be admitted with great caution. That it is even more productive than every other branch of industry, requires more evidence than has yet been given in support of the position. That its real interests, precious and important as without the help of exaggeration they truly are, will be advanced rather than injured by the due encouragement of manufactures, may, it is believed, be satisfactorily demonstrated. And it is also believed, that the expediency of such encouragement, in a general view, may be shown to be recommended by the most cogent and persuasive motives of national policy."

"The only thing that reconciled the British ministry to the peace of independence was the prospect of our becoming one of their best customers. The prejudices of Americans, who thought the country too young for manufacturing, and that the arts, by introducing luxury, would also introduce vice, and wean them from that simplicity of manners which was believed exclusively to belong to the agricultural life; the predilection which nearly half the community, especially the rich, had for the fabrics of the mother country, and the influence which the merchants have had in our councils, all continued to prevent the introduction of clothing manufactories into these states. Time, however, and experience, have demonstrated, that luxury and vice may find their way into a country where manufacturing is discouraged; that, by a spirit of traffic, foreign luxuries are introduced, and a restless migratory life robs a nation of its innocence and simplicity. Years have weaned many from European attachments, and the intelligent part of the merchants perceive that commerce would increase by multiplying and diversifying the objects of our industry."—*Mease.*

revolutionary war. All must be attributed to the fact, that, during all the incipient struggles, Great Britain had in operation a series of superior machinery, which Massachusetts and Rhode Island had endeavoured to obtain in vain. The present state of the American manufactures shows what has grown out of such disastrous beginnings, and furnishes one among the many evidences which may be found, not to despair in the day of adversity.

The following is the account, furnished by Wm. Anthony, of the commencement of Cotton Spinning in Rhode Island:—

"About the year 1788, Daniel Anthony, Andrew Dexter, and Lewis Peck, all of Providence, entered into an agreement to make what was then called "home-spun cloth." The idea at first was to spin by hand, and make jeans with linen warp and cotton filling, but hearing that Mr. Orr, of Bridgewater, Massachusetts, had imported some model of machinery from England, for the purpose of spinning cotton, it was agreed that Daniel Anthony should go to Bridgewater and get a draught of the model of said machine; he, in company with John Reynolds, of East Greenwich, who had been doing something in the manufacturing of wool, went to Bridgewater, and found the model of the machine spoken of, in possession of Mr. Orr, but not in operation. It was not the intention of Mr. Orr* to operate it, but he only kept it for the inspection of those who might have an inclination to take draughts. The model of the machine was very imperfect, and was said to be taken from one of the first built in England. A draught of this machine was accordingly taken, and laid aside for a while. They then proceeded to build a machine of a different construction called a jenny; I understood that a model of this machine was brought from England, into Beverly, Massachusetts, by a man of the name of Summers. This jenny had twenty-eight spindles; the wood work was built by Richard Anthony, the spindles and brass were made by Daniel Jackson, an ingenious coppersmith of Providence. This jenny was finished in 1787. It was first set up in a private house and afterwards removed to the market house chamber in Providence, and operated there.

"Joshua Lindly of Providence was then engaged to build a carding machine, for carding the cotton agreeably to the draught presented, also obtained from Beverly. This machine was something similar to the one now used for carding wool, the cotton being taken off the machine in rolls, and roped by hand; after some

* Mr. Orr received a compensation from government for presenting it for inspection. It was therefore called the State's Model.

delay this machine was finished. They then proceeded to build a spinning frame after the draught obtained at Bridgewater. This machine was something similar to the water-frame now in use, but very imperfect; it consisted of eight heads of four spindles each, being thirty-two spindles in all, and was operated by a crank turned by hand. The first head was made by John Baily, an ingenious clock-maker of Pembroke, Massachusetts, the other seven heads, together with the brass work and spindles, were made by Daniel Jackson of Providence, the wood work was made by Joshua Lindly of said Providence. In 1788, Joseph Alexander and James M'Kerris, natives of Scotland, arrived in Providence, both being weavers, and understanding the use of the fly-shuttle; they were engaged to weave corduroy. Mr. Alexander to weave a piece in Providence, and Mr. M'Kerris went to East Greenwich to work there. A loom was accordingly built after the directions of Mr. Alexander, and put in operation in the market house chamber; this was the first fly-shuttle ever used in Rhode Island. A piece of corduroy was there woven, the warp being linen and the filling cotton, but as there was no person to be found who could cut the corduroy, and raise the pile which makes the ribs on the face of the cloth, and give it the finish, it was thought best to abandon that kind of cloth. Mr. Alexander left Providence, and went to Philadelphia; Mr. M'Kerris continued to work in Greenwich for some years. This appears to be the beginning of the jenny spinning in Rhode Island, and undoubtedly originated with the above company.

"The spinning frame (the one attempted from the state's model), after being tried for some time in Providence, was carried to Pawtucket and attached to a wheel propelled by water—the work of turning the machine was too laborious to be done by hand, and the machine was too imperfect to be turned by water. Soon after this, the machine was sold to Mr. Moses Brown of Providence, but as all the carding and roping was done by hand it was very imperfect, and but little could be done. This was the situation of cotton manufacturing in Rhode Island, when Mr. Samuel Slater arrived in this country; then all this imperfect machinery was thrown aside, and machinery more perfect built under his direction. About the time the above machinery was being made, John Fullem, a native of Ireland, a stocking weaver by trade, settled in East Greenwich. He had a stocking loom, and his object was to weave stockings for the inhabitants generally; but not succeeding there to his wishes, he went to Providence, and sold his loom to Moses and Smith Brown, and still continued to operate it under

the superintendence of Smith Brown ; but the business was found unprofitable, and was abandoned.

"About the time the above machinery was put into operation, Herman Vandausen, a native of Germany, came to East Greenwich, and undertook the business of calico printing, being a calico printer by trade ; he went to work, cut his types on wood, and began to print ; his object was to print for the people generally, and many people wove coarse cotton cloth in their families, and had it printed. The calico looked much like that imported from India in that day, and was not much, if any, inferior to that cloth. Some samples of the cloth printed by Mr. Vandausen was shown (by a gentleman that now lives in Providence) to Mr. John Brown, who was then about trading to India. Mr. Brown gave some encouragement of assistance, but as it was found cheaper to import than to make them here, the business was given up."

In addition to the communication of Wm. Anthony, in conversation with Joseph Anthony, of Providence, R. I., the oldest son of Daniel Anthony, he fully concurred in the above statement. He stated that his brother Richard Anthony made the first jenny in Rhode Island, probably under the direction of his father, who it is thought spun the first yarn from jennies, by the assistance of his sons. There were thirty spindles on the jenny. The carding machine produced a roll eighteen inches long. It was then taken by a woman, and roped on a hand wheel. The same Daniel Anthony made hand-cards during the revolutionary war ; but no machinery was obtained till after the independence of the states. David Buffum bought a jenny, and Joseph Anthony spun on it at Newport two years, and obtained warp at Slater's mill, but they failed in their attempt. These were the machines purchased by Moses Brown, and referred to in the following letter to Mr. Slater.

Extract of a letter to Samuel Slater from Moses Brown.

PROVIDENCE, 10th of 12th month, 1789.

We have two machines of this kind, one of thirty-two spindles, the other of twenty-four. They have been worked, and spun about one hundred and fifty skeins of cotton yarn, from five to eight skeins of fifteen lays round a reel of two yards to the pound ; but the person whom we let the mill to, being unacquainted with the business, and the mills probably not perfected, he could not make wages in attending them, and therefore they are at present still. We then wrought hand roping and the carding machine was not in order. We have since got a jenny, and are putting on fine cards to the machine : these with an eighty-four and a sixty spinning jenny, and a doubling and twisting jenny, compose the principal machinery about our manufactory. We have from Ireland a man and his wife, who are spinners

on the jennies, but we are destitute of a person acquainted with the frames. We shall be glad to be informed what quantity of yarn your mills spin in a day on one spindle. What number of spindles a lad can, or does attend, and at what age? How your roping is made, what fineness, whether twisted harder or softer than for jennies? Whether the cotton is soaped before carding, as that for the jenny, or not at all? What the wooden rollers in the mills are covered with? Ours have been done with calf-skin. How the taking up is regulated. Ours is by leather strings? On what the spools play and run, on irons?

The following document will show the extent to which the firm of Almy & Brown had carried their operations about this period:

An Account of the Cotton Goods manufactured by Almy & Brown, of Providence, state of Rhode Island, since the commencement of the business, say about the 11th of 6th month, 1789, to the 1st of 1st month, 1791.

Corduroy,	45	pieces,	1090yds.	sold from	3*s.* 6*d.*	to 4*s.* per yd.
Royal Ribs, Denims, &c.	25	"	558	"	3*s.*	4*s.*
Cottonets,	13	"	324	"	2*s.* 6*d.*	3*s.*
Jeans,	79	"	1897	"	2*s.*	2*s.* 6*d.*
Fustians,	26	"	687	"	1*s.* 8*d.*	2*s.*
Total	189	pieces.	4556yds.			

From the 1st day of the 1st month, 1791, to the present date.

Velverets,	30	pieces,	669yds.	sold from	4*s.*	to 4*s.* 4*d.*
Thicksets,	30	"	745	"	3*s.* 6*d.*	4*s.*
Corduroy,	45	"	1001	"	3*s.* 6*d.*	4*s.*
Fancy Cords,	26	"	664	"	3*s.* 6*d.*	4*s.*
Royal Ribs, Denims, &c.	55	"	1284	"	3*s.*	4*s.*
Jeans,	74	"	1769	"	2*s.*	2*s.* 6*d.*
Fustians,	66	"	1691	"	1*s.* 8*d.*	2*s.*
Total	326	pieces.	7823yds.			

ALMY & BROWN.

Providence, 10th month, 15th, 1791.

Andrew Dexter was an English goods merchant in Boston, and removed to Providence in 1785. His store was near where the Arcade now stands. He was the brother of Samuel Dexter, of Boston, who was secretary of the treasury and of the war department, and a senator of the United States. This gentleman assisted in the commencement of making machines for manufacturing cotton. His debtor account with the business commenced Sept. 8th, 1788, in which I find a machine for calendering cotton goods; the first charge is dated March 8th, 1790; this calender was put up in Moses Brown's barn, and worked by a horse. The extracts

here furnished from his leger show the connection existing between Dexter, and Almy and Brown, and the operatives employed by them; and very fairly elucidate the very limited nature of the manufacturing business in general. The extracts are all certified as true copies, by George H. Peck.

Moses Brown to Andrew Dexter, Dr.

1789.		£.	s.	d.
May 18.	To my obligation of this day, ...	45	00	00
	To spinning jenny complete, sold him per agreement at the bills, viz:			
	To Nathaniel Gilmer's bill, forging 60 spindles, and other iron work £3 1 9			
	8lb. 7oz. steel for spindles, at 10d. 7			
	3 8 9			
	To Elijah Bacon's bill for stuff, . . . 18 9			
	To Oliver Carpenter's bill for 60 whirls, 10			
	To Daniel Jackson's bill, ... 4 13 9			
	To Joshua Lindley's bill, ... 11 8 3			
	To cash paid for wire at several times, 3 9			
	To James Burrell's bill for cylinder, 2 8			
	To Job Danforth's bill for stuff, . . . 8 6			
	To cash paid for pulleys 1s. 4d., do. for wire and line, 6d. 1 10			
	To do. do. for screws 11d., do. for wire, 2s. 4d. 3 3			
	———	24	4	10
		£69	4	10

1789.	*Cr.*			
June 27.	By one and half chest tea, received of Brown and Benson on his acct. nt. wt. as per bill, 383 188 ——571lb. at 1s. 8d.	47	11	8
Nov. 5.	By 1329lb. beef received of Judge Aldridge, 16s. 8d.	11	1	6
	By one calf-skin.		12	
Jan. 25.	By 128¼lb. sole leather at 14d.	7	9	7½
1790.				
	By half the hide and tallow, 300½lb.; the whole being 601lb.	2	10	1
		£69	4	10

1790. —

Dr. Jenny, Carding and Spinning Frame, completed at the joint and equal expense of Lewis Peck and Andrew Dexter.

To Lewis Peck's bill,	61	11	5
To Andrew Dexter, do.	78	3	7
	£139	15	

Extract of Almy & Brown's account in Andrew Dexter's Leger.

1791.	April 16,	1 piece of Jean 20¼ yards	
		4 do. do. 100¼ do.	
		1 do. do. 26½ do.	
1792.	July 12,	114¾ cotton, at 2s. 7½d.	——£15 2s.

The above is a true copy from the late Andrew Dexter Esqr's. Leger.
Providence, Nov. 24th, 1835.

GEORGE H. PECK.

From the above documents, there is undeniable proof that Hargreaves' jennies were in use, in various places in the United States, previous to 1790, and that mixed goods of linen and cotton were wove principally by Scotish and Irish weavers. But I have not been able to ascertain, beyond a doubt, who first introduced the jenny, or by whom they were first used for spinning in America.

Moses Brown says—" We had, in 1789, got several jennies and some weavers at work on linen warps, and found the undertaking much more arduous than I expected, both as to the attention necessary and the expense, being necessitated to employ workmen of the most transient kind, and on whom little dependence could be placed."*

" During this time, 1790, linen warps were wove, and the jenny spinning was performed in different cellars of dwelling houses." There have been made by Almy & Brown, (Moses Brown found money, they being poor) since the 1st of January, 1790, to November following, velverets, velverteens, corduroys, thicksets, a variety of fancy cut goods, jeans, denims, velures, stockinets, pillows of fustian, &c., 326 pieces, containing 7823 yards, there

* The difficulties under which these incipient measures towards the establishment of the business were pursued, can hardly be conceived at the present day, even by a practical and experienced machinist or manufacturer. The basin of the Narragansett Bay, and the small but invaluable streams that fall into it on every side, did not form then, as they now form, a continuous hive of mechanical industry, enterprise, and skill, where every sort of material, and every, even the most minute, subdivision of handicraft ingenuity, could be procured at will. There were no magazines or workmen. With the exception of scythes, anchors, horse shoes, ploughs, nails, cannon shot, and a few other articles of iron, there was no staple manufacture for exportation from Rhode Island. The mechanism then applied in these manufactures was almost as simple as the first impulse of water or steam. The compounds of gyration now obtained, in almost endless variety, by the application of the ellipsis, was then almost or wholly unknown in this country. No sheetings, shirtings, checks, or ginghams, were made previous to 1790.

are also several other persons who manufactured cotton and linen by the carding machines and jennies." We hear nothing of the use of jennies after this period, and they produced but little advantage to the community; as Moses Brown observes:—"Our commencing the business at a period, when from the great extent of it in England and Ireland, and other causes, many became bankrupts, their goods were sold at auction, and shipped to America in large quantities, the two or three last years, lower than ever before. Add to this, which is much the greatest difficulty, British agents have been out in Providence, and, I presume, some other manufacturing towns, with large quantities of cotton goods for sale, and strongly soliciting correspondence of people in the mercantile line to receive their goods at a very long credit, say eighteen months, which is six or nine more than has been usual heretofore; for the discouragement of their manufactory here. This bait has been too eagerly taken by our merchants, who, from their activity in business, mostly trade equal to or beyond their capital, and so are induced by the long credit to receive the goods, in expectation of turning them to advantage before the time of payment. But the great quantities some have on hand, we have reason to expect, will disappoint them; but others, being induced by the same motive, are supplied, and thus the quantities of British goods of these kinds on hand, exceeding the market, obstruct the sale of our own manufactures, without the merchant trading in them getting his usual profits by them. This English trade, therefore, in time, would be reduced for want of profits; but when the actual sales of British goods fail, of the cotton manufacture, they are sent and left here on commission. This, I am informed, by good authority, was the policy of the English manufacturers, formed into societies for that purpose."

The abilities of the manufacturing interest of Great Britain to intercept the sale of our own goods, at a price as low as theirs has been heretofore sold by our importing merchants, the actual combination of them to discourage other countries, forms a very great discouragement to men of abilities to lay out their property in extending manufactories; the preparation for which, even before they can be perfected, must be left, if they cannot be continued. Such was the incipient state of the attempt at jenny spinning, in 1790; and nothing but the introduction of the "water-frame spinning," which had superseded the jennies in England, could have laid a foundation for the cotton manufacture in the United States. But that had happily commenced, by an individual who was personally and practically acquainted with all its branches,

and who had uncommon determination and perseverance to accomplish his purpose. The following description of *jenny spinning*, is from the Edinburgh Encyclopedia, under the article "Cotton Spinning."

"The jenny, in its manner of action, resembles the ancient spinning with the distaff and spindle, but is so contrived, that one person works a number of spindles at once. It was the earliest improvement on spinning, after the *one-thread wheel*, and was the invention of Richard Hargreaves, weaver in Lancashire, in the year 1767. The jenny is now entirely superseded by the mule. For jenny spinning, the elementary process was called *batting*; it was next soaped, in order to make it more easily stretched in the roving and spinning; the soaping was performed by immersing the cotton in a solution of soap in water; it was next put into a screw press, and afterwards dried in a stove.

"Hand cards first, and stock cards afterwards, were employed before the invention of the cylinder cards.

"The roving was performed, on similar principles to the spinning jenny, on a machine called a *billy*, which was driven by means of bands from a cylinder, which receives its motion from a vertical fly-wheel, driven by hand at one end of the machine.

"The *jenny* is a machine, similar in its operation to the *roving billy*, but differs from it in construction in this respect, that the *clasp* is attached to the carriage, while the spindles are disposed in the rails of the frame which remain at rest. The drawing out of the clasp stretches the roves so as to reduce them into the size proper for the yarn, at the same time the spindles twine it. During the return of the carriage, the yarn is built on the spindles by levers and wires, and formed like the rovings into cops. It is wrought with the hand by one grown-up person, assisted by a boy or girl, called a *piecer*, in order to mend such threads as break. The yarn, when taken off the spindles, is sometimes reeled, but more frequently given to the weaver in cops, who has it wound on the bobbins preparatory to being placed in the shuttle."

James Hargreaves, a weaver of Stand Hill, near Blackburn, was the inventor of the jenny. Such a machine, it is proble, would not be at once perfected; its construction would probably occupy the author, who was a poor man, and had to work for his daily bread, some years; and as Hargreaves went to Nottingham in 1790, before which time his machine had not only been perfected, but its extraordinary powers so clearly proved, notwithstanding his efforts to keep it secret, as to expose him to persecution and the attacks of a mob, it is reasonable to think

that the invention was conceived, and that the author began to embody it, as early as 1764. Hargreaves, though illiterate and humble, must be regarded as one of the greatest inventors and improvers in the cotton manufacture. His principal invention, and one which showed high mechanical genius, was the jenny.

Hargreaves is said to have received the original idea of this machine, from seeing a one-thread wheel overturned upon the floor, when both the wheel and the spindle continued to revolve. The spindle was thus thrown from a horizontal into an upright position; and the thought seems to have struck him, that if a number of spindles were placed upright, and side by side, several threads might be spun at once.

He contrived a frame, in one part of which he placed eight rovings in a row, and in another part a row of eight spindles. With this admirable machine, though at first rudely constructed, Hargreaves and his family spun weft for his own weaving. Aware of the value of the invention, but not extending his ambition to a patent, he kept it as secret as possible for a time, and used it merely in his own business. A machine of such powers could not however, be long concealed; but when it became the subject of rumour, instead of gaining for its author admiration and gratitude, the spinners raised an outcry that it would throw multitudes out of employment, and a mob broke into Hargreaves' house, and destroyed his jenny. So great was the persecution he suffered, and the danger in which he was placed, that this victim of popular ignorance was compelled to flee his native county, as the inventor of the fly-shuttle had been before him. Thus, the neighbourhood where the machine was invented, lost the benefit of it; yet without preventing its general adoption—the common and appropriate punishment of the ignorance and selfishness which oppose mechanical improvements. The number of spindles in the jenny was at first eight, when the patent was obtained it was sixteen; it soon came to be twenty or thirty, and no less than one hundred and twenty have since been used. Before quitting Lancashire for Nottingham, Hargreaves had made a few jennies for sale, and the importance of the invention being universally appreciated, the interests of the manufacturers and weavers brought it into general use, in spite of all opposition.

It is mentioned, that Crompton, the inventor of the mule, learned to spin upon a jenny of Hargreaves' make, in 1769.

Notwithstanding the outrage and violence against him, Hargreaves was enabled to live in comfort though not in affluence, on the fruits of his invention.

CHAPTER III.

FROM SAMUEL SLATER'S LEAVING ENGLAND TO HIS MARRIAGE WITH HANNAH WILKINSON, OF NORTH PROVIDENCE, R. I.

"He that wishes to be counted among the benefactors of posterity, must add, by his own toil, to the acquisition of his ancestors."

The preceding chapter is designed to show, that every attempt to spin cotton warp or twist, or any other yarn, by water power, till 1790, had totally failed, and every effort to import the patent machinery of England had proved abortive.* Much interest had been excited in Philadelphia, New York, Beverly, Massachusetts, and in Providence, Rhode Island; but they found it impossible to compete with the superior machinery of Derbyshire. Distrust and despondency had affected the strongest minds; disappointment and repeated losses of property, had entirely disheartened those brave pioneers in the production of homespun cloth. At this moment, Mr. Slater had left Belper, and was on his passage to America, with a full and decided plan to construct and erect the Arkwright machinery in the United States. The evidence adduced in this chapter, is designed to show, that previous to 1790, no such machinery existed in this country; and that Samuel Slater, without the aid of any one who had ever seen such machinery, did actually, from his personal knowledge and skill, put in motion the whole series of Arkwright's patents; and that he put them in such perfect operation, as to produce as good yarn, and cotton cloth of various descriptions, equal to any article of the kind produced in England at that time. This is the claim that we make for the subject of this memoir, and if we are successful in proving this point, we lay a foundation for sufficient praise for any one individual.

Mr. Slater's passage from London to New York extended to sixty-six days. This was a considerable imprisonment to a landsman who had never seen a ship before.

* Tench Coxe entered into a bond with a person who engaged to send him, from London, complete brass models of Arkwright's patents; the machinery was completed and packed, but was detected by the examining officer, and forfeited, according to the existing laws of Great Britain, to prevent the exportation of machinery.

Immediately on his arrival, he was introduced to the New York Manufacturing Company, and engaged in their employment. But the state of their business was low and inferior, compared with what he had been accustomed to in his own country; so that he was dissatisfied with his prospects, and he did not like the water privileges which were shown him in this section of the country, to commence any new works.

A captain of one of the Providence packets informed him of Moses Brown, who was endeavouring to do something in the cotton business, and advised Mr. Slater to write by him and offer his services; which advice he followed, and turned his attention from Philadelphia, to which he had been first directed, as appears by the following letter, dated—

NEW YORK, December 2d, 1789.

Sir,—A few days ago I was informed that you wanted a manager of *cotton spinning*, &c. in which business I flatter myself that I can give the greatest satisfaction, in making machinery, making good yarn, either for *stockings* or *twist*, as any that is made in England; as I have had opportunity, and an oversight, of Sir Richard Arkwright's works, and in Mr. Strutt's mill upwards of eight years. If you are not provided for, should be glad to serve you; though I am in the New York manufactory, and have been for three weeks since I arrived from England. But we have but *one card, two machines*, two spinning jennies, which I think are not worth using. My encouragement is pretty good, but should much rather have the care of the perpetual carding and spinning. *My intention* is to erect a *perpetual card and spinning*. (Meaning the Arkwright patents.) If you please to drop a line respecting the amount of encouragement you wish to give, by favour of Captain Brown, you will much oblige, sir, your most obedient humble servant, SAMUEL SLATER.

N. B.—Please to direct to me at No. 37, Golden Hill, New York.

Mr. Brown, Providence.

It appears from the above letter, that Mr. Slater claimed to have a full knowledge of the business of Messrs. Arkwright and Strutt; that he could make the machinery, and superintend the works when erected; and that such were the works he wished to be engaged in; that he could make as good yarn either for *stocking* or *twist*, as any that was made in England at that time. The machinery in New York was very inferior, jennies on the Hargreave's plan; but the Arkwright patent was not in existence, and every attempt to establish it had been unsuccessful, as appears by the following letter:—

PROVIDENCE, 10th 12th month, 1789.

Friend,—I received thine of 2d inst. and observe its contents. I, or rather Almy & Brown, who has the business in the cotton line, which I began, one being my son-in-law, and the other a kinsman, want the assist-

ance of a person skilled in the frame or water spinning. An experiment has been made, which has failed, no person being acquainted with the business, and the frames imperfect.

We are destitute of a person acquainted with water-frame spinning; thy being already engaged in a factory with many able proprietors, we can hardly suppose we can give the encouragement adequate to leaving thy present employ. As the frame we have is the first attempt of the kind that has been made in America, it is too imperfect to afford much encouragement; we hardly know what to say to thee, but if thou thought thou couldst perfect and conduct them to profit, if thou wilt come and do it, thou shalt have all the profits made of them over and above the interest of the money they cost, and the wear and tear of them. We will find stock and be repaid in yarn as we may agree, for six months. And this we do for the information thou can give, if fully acquainted with the business. After this, if we find the business profitable, we can enlarge it, or before, if sufficient proof of it be had on trial, and can make any further agreement that may appear best or agreeable on all sides. We have secured only a temporary water convenience, but if we find the business profitable, can perpetuate one that is convenient. If thy prospects should be better, and thou should know of any other person unengaged, should be obliged to thee to mention us to him. In the mean time, shall be glad to be informed whether thou come or not. If thy present situation does not come up to what thou wishest, and, from thy knowledge of the business, can be ascertained of the advantages of the mills, so as to induce thee to come and work ours, and have the *credit* as well as advantage of perfecting the first water-mill in America, we should be glad to engage thy care so long as they can be made profitable to both, and we can agree. I am, for myself and Almy & Brown, thy friend,

MOSES BROWN.

Samuel Slater, at 37, Golden Hill, New York.

In the above letter, Moses Brown offers Samuel Slater, if he could work the machinery they had on hand, *all the profits of the business.* On the proviso, that he was what he professed, and would erect machinery such as he described, he should become concerned with him as they might agree.

He holds out to him the promise of the *credit*, as well as the *advantages* of perfecting the first *water-mill* in America. Under these inducements and assurances, Mr. Slater left New York, expecting to find the water-frame ready for operation. When he came to Providence, he assured Mr. Brown that he could do all that he had promised in his letter; for proof of which he showed him "his indenture" with Mr. Strutt, who had been a partner with Arkwright, and who spun the best yarn, both for stockings and twist, that was at that time spun in England. Moses Brown took Mr. Slater to Pawtucket, and showed him the machinery that he had described in his letter, which they had failed to operate, not finding any person who had wrought on

the Arkwright patent, or had seen any one that had wrought on it.

Moses Brown told me, that, "when Samuel saw the old machines, he felt down-hearted, with disappointment—and shook his head, and said 'these will not do; they are good for nothing in their present condition, nor can they be made to answer.' It appears that Mr. Anthony had tried them, and was unsuccessful; and different persons, who had seen these works, have informed me that they were worth nothing more, than so much old iron;" these were the words of Wm. Almy, when speaking to me on the subject. Such particulars may to some appear frivolous; but such transactions as tend to illustrate the progress of the wealth or manners of our country, merit the utmost attention. Even minute events are objects of consequence when they tend to establish important points in national history, and national aggrandisement. After various disapointments, it was proposed that Mr. Slater should erect the series of machines, called the Arkwright patents, which he would not listen to, till he was promised a man to work on wood, who should be put under bonds not to steal the patterns, or disclose the nature of the works. "Under my proposals," says he, "if I do not make as good yarn, as they do in England, I will have nothing for my services, but will throw the whole of what I have attempted over the bridge."

The following document will show what was finally determined on between the parties:—

"The following agreement, made between William Almy and Smith Brown of the one part, and Samuel Slater of the other part,—Witnesseth that the said parties have mutually agreed to be concerned together in, and carry on, the spinning of cotton by water, (of which the said Samuel professes himself a workman, well skilled in all its branches;) upon the following terms, viz:—that the said Almy and Brown, on their part, are to turn in the machinery, which they have already purchased, at the price they cost them, and to furnish materials for the building of two carding machines, viz:—a breaker and a finisher; a drawing and roving frame; and to extend the spinning mills, or frames, to one hundred spindles. And the said Samuel, on his part, covenants and engages, to devote his whole time and service, and to exert his skill according to the best of his abilities, and have the same effected in a workmanlike manner, similar to those used in England, for the like purposes. And it is mutually agreed between the said parties, that the said Samuel shall be considered an owner and proprietor in one half of the machinery aforesaid, and accountable for one half of the expense that hath arisen, or shall arise, from the building, purchasing, or repairing, of the same, but not to sell, or in any manner dispose of any part, or parcel thereof, to any other person or persons, excepting the said Almy and Brown;

neither shall any others be entitled to hold any right, interest, or claim, in any part of the said machinery, by virtue of any right which the said Slater shall or may derive from these presents, unless by an agreement, expressed in writing from the said Almy and Brown, first had and obtained—unless the said Slater has punctually paid one half of the cost of the said machinery with interest thereon; nor then, until he has offered the same to the said Almy and Brown in writing upon the lowest terms; that he will sell or dispose of his part of the said machinery to any other person, and instructed the said Almy and Brown, or some others by them appointed, in the full and perfect knowledge of the use of the machinery, and the art of water spinning. And it is further agreed, that the said Samuel, as a full and adequate compensation for his whole time and services, both whilst in constructing and making the machinery, and in conducting and executing the spinning, and preparing to spin upon the same, after every expense arising from the business is defrayed, including the usual commissions of two and a half per cent. for purchasing of the stock, and four per cent. for disposing of the yarn, shall receive one half of the profits, which shall be ascertained by settlement from time to time, as occasion may require; and the said Almy and Brown the other half—the said Almy and Brown to be employed in the purchasing of stock, and disposing of the yarn. And it is further covenanted, that this indenture shall make void and supersede the former articles of agreement, made between the said Almy and Brown and the said Slater, and that it shall be considered to commence, and the conditions mentioned in it be binding upon the parties, from the beginning of the business; the said Samuel to be at the expense of his own time and board from thenceforward. And it is also agreed that if the said Almy and Brown choose to put in apprentices to the business, that they have liberty so to do. The expense arising from the maintenance of whom, and the advantages derived from their services during the time the said Almy and Brown may think proper to continue them in the business, shall be equally borne and received as is above provided for in the expenses and profits of the business. It is also to be understood, that, whatever is advanced by the said Almy and Brown, either for the said Slater, or to carry on his part of the business, is to be repaid them with interest thereon, for which purpose they are to receive all the yarn that may be made, the one half of which on their own account, and the other half they are to receive and dispose of, on account of the said Slater, the net proceeds of which they are to credit him, towards their advance, and stocking his part of the works, so that the business may go forward.

"In witness whereof the parties to these presents have interchangeably set their hands, this fifth day of the fourth month, seventeen hundred and ninety.

WM. ALMY.
SMITH BROWN.
SAMUEL SLATER.

Witnesses—
Oziel Wilkinson, Abraham Wilkinson."

In accordance with this agreement of copartnership, I find a bill of account, settled Dec. 3d, 1792, signed Almy & Brown,

in account with Samuel Slater; which contains the following item of credit to Samuel Slater:—"Nov. 25th, 1792. By the one half of the proceeds from the sales of yarn spun at the mills, and of credit taken to our account, and accounted for by us as sold—£882 4s. 11½d. Providence Dec. 3d, 1792. ALMY & BROWN."

I find also these charges on the same settlement:—

1792, Feb. 17.

To the one half of our account against spinning mills for machinery, &c. up to Feb. 11th, 1792,	£252	1	6
To one half of do. for stock up to same date,	210	19	1¾

The above documents show what was finally determined on between the parties in the business.

The following letter from Mr. Smith Wilkinson, written at my request, corroborates the above:—

POMFRET, May 30th, 1835.

Mr. Samuel Slater came to Pawtucket early in January 1790, in company with Moses Brown, Wm. Almy, Obadiah Brown, and Smith Brown, who did a small business in Providence, at manufacturing on billies and jennies, driven by men, as also were the carding machines. They wove and finished jeans, fustians, thicksetts, velverets, &c.; the work being mostly performed by Irish emigrants. There was a spinning frame in the building, which used to stand on the south-west abutment of Pawtucket bridge, owned by Ezekiel Carpenter, which was started for trial (after it was built for Andrew Dexter and Lewis Peck) by Joseph and Richard Anthony, who are now living at or near Providence. But the machine was very imperfect, and made very uneven yarn. The cotton for this experiment was carded by hand, and roped on a woollen wheel, by a female.

Mr. Slater entered into contract with Wm. Almy and Smith Brown, and commenced building a water frame of 24 spindles, two carding machines, and the drawing and roping frames necessary to prepare for the spinning, and soon after added a frame of 48 spindles. He commenced some time in the fall of 1790, or in the winter of 1791. I was then in my tenth year, and went to work for him, and began at tending the breaker. The mode of laying the cotton was by hand, taking up a handful, and pulling it apart with both hands, and shifting it all into the right hand, to get the staple of the cotton straight, and fix the handful, so as to hold it firm, and then applying it to the surface of the breaker, moving the hand horizontally across the card to and fro, until the cotton was fully prepared.

The first frame of 24 spindles, was much longer erecting than anticipated, because cards and other things, even tools to work with, could not be obtained; all these were made by Mr. Slater's own hands, or by his directions. He laboured night and day under

every disadvantage, to accomplish his purpose, but the hope of future reward sweetened his labour.*

Mr. Slater once said to me, when speaking of labour, that he had laboured sixteen hours a day, for twenty years successively, and he might have added, in the most laborious occupations.

The assertions which have been made in public, representing that Mr. Slater brought with him from England, models and patterns, drawings of machinery, &c., we know, from the best possible

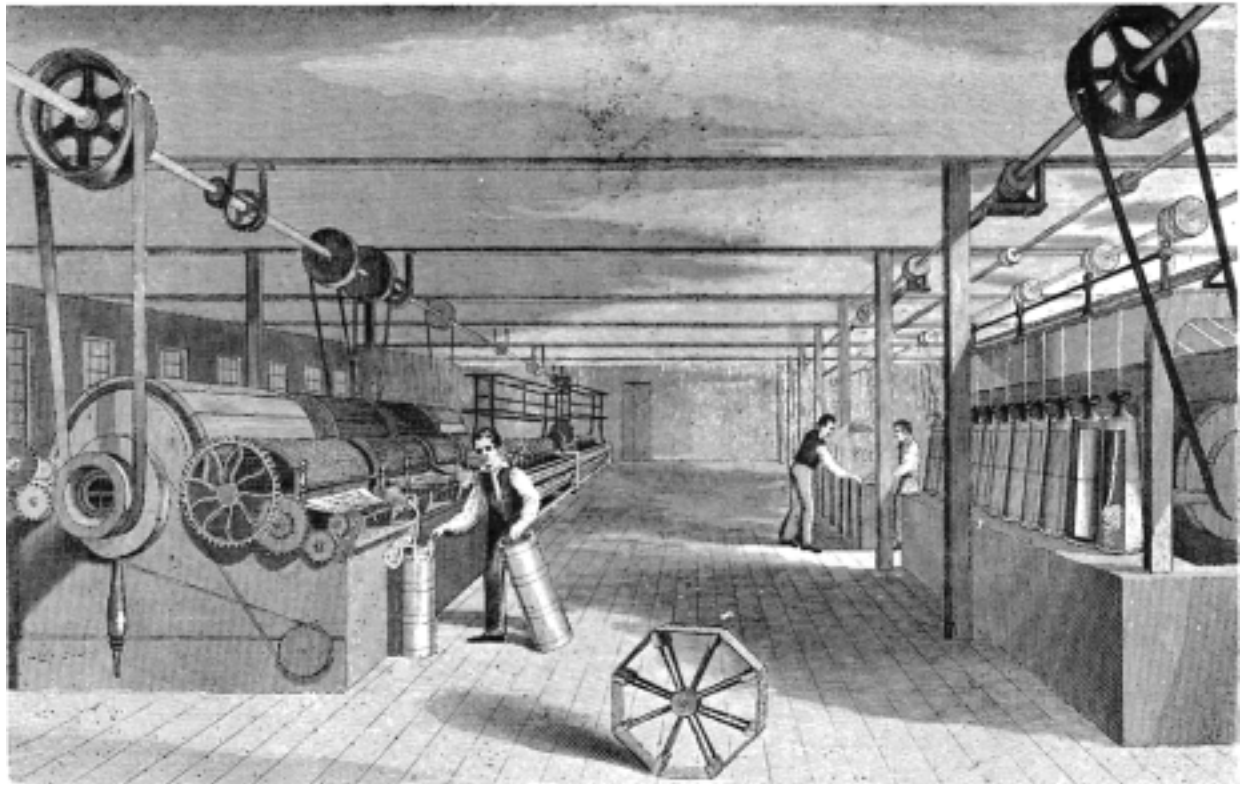
* In the fourth of July oration of Edward Everett, is the following valuable letter, and its accompanying remarks:—"I quote a sentence from it, in spite of the homeliness of the details, for which I like it the better, and because I wish to set before you, not an ideal hero wrapped in cloudy generalities, and a mist of vague panegyric, but the real, identical man, with all the peculiarities of his life and occupation. 'Your letter,' says he, 'gave me the more pleasure, as I received it among barbarians and an uncouth set of people. Since you received my letter of October last, I have not slept above three or four nights in a bed; but after walking a good deal all day, I have lain down before the fire, upon a little hay, straw, fodder, or a bearskin, whichever was to be had—with man, wife, and children, like dogs and cats; and happy is he who gets the berth nearest the fire. Nothing would make it pass off tolerably, but a good reward. A doubloon is my constant gain every day, that the weather will permit my going out, and sometimes six pistoles. The coldness of the weather will not allow of my making a long stay, as the lodging is rather too cold for the time of year. I have never had my clothes off, but have lain and slept in them, except the few nights I have been in Fredericksburg.' If there is an individual, in the morning of life, in this assembly who has not yet made his choice, between the flowery path of indulgence, and the rough ascent of honest industry—if there is one who is ashamed to get his living by any branch of honest labour, let him reflect, that the youth who was carrying the theodolite and surveyor's chain, through the mountain passes of the Alleganies, in the month of March—sleeping on a bundle of hay before the fire, in a settler's log cabin, and not ashamed to boast that he did it for his doubloon a day, is George Washington; that the life he led trained him up to command the armies of United America; that the money he earned was the basis of that fortune which enabled him afterwards to bestow his services, without reward, on a bleeding and impoverished country. For three years, was the young Washington employed, the greater part of the time, and whenever the season would permit, in this laborious and healthful occupation; and I know not if it would be deemed unbecoming, were a thoughtful student of our history to say, that he could almost hear the voice of Providence, in the language of Milton, announce its high purpose—

> 'To exercise him in the wilderness:—
> There he shall first lay down the rudiments
> Of his great warfare, ere I send him forth
> To conquer.'"

authority, to be incorrect; he told me that he had not a single pattern or memorandum to assist him in his calculations in constructing his first machinery; but he was favoured with an excellent memory, which never failed him in a single particular, until he accomplished his purpose. This was corroborated by the testimony of Moses Brown and William Almy.

It was then that his mathematical talents were put to the test. Whoever is acquainted with "The Carding or Spinning Master's Assistant, or the theory and practice of cotton spinning, showing the use of each machine employed in the whole process,—how to adjust and adapt them to suit the various kinds of cotton, and the different qualities of yarn; and how to perform the various calculations connected with the different departments of cotton spinning," will be satisfied that Mr. Slater's first work, in Pawtucket, was a proof of his knowledge and experience, as well as of his mathematical and mechanical genius. At the same time, it will be evident how much assistance he might have derived from such a publication; but nothing of the kind was then in existence. It is only within a few years that such helps have been prepared. Mr. Slater had seen the spinning frames that were constructed under the auspices of Arkwright himself, and had been brought to a very high state of improvement. The machines which have been generally used, since his time, are constructed upon the *very same principle;* any alterations that have been made, are chiefly upon the form or framing of the machine: as that which was formerly made of wood, is now made of cast iron, which gives it a more neat and handsome appearance, and also renders it more durable. In reference to the introduction of this machinery, Mr. Burgess observed, in a speech in congress, in 1825, and also at a public dinner in Pawtucket, R. I., June 16, 1828—"At the commencement of our present national government, a man arrived in this very place (I do not call his name, because it belongs to history, and must be known to all); and he brought with him that art, in those manufactures, which enables England, in the progress of its improvements, so to multiply labour, and accumulate wealth, that she did, by the aid of her machinery, in the close of the last, and the beginning of the present century, stand between the military despotism of one part of Europe, and the entire liberties of the world."

The annexed plate represents the machinery which Mr. Slater erected, and operated in the old fulling mill at Pawtucket. The clothier's shop alluded to by Mr. Wilkinson, was washed away Feb. 15, 1807; but the two frames which Mr. Slater first made and



CARDING, DRAWING, ROVING and SPINNING,
As introduced by S. Slater 1790.

operated, are now in the *old mill* in Pawtucket, and are frequently shown to visiters as choice curiosities. I conversed with the son of E. Carpenter, in whose shop S. Slater built his machinery, who was the clothier, and then a boy; he was permitted to see the first yarn spun, about which he told me, and observed that listing was used for belts. The following description will aid in understanding the engraving.

Water-spinning. It received this name, from being the first done by a water-wheel, and was patented by R. Arkwright.

Carding. After the cotton is picked, the usual process is to card it; first, by a carding machine, called a *breaker;* and a second time on another, called a *finisher.* The breaker consists of a larger and smaller cylinder. The larger, or *main cylinder,* is covered with sheet cards, and moves at a considerable velocity; the lesser, or doffing cylinder, is covered with a spiral fillet of card, wound round it, and moves slowly. These cylinders revolve in opposite directions, and nearly in contact with each other. Over the main cylinder, is a kind of arch, covered with cards, at rest, called the *top-cards.* The cotton is fed by means of rollers into the main cylinder. The main cylinder lays it on the doffing cylinder, from which it is combed, and in an uniform fleece is wound round a cylinder, or sometimes, instead of it, on a perpetual cloth. After this cylinder or cloth has made a certain number of revolutions, and thereby plying or doubling, (the fourth elementary process,) the cotton is broken off, and is in that state, called a lap, ready to be carried to the finisher. The finisher is similar to the breaker, only that the fleece, instead of forming a lap, is gradually brought into a narrow band or sliver, and is compressed by a pair of rollers, which deliver it into a tin can, which is afterwards removed to the drawing frame.

The drawing frame. In this machine, drawing first occurs. Drawing is a curious contrivance, and is the ground-work or principle of Arkwright's patent, for it is used in the roving and spinning, as well as in the drawing frame. It is an imitation of what is done by the finger and thumb, in spinning by hand, and is performed by means of two pair of rollers. The upper roller of the first pair is covered by leather, which being an elastic substance, is pressed, by means of a spring or weight. The lower roller, made of metal, is fluted, in order to keep a firm hold of the fibres of the cotton. Another similar pair of rollers are placed near to those we have been describing. The second pair moving at a greater velocity, pull the fibres of the cotton from the first pair of rollers. If the surface of the last pair move at twice or thrice the

velocity of the first pair, the cotton will be drawn twice or thrice finer than it was. This relative velocity is called the *draught* of the machine. This mechanism being understood, it will be easy to conceive the nature of the operation of the drawing-frame. Several of the narrow ribands or slivers from the cards, (or as they are sometimes termed, card ends,) by being passed through a system of rollers, are thereby reduced in size. By means of a detached single pair of rollers, the reduced ribands are united into one sliver. These operations of drawing and plying serve to equalise the body of cotton, and to bring its fibres more on end, which, in the card ends, were crossed in all directions. These slivers are again combined and drawn out, so that one sliver of the finisher's drawing contains many plies of card-ends. Hitherto the cotton has got no twist, but is received into moveable tin cans or canisters, similar to those used for receiving the cotton from the cards; sometimes, however, it does receive a small degree of twist in the finishing drawing.

Roving. The roving is a process similar to the drawing, only that it always communicates a degree of twist to the cotton. The roves are wound up on bobbins, and are then ready to be spun. The operation of winding is in some cases performed by hand, and in others by power. The bobbins containing the rove are placed on the back part of the spinning frame. The spinning is little more than a repetition of the process gone through in making the rovings. The spinning frame contains rollers similar to those of the drawing and roving frames, which serve to extend the rove, and reduce it to the required fineness; at the same time it is twisted by means of a spindle, but of a different kind from that of the common jenny.

Previously to the year 1767, spinning was performed on the domestic one-thread wheel, of which there were two kinds. The first, which had a simple spindle, required the material to be previously carded; and, as we have seen, the common jenny was founded upon this simple machine. The second, was the flax-wheel, which was used for other substances that, from their nature, but more particularly for the length of staple, did not admit of carding, but were prepared by an operation resembling combing.

The spindle of this machine had a bobbin and fly, which served to wind up the yarn as fast as it was spun. This last kind of spindle is that which was adopted by Arkwright in his mode of spinning. When the bobbins are full, they are taken off the spindles in order to be reeled.

The reeling is performed on a machine consisting of six wooden rails, parallel to the axis, which winds a considerable number of threads at once from the bobbins. It is one yard and a half in circumference, and is of such a length as to give room for the skeins without danger of the threads getting foul of each other. At one end of the axis is wheel-work, constructed to strike a check at every eighty revolutions of the reel. These eighty revolutions form a *lay* or *rap*, of 120 yards in length, and seven of these lays constitute a skein, which measures 840 yards. *Water-twist* is generally spun hard, and in that case is used for purposes requiring much strength, such as the warps of fustians, calicoes, &c. A softer kind of water-twist, which is very uniform and even in its thread, is used, when doubled and slightly turned, for making stockings, and is denominated stocking-yarn. The lower numbers are sometimes used single, and are called double-spun. Water-twist is used of all sizes, from No. 6. to No. 60. The above description answers precisely to the state of Arkwright and Strutt's mills in England, in 1790, and describes exactly the machinery which Mr. Slater constructed in Pawtucket, during that year.

It is known, that Mr. Peel, as early as the year 1762, with the assistance of Hargreaves, erected a carding engine with cylinders, at Blackburn, which differed very little from the one now used, except that it had no mechanism for detaching the cotton from the cards, an operation which was performed by women with hand-cards. Afterwards, this was done by the application of a roller with tin plates, like the floats of a water-wheel, which, revolving with a quick motion, scraped the cotton off the cards. The first inventor of the cylinder cards, or the carding engine, was probably Mr. Wyatt. But the carding engine was greatly improved by Arkwright; in place of the roller with tin plates, he substituted a metal plate toothed at the edge like a comb, which, instead of being made to revolve like the other, was moved rapidly in a perpendicular direction, by a crank, and with slight, but reiterated strokes, detached the cotton from the cards in a uniform fleece. In place of the sheet cards, with which the doffing cylinder had hitherto been covered, he employed narrow fillet cards, wound round it in a spiral form; by this contrivance a continuity of the fleece was produced, which, as it left the card, was gradually contracted by the conductor, and delivered by rollers into the can, in the form of a continued carding, or rowan, called a card end. The taking off the cotton from the cards, in this manner, is one of the most beautiful and curious operations in the whole process of cotton spinning, and renders the carding engine

one of the most important machines employed in the process. Carding engines have sometimes been made to consist of one large cylinder, and a number of smaller ones, called urchins, disposed of at proper distances over above the main cylinder, and revolving in opposite directions to it, but nearly in contact; by which means the cotton was delivered from cylinder to cylinder, until it came to the finishing cylinder, called the doffer—from which it was taken off by the comb.

At present, carding engines are generally made to consist of only two cylinders; sometimes three—one at the feeding rollers. But the main cylinder is covered with a kind of arch, composed of several pieces of wood called tops, which have no motion, having sheet cards fixed on them, and nearly in contact with the main cylinder. If any machine in the whole process of cotton spinning be of more use and importance than another, it is the carding engine, nor do I see how its use can at all be dispensed with; and in fact it may be said, that the process of cotton spinning, (properly speaking) begins only at the carding; for all the previous departments of the process are merely preparatory to this, and consist, chiefly, in mixing, cleaning and opening the cotton, so as that the cards may take the best effect upon it; and therefore are called the preparation. Previous to the cotton being put through the cards, the fibres may be lying in every direction into which they may accidentally be thrown; but the use of the carding engine is to draw out the fibres of the cotton, to straighten and lay them side by side, and form them into a thread commonly called an end; and this is the first formation of the thread of yarn. It is first begun in the cards, and advanced onward, step by step, through each successive machine in its order, until it is completed. When the fibres are properly straightened, and the end equally formed at the cards, there is good reason to expect a superior quality of yarn, but failing this, an inferior quality is unavoidable; for no skill or attention applied to any subsequent department of the process, can altogether remedy the injuries the cotton may have sustained in this: hence it is an object of the highest importance in cotton spinning, to have the cards always properly set, and adjusted to suit the particular kind of cotton used, and the quality of the yarn required.

In the adjusting and fitting up of cards, great care should be taken to have all their parts properly leveled; the bite of the feeding rollers should especially be on a perfect level with the centre of the main cylinder, and both cylinders should be turned to the perfect truth, and always kept so if possible; but, through the

influence of the variations of the temperature, &c., the cylinders are frequently found to go off the truth, notwithstanding all the care that may be taken to prevent it; when this takes place, the only remedy is to strip them of their sheets, and turn them anew, until they are perfectly just; for to work with card cylinders off the truth is attended with the most injurious effects upon the cotton. Seeing it is an object of some importance to keep card cylinders from going off the truth, to which they have a great tendency, particular care should be taken to have the wood well seasoned before it is made into cylinders. New carding engines should also be allowed to stand at least two months in their place, exposed to the heat of the mill, before they commence operations, during which they should be turned and adjusted several times.

The following letter refers to the first yarn that Mr. Slater made on his machinery: it is rather singular that Moses Brown should not name him, but speak of him "as an English workman from Arkwright's works," when at the time he was proprietor of one half of the machinery, while Almy and Brown had only a quarter each:—

PROVIDENCE, 19th of 4th mo. 1791.

Esteemed Friend,—I have for some time thought of addressing the Beverly manufacturers on the subject of an application to Congress for some encouragement to the cotton manufactory, by an additional duty on the cotton goods imported, and the applying such duty as a bounty, partly for raising and saving of cotton in the southern states, of a quality and cleanness suitable to be wrought with machines, and partly as a bounty on cotton goods of the same kind manufactured in the United States, or in some other manner, as may be thought advisable. It is thought that the interest of all the cotton manufacturers who work with carding and other machines, united, would effect such encouragement as would effectually prevent the English manufacturers from sending in such increased or large quantities as has been of late, and establish the business advantageously to this country. Thy sentiments, with those of the concerned, would be acceptable, and it is the desire of those concerned, this way, that you, being the first and largest, would take the lead, and devise such plan as may be most eligible to effect the purpose.

My son-in-law, William Almy, has handed me three sizes of cotton yarn: a lay of each I enclose for your inspecton. Almy and Brown, who conduct the business of the cotton manufactory, with an English workman from Arkwright's works, have often fourteen labourers of the various mechanics necessary, completed the water spinning machines to the perfection as to make the inclosed yarn,—the former mills which I had purchased, made from the state's model at Bridgewater, proving not to answer. The weavers inform me the yarn works better than any linen they have had, and takes less trouble to warp and weave it. As the doubling and twisting mill, by water, is not yet ready, Almy & Brown have had a number of pieces

of thicksets and fancy goods, made of single warps, which appear much superior to any linen warp. The two coarsest enclosed answer this purpose,—the finest would answer for cords, velvets, &c., when doubled and twisted. If you should incline to try some warps, they can supply you with almost any size, weekly, monthly, or quarterly ; that of abont 12 skeins to the pound at 6d per skein, of 1200 yards. Coarser or finer, will vary some. As we find that warps cannot be made equally as good on jennies, and apprehending that you wish to perfect the cotton manufactures, so as to preclude foreign importation, induces us to make the offer of supplying you in preference to any other works. Thy or the company's answer will be attended to by Almy & Brown, and by thy friend,

MOSES BROWN.

P. S. I have heard that I was censured by some of the concerned, as being suspected of having enticed away your workmen, but as I knew myself clear, I did not write you. But if any thing of that kind remains, and I could know what it is, I doubt not I can remove every suspicion to your satisfaction, and will endeavour to do it on notice; as I went to Beverly disapproving such conduct, I acted on the same principles, and now disavow any such conduct. I mention this, as I wish to live in harmony with all men, and especially with those in the same line of business.

Moses Brown,

To be communicated to the proprietors of the Beverly Factory.

In a letter to John Dexter, Moses Brown gives the following account, October 15, 1791:—

"In the spring of the year 1789, some persons in Providence had procured to be made a carding machine, a jenny and a spinning frame, to work by hand after the manner of Arkwright's invention, taken principally from models belonging to the state of Massachusetts, which were made at their expense, by two persons from Scotland, who took their ideas from observation, and not from experience in the business. These machines made here not answering the purpose and expectation of the proprietors, and I being desirous of perfecting them, if possible, and the business of the cotton manufactures, so as to be useful to the country, I purchased them; and, by great alterations, the carding machine and jenny were made to answer. The frame, with one other on nearly the same construction, made from the same model, and tried without success at East Greenwich, which I also purchased, I attempted to set to work by water, and made a little yarn, so as to answer for warps ; but being so imperfect, both as to the quality and quantity of the yarn, that their progress was suspended till I could procure a person who had wrought or seen them wrought in Europe, *for as yet we had not.* Late in the fall I received a letter from a young man, then lately arrived at New York, from Arkwright's works in England, informing me, his situation, that he could hear of no perpetual spinning mills on the continent but mine, and proposed to come and work them. I wrote him and he came accordingly ; *but on viewing the mills he declined doing any thing with them,* and proposed making a new one, using such parts of the old as would answer. We had by this time got several jennies, and some weavers at work on linen warps, but had not been able to get cotton warps to a useful degree of per-

fection on the jennies; and although I had found the undertaking much more arduous than I expected, both as to the attention necessary, and the expense, being necessitated to employ workmen of the most transient kind, and on whom little dependenee could be placed, and to collect materials to complete the various machines from distant parts of the continent. However, we (I say we, because I had committed the immediate management of the business to my son-in-law William Almy, and kinsman Smith Brown, under the firm of Almy & Brown), contracted with the young man from England, to direct and make a mill in his own way, which he did, and it answered a much better purpose than the former; but still imperfect, for want of other machines; *such as cards of a different construction* from those already made and re-made over; *with various other machines preparatory to the spinning.* All which, with the necessary appendages, the mechanics skilled in working of wood, iron, brass, &c. &c., were more than a twelve-month completing, before we could get a single warp of cotton perfected. During this time, linen warps were wove, and the jenny spinning was performed in different cellars of dwelling houses. But finding the inconvenience of this, we have now a factory house and dye shop erected, and occupy other buildings for the singeing, callendering, and other machines. There being a variety of branches in the perfecting of the cotton business, as the picking, soaping, stoning or dyeing the cotton: roping it, by hand or on machines, spinning, bobbin winding, weaving, cutting for velvets or other cut goods, singeing or dressing, bleaching, dyeing, and finishing, renders it more difficult, and requires longer time to perfect than many other branches of business, in a country where there are very few acquainted with it; but when each branch is learned, it may be extended to any length necessary, by means of the great advantage of the machines, in the saving of labour. There are also several other persons who manufacture cotton and linen by the carding machines and jennies, but when they make all cotton goods, they have the warps from Almy & Brown's mills,—*Samuel Slater, the young man from England, being also concerned therein.*"

To this advantage, arising from the introduction of the Arkwright Patent, Alexander Hamilton refers, in his report, as secretary of the treasury, made December 5, 1791, on the subject of manufactures:—"The manufactory at Providence *has the merit of being the first in introducing into the United States the celebrated cotton mill* (meaning Arkwright's patent) which, not only furnishes materials for that manufactory itself, but for the supply of private families, for household manufacture."

In allusion to this notice, Mr. Hunter, in his address before the Rhode Island Agricultural Society, speaks very eloquently:—"On an altar raised in decoration of manufactures, we would transfer one from a fact recorded on a more imperishable monument than the altar and temple itself,—Hamilton's report on manufactures, in 1791, in which the introduction of the first cotton mill (meaning the series of machines patented in England) in this country is mentioned, and the introducer was—*Slater.*" The claim, which

I have therefore made, is only an echo of public acclamation, issuing from the first secretary of the treasury of the United States.*

Hamilton recommends, "the encouragement of new inventions and discoveries at home, and the *introduction* into the United States of such as may have been made in other countries, particularly those which relate to machinery. This is among the most useful and unexceptionable of the aids which can be given to manufactures. The usual means of that encouragement are pecuniary rewards, and, for a time, exclusive privileges. The first must be employed according to the occasion, and the utility of the invention or discovery. For the last, so far as respects 'authors and inventors,' provision has been made by law. But it is desirable, in regard to improvements and secrets of extraordinary value, to be able to extend the same benefit to *introducers*, as well as authors and inventors, a policy which has been practised with advantage in other countries. If the legislature of the Union cannot do all the good that might be wished, it is at least desirable that all may be done which is practicable. Means for promoting the introduction of foreign improvements, though less efficaciously

* The spinning machines of Arkwright and others had not been long in operation in England, until they attracted the notice of traders in Scotland, who soon attempted what was then, to many, a most lucrative branch of manufacture. But it is difficult to plant a manufacture in a new country, even where there is no secret in the process; and the difficulty was still greater in this instance, where pains were taken to keep the business involved in mystery. Many, who had been employed in the works of Arkwright, left his service, pretending to a knowledge of the business, which they did not possess; and those men were eagerly sought after by new adventurers in both kingdoms. But, in most cases, those adventurers were no gainers by the acquisition. This may easily be conceived, when we consider how very little a great proportion of the people now employed in cotton mills know, and how much less they can communicate of the construction of the machinery, or the general system of the business; and, if such be the case at present, what must it have been at the period and place of which we are speaking. It is supposed that the first cotton spun by water, in Scotland, was in the island of Bute, in what had been a lint mill, and was afterwards, for some time, the corn mill of Rothsay. But this was only by way of trial, and before the completion of the larger cotton mill.

In the year 1782 a large mill, of six stories, was erected at Johnson; there is reason to suppose this was the first in Scotland that was productive of much profit to the proprietors. Originally, it was managed by people from England, but they proved of the description alluded to above; and the proprietors were indebted to the discernment, perseverance, and mechanical genius of Mr. Robert Burns, for rescuing the concern from ruin, and rendering the business a source of affluence.

than might be accomplished with more adequate authority, will form a plan intended to be submitted in the close of this report. It is customary with manufacturing nations to prohibit, under severe penalties, the exportation of implements and machines, which they have either invented or improved. There is something in the texture of cotton, which adapts it in a peculiar degree to the application of machines. The *cotton mill* (the Arkwright patent) invented in England, within the last twenty years, is a signal illustration of the general proposition which has just been advanced. In consequence of it all the different processes for spinning cotton are performed by means of machines, which are put in motion by water, and attended chiefly by women and children, and by a smaller number of persons, in the whole, than are necessary in the ordinary mode of spinning. This very important circumstance recommends the fabrics of cotton, in a more particular manner, to a country in which a defect of hands constitutes the greatest obstacle to success. Among the most useful and unexceptionable of the aids which can be given to manufactures, is the encouragement of new inventions and discoveries at home, and of the introduction into the United States of such as may have been made in other countries, particularly those which relate to machinery.

"Manufactories of cotton goods, not long since established at Beverly, in Massachusetts, and at Providence in the state of Rhode Island, and conducted with a perseverance corresponding with the patriotic motives which began them, seem to have overcome the first obstacles to success, producing corduroys, velverets, fustians, jeans, and other similar articles, of a quality which will bear a comparison with the like articles brought from Manchester. Other manufactories of the same material, as regular business, have also been begun at different places in the state of Connecticut, but all upon a smaller scale than those above mentioned. Some essays are also making in the printing and staining of cotton goods. There are several small establishments of this kind already on foot. The printing and staining of cotton goods is known to be a distinct business from the fabrication of them. It is one easily accomplished, and which, as it adds materially to the value of the article in its white state, and prepares it for a variety of new uses, is of importance to be promoted."

Connected with the above report, Moses Brown states:—"The public spirit of the Massachusetts legislature on this subject, as well as Pennsylvania, are to be applauded, and in justice to the latter I mention this circumstance:—The publication of their

grant to a certain person for a certain machine in this manufactory, reaching England, and coming to the knowledge of the workmen at Arkwright's mills, occasioned the young man, Slater, before mentioned, privately coming to America, and perfecting the first water-spinning in the United States that I have heard of,—though I am informed a company from England are about to erect mills near New York, for which the machinery is making at New Haven. It is an undoubted fact, authenticated to me by divers persons from England, that the king has frequently made proclamation against any tradesmen leaving the kingdom, and called on his officers for their most vigilant watch against it, as well as against any draft of machinery being carried out. This, also, should excite our attention to those advantages, which they find of so much consequence to that country."

These remarks of Moses Brown show that he was a man of enlarged and sagacious views of the importance of the cotton manufacture, and in his joining with the introducer in his endeavours to establish it, as appears also by his further remarks:—"I have been lengthy on this subject, not only because my family have engaged in it, but because I conceive from the advantage of the mills, and other machines, and the raising of the raw materials among ourselves, this country may avail itself of one of the most valuable manufactories, from which every part of the Union may be supplied. I apprehend this subject would have been laid before congress, by the united representation of the cotton manufacturers, had not some states liberally contributed to the promotion of it, particularly Massachusetts, and the incorporated company at Beverly have partaken largely of their bounty, in proportion to what they have done. Whether under an idea that the assistance they had received would have enabled them to go on, while others would be under a necessity of discontinuing the business, (as some have in fact, which they would not have done but for want of that assistance in the same government, namely, the factory at Worcester,) or whatever other reason the Beverly company may have, they have not come forward as expected. I have mentioned yarn, as the importation of that article from India has been suggested by the late manufacturing committee in Philadelphia, at which time, no good yarn had been made fit for warps. But, as the manufactory of the mill yarn (meaning the Arkwright patent) is done by children from eight to fourteen years old, it is as nearly a total saving of labour to the country as perhaps any other that can be named, and therefore no importation of the yarn ought to be admitted without a large impost, if at all—as the

secretary may be assured that mills and machines may be erected in different places, in one year, sufficient to make all the cotton yarn that may be wanted in the United States, both for warps and for knitting and weaving stockings, were encouragement given to protect the manufactures from being intercepted in the sale, by foreign importation." Such was the confidence that Moses Brown had in the skill and enterprise of Samuel Slater, in July 1791, that he believed he would cause to be erected sufficient machinery to supply the whole continent with yarn, in a year from that time. "There are also cotton and linen goods manufactured at East Greenwich; their cotton warps are made at the aforesaid mills, (meaning by Almy, Brown and Slater) the quantities manufactured by those several persons, and others, in the common way of family work, I expect will be given an account of by themselves, or collected by the mechanical and manufacturing society of this town; I therefore refer to them. For the degree of maturity our cotton manufacture has obtained, and their different qualities, I refer to the patterns of the mill yarn, and goods made from warps of it herewith sent; the prices sold at are also marked."

Some of Mr. Slater's first yarn, and some of the first cotton cloth made in America, from the same warp, was sent to the secretary of the treasury, the 15th October, 1791, and may possibly be preserved in the secretary's office, as Mr. Clay says he has some of the first yarn, which is said to be as fine as No. 40. As to the impediments under which this business laboured, Moses Brown observes,—"No encouragement has been given by any laws of this state, nor by any donations of any society or individuals, but wholly begun, carried on, and thus far perfected, at private expense." I have never heard of any premium or advantage conferred on Mr. Slater, for his introducing the cotton manufacture, or for his establishing it on a permanent basis; but his own money and time were pledged to the object. "The manufacture of iron into blistered steel, equal in quality to English, has been begun, within about a year, in North Providence, and is carried on by Oziel Wilkinson, who informed me he can make a good business at ten per cent. for the steel in blister, returning weight for weight with the iron manufactured; the drawing into bars of any shape, being an additional charge. I thought of speaking, also, of pig and bar iron, slitting it into nail rods, rolling into hoops and plates, making it into spades and shovels, hot and cold nails, anchors, &c. all in this district."

Little more than sixty years since, every thread used in the manufacture of cotton, wool, worsted, and flax, throughout the

world, was spun singly, by the fingers of the spinner, with the aid of that *classical* instrument, the domestic spinning-wheel. In 1767 an *eight-handed* spinster sprung from the genius of Hargreaves; and the *jenny*, with still increasing power, made its way into common use, in spite of all opposition. Two years afterwards, the more wonderful invention of Wyatt, which claims a much earlier origin, but which had disappeared, like a river that sinks into a subterraneous channel, and now rose again under the fortunate star of Arkwright, claimed yet higher admiration, as founded on principles of more extensive application. Five years later, the happy thought of combining the principles of these two inventions, to produce a third, much more efficient than either, struck the mind of Crompton, who, by a perfectly original contrivance, effected the union. From twenty spindles, this machine was brought, by more finished mechanism, to admit of a hundred spindles, and thus to exercise a Briarean power. Kelly relinquished the toilsome method of turning the machine by hand, and yoked to it the strength of the rapid Clyde. Watt, with the subtler and more potent agency of steam, moved an iron arm that never slackens or tires, which whirls round two thousand spindles in a single machine. Finally, to consummate the wonder, Roberts dismisses the spinner, and leaves the machine to its own infallible guidance. So that, in the year 1834, several thousand spindles may be seen in a single room, revolving with inconceivable rapidity, with no hand to urge their progress or to guide their operations,—drawing out, twisting, and winding up, as many thousand threads, with unfailing precision, and indefatigable patience and strength; a scene as magical to the eye which is not familiarised with it, as the effects have beeen marvelous in augmenting the wealth and population of the country. If the thought should cross any mind, that, after all, the so much vaunted genius of our mechanics has been expended in the insignificant object of enabling men better to pick out, arrange, and twist together the fibres of a vegetable wool,—that it is for the performance of this minute operation that so many energies have been exhausted, so much capital employed, such stupendous structures reared, and so vast a population trained up; we reply—an object is not insignificant because the operation by which it is effected is *minute*. The first want of men in this life, after food, is *clothing;* and as this art enables them to supply it far more easily and cheaply than the old methods of manufacturing, and to bring cloths of great elegance and durability within the use of the humble classes, it is an art whose utility is inferior only to that of agriculture. It contributes directly, and most

materially, to the comforts of life, among all nations where manufacturers exist, or to which the products of manufacturing industry are conveyed; it ministers to the comfort and decency of the poor, as well as to the taste and luxury of the rich. By supplying one of the great wants of life, with a much less expenditure of labour than was formerly needed, it sets at liberty a large proportion of the population, to cultivate literature, science, and the fine arts. To England, the new inventions have brought a material accession of wealth and power. When it is also remembered that the inventions, whose origin I have endeavoured carefully to trace, are not confined, in their application, to one manufacture, however extensive, but that they have given nearly the same facilities to the woollen, the worsted, the linen, the stocking, and the lace manufactures, as to the cotton; and that they have spread from England to the whole of Europe, to America, and to parts of Africa and Asia; it must be admitted that the mechanical improvements, in the art of spinning, have an importance which it is difficult to over-estimate. By the Greeks, their authors would have been thought worthy of deification; nor will the enlightened judgment of moderns deny that the men, to whom we owe such inventions, deserve to rank among the chief benefactors of mankind.

It is not a little remarkable that Watt's patent, "for lessening the consumption of steam and fuel, in fire engines," should have been taken out in the same year as Arkwright's patent for spinning with rollers, namely, 1769,—one of the most brilliant eras in the annals of British genius;—when Black and Priestley were making their great discoveries in science; when Hargreaves, Arkwright, and Watt revolutionised the processes of manufactures; when Smeaton and Brindley executed prodigies of engineering art; when the senate was illuminated by Burke and Fox, Chatham and Mansfield; when Johnson and Goldsmith, Reid and Beattie, Hume, Gibbon, and Adam Smith, adorned the walks of philosophy and letters; and Whitfield, Hervey, and Cowper, reformed the protestant churches of Christendom.

To turn from these high names to the subject of our memoir. The Rhode Island society for the encouragement of domestic industry always treated Mr. Slater very respectfully, and the following letter was filed among his papers:—

Samuel Slater, Esq., Pawtucket.

PROVIDENCE, 28th Feb. 1820.

Sir,—By the primary laws and list of the officers of the Rhode Island Society for the Encouragement of Domestic Industry, herewith forwarded, you will observe, that you are elected one of the vice presidents thereof.

The society will deem themselves highly honoured in enrolling, among their chief officers, one of the earliest pupils of Arkwright, one who has done so much for the promotion of domestic industry, peace and comfort, and one whose private character is so deservedly and universally respected by the whole community.

I perform a pleasing duty while I respectfully solicit in behalf of the society your acceptance of the office to which you have been chosen. I am with sincere respect, your obedient servant,

WM. E. RICHMOND. *

The state of Rhode Island justly claims the honour of being one of the earliest seats of the mechanic arts and of manufactures, on this side of the Atlantic. It has sustained, through the successive periods of its history, the character of a manufacturing and agricultural district.

A correspondent writes, in reference to the fact that Mr. Slater's mind was first directed to Philadelphia, some reflections on the supposition that he had taken that course, instead of wending his way to Providence:—"Can there be any doubt that if Mr. Slater had turned his steps towards Philadelphia, as he had thought, that his undertaking would then have been attended with success? In such an event what would have been the relative position of Pennsylvania and Rhode Island at the end of twenty years from that time, compared with their actual state at the close of that period, in regard to manufactures of cotton? Is it not seen that almost the entire business of the country, which had become considerable at that time, was made up of different ramifications from the original stock imported from Belper, and planted at Pawtucket? Would the flood of labourers coming into the country and enriching it with their skill, have been directed to the village of Pawtucket? Or would it not have rather set in the direction of Philadelphia? And would not the result of all this have been a very different state of things, even to this day, than exists now? These reflections, or similar, may aid in determining who was the *principal*, and who aided and abetted only.

"It is certain, that an individual in a distant land, with the definite and well matured design of establishing the cotton manufacture in this country, on a plan the best then existing, did, after months spent in perfecting himself at the fountain head in all the various knowledge necessary to render success certain, leave bright prospects, and an eligible situation in his native land, and bidding adieu to his home, embarked for this country, with a spirit which it cannot be doubted, with his means, must with certainty, his life being spared, have gained for him the merit, whatever it might be, of first establishing on a firm basis the cotton business

in this country, without the aid of any *one* patron in particular; what the result was is pretty well known. You are aware that before the introduction of the Arkwright process of manufacturing cotton, there had been attempts made by Mr. Brown to prepare yarns from cotton, on certain machines, to which he alludes in his letters of that period, for the purpose of filling upon linen warps. That these machines (for spinning only, for the carding was done in families, by hand) did not answer the purpose, appears from Moses Brown's own letter, as also that there were no persons who had seen the operation of the Arkwright machinery, and that all the machines which an attempt had unsuccessfully been made to operate previous to the year 1790, at Pawtucket, or elsewhere in the United States, could not have been profitably carried on with the greatest degree of skill, and must therefore have been abandoned, must be obvious to those who are acquainted with their utter worthlessness compared with the Arkwright machinery. I am very much gratified at the aspect of testimony in relation to the moral influence of manufacturing establishments, and think that the facts of the case cannot fail to weigh favourably upon the public mind."

Mr. Slater's connection with the Wilkinson family, as mentioned by Moses Brown and Tristram Burgess, was certainly a circumstance which led greatly to the promotion of business in Pawtucket. David Wilkinson became a machinist of great skill, and carried on the business in an extensive manner. He is a man of great enterprise and judgment, and his failure in 1829 was very much regretted. The capitalists of Rhode Island ought not to have allowed David Wilkinson to leave the state. But he is now planted at Caboose Falls, and that place has already felt the benefit of his business talents, and his ardent zeal in internal improvement.

Perhaps nothing will show more clearly the part which Moses Brown took in early life, than the following letter:—

To Moses Brown, Esq.

PROVIDENCE, July 7th, 1791.

Sir,—I take the liberty to send you the enclosed, being the copy of a letter which I received a day or two since, from the secretary of the treasury, and to request you to give me, as soon as convenient, in writing, such information as you may possess, (and which the secretary is solicitous to obtain,) on the subjects stated in his letter. You will readily conceive that a transmission of the information requested, to the secretary, may involve consequences favourable to the manufacturing interest in this state. I address myself to you on this subject with the more confidence from a full conviction, that as no one in the state has more at heart the encouragement of our

infant manufactures—has been more indefatigable and liberal in the establishment, improvement and use of them than yourself, so no one can possibly possess a more competent knowledge of their commencement, progress, and present state. I am, sir, your obedient servant,

JNO. S. DEXTER.

In connecting the name of Slater, with the first successful introduction of manufacturing machinery into this country, it will not be amiss to draw on the eloquence of a distinguished statesman of Rhode Island. Mr. Burgess remarks:—

"A circumstance worthy of the attention of the whole nation, and worthy also, of a fair page in her history, is the art and mystery of making cloth with machinery moved by water power. This was introduced into Rhode Island, and commenced in Pawtucket, four miles from Providence, about the same time that the American system was established, by the impost law of July 4th, 1789. Samuel Slater, an English mechanic of the first order of mental ability, brought this invention to Pawtucket. He could not bring out from England, models, draughts, or specifications. The whole art was treasured in his own mind; that alone, which could not be rummaged and pillaged by any custom-house regulation. He, on his arrival, addressed himself to Oziel Wilkinson and sons. They were blacksmiths, whose hands were as skilful as their minds were intelligent and persevering. I have often thought Divine Providence directed *Slater*, and brought him to lay his project before the Wilkinsons; because he had not fitted any other men in this country, with minds and abilities, either to see, and at once comprehend the immense benefit of it; or to understand and perform, what must be understood and performed, to bring this scheme into full and perfect operation. I will not detain the house to enumerate or even mention any benefits resulting to those who have, from that time to this, engaged in the cotton trade. What was the condition then, and what is now the condition, of the consumption of cotton cloths in your country? A yard of cloth, then, made by the wheel and loom, cost fifty, and never less than forty cents. It may now be had for nine or ten cents. A trade so productive of public benefit will be duty appreciated by all patriots. The law of July 4, 1789, was enacted by the almost unanimous voice of the whole nation. By this law the great scheme was commenced. The law of protection, enacted in 1816, was equally national; men from the east, the north, the south, and the west, equally supported the measure. The bill was laid before the house by the lamented Lowndes, of South Carolina. It was advo-

cated, in every stage of its progress, by another distinguished individual of the same state. When it passed this house, Hall and Lumpkin of Georgia, Cannon and Powell of Tennessee, Basset and Barbour of Virginia, voted in favour of its passage. So far as the bill related to the cotton trade, it was enacted with the sole view to the protection of that great and increasing interest. It was then known and acknowledged, though it seems now to be forgotten, that this law for the protection of the cotton trade, was founded on a most able, luminous, and statesman-like report, made to that congress, by the chairman of the committee on commerce, another distinguished gentleman from Virginia, Mr. Newton."

In repeating the evidence, in relation to the foregoing facts, it appears that previous to 1790, the year in which Samuel Slater arrived in this country, there had been introduced into the United States, at Providence, New York, Beverly, Worcester, &c. "jennies," and "billies," with cards, for the spinning of cotton filling, to be wove into velverets, jeans, fustians, &c., with linen warps, chiefly by Scotish and Irish spinners and weavers; and the history of these times declares the imperfection of the above machinery to be such as to preclude the manufacture of cotton cloth, or cotton yarn for warps, and that there was a desire to import cotton yarn from India: that it was even inadequate and its operations deficient and expensive in its immediate application; and further, that under such difficulties and perplexities, it was entirely beyond the power of American manufacturers to compete with foreign goods introduced by British agents and American merchants, even when they received legislative aid, as they did at Beverly.

The citizens of Massachusetts—perplexed and involved in their incipient and imperfect attempts at the manufacturing of cotton goods, and fully aware of the importance of introducing a better system of machinery, which they knew to be in successful operation in England—exerted themselves to obtain a model of the Arkwright patent. But finding no person able to construct that series of machines, and unable to obtain one from England, in consequence of the heavy and severe penalties imposed by the British government on the exportation of mechanism, they entirely failed in their first attempts. In this downcast period of American manufactures, Samuel Slater, then in the employ of Strutt & Arkwright, having seen a premium offered by the Pennsylvania Society, for a certain machine to spin cotton, was induced to leave his native country and come to America. On his arrival, being informed that Moses Brown had made attempts in water spinning

at Providence, he immediately repaired thither. On viewing Moses Brown's machinery, he pronounced it worthless, and induced him to lay it aside. At this period, without the aid of a single individual skilled in making machinery, Samuel Slater constructed the whole series of machines on the Arkwright plan, and put it in operation so perfectly, as to supply all the establishments with cotton warps, superior to linen—and in fourteen months, Moses Brown informed the secretary of the treasury that machinery and mills could be erected within one year to supply the whole United States with yarn, and render its importation unnecessary. Such is the amount of evidence of the introduction of the Arkwright machinery into this country. If the manufacturing establishments are in reality a benefit and blessing to the Union, as Mr. Clay observes, the name of Slater must ever be held in grateful remembrance by the American people.

Mr. Slater began his machinery under every disadvantage; for though he had full confidence in his own remembrance of every part and pattern, and in his ability to perfect the work, according to his agreement, he found it difficult to get mechanics who could make any thing like his models.

His greatest perplexity was in making the cards; for which purpose he employed Phinney Earl, of Leicester, who had never before made any machine cards of that description. This circumstance gave rise to the published anecdote of his dream, by which it was said he had been extricated from his embarrassment. There is no wish to deny the possibility of such an occurrence, if such had been the fact; but I enquired of Mr. Slater, two years previous to his decease, and he assured me such was not the case. He related to me the reality of his obstructions:—after his frames were ready for operation, he prepared the cotton, and started his cards; the cotton rolled up, on the top cards, instead of passing through the small cylinder. This was a great perplexity to him, and he was for several days in great agitation. The family in whose house he boarded have since described his trial to me. When leaning his head over the fireplace, they heard him utter deep sighs, and frequently saw the tears roll from his eyes. The family had become interested in his favour. He said but little of his fears and apprehensions; but Mrs. Wilkinson perceived his distress, when she said to him, "art thou sick, Samuel?" When he explained to the family the nature of his trial, he showed the point on which he was most tender:—"If I am frustrated in my carding machine, they will think me an impostor." He was apprehensive that no suitable cards could be obtained, short

of England—and from thence none were allowed to be exported.

After advising with Mr. Earl, and pointing out to him the defect, he perceived that the teeth of the cards were not crooked enough, as they had no good card leather, and were pricked by hand, the puncture was too large, which caused the teeth to fall back from their proper place. They beat the teeth with a piece of grindstone, which gave them a proper crook, and the machinery moved in order, to his great relief—and to the joy of his friends. Moses Brown told me, that the machinery was so much longer in preparation than he expected, that he was discouraged. Mr. Slater, knowing this anxiety, and that he was liable to lose the confidence of his partners by the complete failure on his first trial of the cards, and knowing that he could appeal to no one, who could judge of the correctness of the machinery, it was no wonder that he was distressed, or that it occupied his thoughts day and night—his sleeping and waking hours. This circumstance gave rise to the report of the dream.

Another rumour which has spread far and wide, calls for contradiction and explanation. It has been positively asserted, that the British government employed a person to assassinate Mr. Slater, by means of an infernal machine; similar, it is said, in its operation, to the one employed to attempt the life of Napoleon. I never believed this story worthy of any attention, till Mr. and Mrs. Slater made us a visit in Canterbury in 1827. His coachman told it as an undoubted truth among the inhabitants of the village; it received implicit credit, on account of the supposed knowledge of his driver, and it was spread as a Canterbury tale. I therefore applied to my friend for a correct exposition of the circumstance:—he assured me there was no ground whatever for such a representation. It arose from the circumstance of a box of clothes being sent him from England, and it was stopped in the custom-house in New York, which the following letter to Moses Brown, Providence, and endorsed by him will show.

PAWTUCKET, July 1st, 1790.

Sir—I have received letters from England that there is a box at New York with some clothes, which the officers have stopt, the impost not being paid. The clothes are new, but made for my use, and I supposed they would be free of duty. Should be glad if you would use such means as you think best, to get them with little or no duty, and oblige yours, &c.

SAMUEL SLATER.

N.B. I suppose there is more than a hundred dollars of clothes in the box.

As a box actually came from England, which was directed to Mr. Slater, and as there was a correspondence with the officers of the customs, relative to the detention of the box; with some remaining jealousies at that time towards old England, it was no wonder under all the circumstances of the case, that such an evil surmise should have arisen, and spread as a true report.

The public are assured that I have the fullest authority for the above explanation. The tailor's bill of these very clothes is now in possession of the family, and some of the buttons of the coat. The tailor, at Belper, occupied a store of Mr. Slater's, which was given him by his father, and these clothes were sent to pay the rent.

As it has been observed, Mr. Slater started his cards in the water-wheel belonging to the clothier's shop, which was so exposed that it was frozen every night. He could get none to expose themselves to break the ice, in order to start the wheel in the morning. Those who can well remember the fact, informed me, that he spent two or three hours breaking the ice, before breakfast, till he was wet and cold, and his limbs benumbed, which affected him very much. This exposure laid the foundation of those chronic disorders, from which he suffered so much in the latter part of his life.

He took care to have his water-wheel, when he built his first mill, under cover, having experienced the bad effects of a frozen wheel. The first winter he spun on his frames, he endured great hardships: and when he had produced an excellent yarn, there was but little sale for it.

He had to instruct the boys who assisted in the mill, and commence the factory regulations; as nothing of the kind was known here.* The following is his first account of time and wages with his workpeople.

* The wise and active conquer difficulties,
By daring to attempt them; sloth and folly
Shiver and shrink at sight of toil and danger,
And make the impossibility they fear.

CARDERS AND SPINNERS' TIME LIST.

Decemb. 1790.	M 20	T 21	W 22	T 23	F 24	S 25	No.	NAMES.	TIME. D.	WAGES. S.	MONEY PAID. £. s. d.
							1	Arnold, Torpen,	6		
							2	Do. Charles,	6		
							3	Wilkinson, Smith,	6		
							4	Jenks, Jabez,	6		
	27	28	29	30	31	1					
							1	Arnold, Torpen,	6		
							2	Do. Charles,	6		
							3	Do. Eunise,	6		
							4	Jenks, Jabez,	6		
	4	4	4				5	Do. Jno.	3		
	4	4	4				6	Do. Varnus,	3		
	4	4					7	Borrows, Otis,	4		
							8	Wilkinson, Smith,	6		
January 1791.	3	4	5	6	7	8					
							1	Arnold, Torpen,	6		
							2	Do. Charles,	6		
							3	Do. Eunise,	6		
							4	Do. Ann,	6		
							5	Jenks, Jabez,	6		
							6	Do. John,	6		
							7	Do. Varnus,	6		
							8	Wilkinson, Smith,	6		
							9	Borrows, Otis,	6		
	10	11	12	13	14	15					
				2		2	1	Arnold, Torpen,	5		
							2	Do. Charles,	6		
							3	Do. Eunise,	6		
							4	Do. Ann,	6		
							5	Jenks, Jabez,	6		
							6	Do. John,	6		
						4	7	Do. Varnus,	6		
							8	Wilkinson, Smith,	5		
							9	Borrows, Otis,	6		

The factory system in England takes its rise from the period of the trial concerning the validity of the patent, by Arkwright, in 1785. Hitherto the cotton manufacture had been carried on almost entirely in the houses of the workmen, the hand or stock cards, the spinning wheel, and the loom, required no larger apartment than that of a cottage. A spinning jenny of small size might also be used in a cottage, and in many instances was so used; when the number of spindles was considerably increased, adjacent work-shops were used. But the water-frame, the carding engine, and the other machines which Arkwright brought out in a finished state, required both more space than could be found in a cottage, and more power than could be applied by the human arm. Their weight also rendered it necessary to place them in strongly built mills, and they could not be advantageously turned

by any power then known, but that of water. The use of machinery was accompanied by a greater division of labour than existed in the primitive state of the manufacture; the material went through many more processes, and of course, the loss of time, and the risk of waste, would have been much increased, if its removal from house to house at every stage of the manufacture, had been necessary. It became obvious that there were several important advantages in carrying on the numerous operations of an extensive manufacture in the same building. Where water power was required, it was economy to build one mill, and put up one water-wheel, rather than several. This arrangement also enabled the master spinner himself to superintend every stage of the manufacture; it gave him a greater security against the wasteful or fraudulent consumption of the material—it saved time in the transference of the work from hand to hand, and it prevented the extreme inconvenience which would have resulted from the failure of one class of workmen to perform their part, when several other classes of workmen were dependent upon them. Another circumstance which made it advantageous to have a large number of machines in one manufactory, was, that mechanics must be employed on the spot, to construct and repair the machinery, and that their time could not be fully occupied with only a few machines. All these considerations drove the cotton spinners to that important change in the economy of English manufactures—the introduction of the factory system; and when that system had once been adopted, such were its pecuniary advantages, that mercantile competition would have rendered it impossible, even had it been desirable, to abandon it. The enquiry into the moral and social effects of the factory system, will deserve our attention. Though Arkwright, by his series of machines, was the means of giving the most wonderful extension to the system, yet he did not absolutely originate it. Mills for the throwing of silk had existed in England, though not in any great number, from the time of Sir Thomas Lombe, who in 1719 erected a mill on the river Derwent, at Derby, on the model of those he had seen in Italy. Wyatt's first machines, at Birmingham, were turned by asses, and his establishment at Northampton by water; so Arkwright's first mill, at Nottingham, was moved by horses; his second, at Cromford, by water. During a period of ten or fifteen years after Mr. Arkwright's first mill was built (in 1771) at Cromford, all the principal works were erected on the falls of considerable rivers; no other power than water having then been found practically useful.

Those who have not taken the trouble to witness, or to enquire into, the process by which they are surrounded with the conveniences and comforts of civilised life, can have no idea of the infinite variety of ways in which invention is at work to lessen the cost of production. The people of India, who spin their cotton wholly by hand, and weave their cloth in a rude loom, would doubtless be astonished when they first saw the effects of machinery in the calico which is returned to their own shores, made from the material brought from their own shores, cheaper than they themselves could make it. But their indolent habits would not permit them to enquire how machinery produced this wonder. There are many amongst us who only know that the wool grows on the sheep's back, and that it is converted into a coat by labour and machinery. They do not estimate the prodigious power of thought—the patient labour—the unceasing watchfulness—the frequent disappointment—the uncertain profit—which many have had to encounter in bringing this machinery to perfection. How few, even of the best informed, know that in the cotton manufacture, which from its immense amount, possesses the means of rewarding the smallest improvement, invention has been at work, and most successfully, to make machines that make the cotton thread. There is a part of the machinery used in cotton-spinning called a reed. It consists of a number of pieces of wire, set side by side in a frame, resembling, as far as such things admit of comparison, a comb with two backs. These reeds are of various lengths and degrees of fineness, but they all consist of cross pieces of wire, fastened at regular intervals between longitudinal pieces of split cane, into which they are tied with waxed thread, and the machine cuts the wire, places each small piece with unfailing regularity between the canes, twists the thread round the cane with a knot that cannot slip, every time a piece of wire is put in, and does several yards of this extraordinary work in almost as little time as it takes to read this description.

The most marked traits in the character of Arkwright were his wonderful ardour, energy, and perseverance. He commonly laboured in his multifarious concerns, from five o'clock in the morning till nine at night; and when considerably more than fifty years of age,—feeling that the defects of his education placed him under great difficulty and inconvenience in conducting his correspondence, and in the general management of his business,—he encroached upon his sleep, in order to gain an hour each day to learn English grammar, and another hour to improve his writing and orthography. He was impatient of whatever inter-

fered with his favourite pursuits; and the fact is too strikingly characteristic not to be mentioned, that he separated from his wife not many years after their marriage, because she, convinced that he would starve his family by scheming when he should have been shaving, broke some of his experimental models of machinery.

Arkwright was a severe economist of time, and, that he might not waste a moment, he generally traveled with four horses, and at a very rapid speed. His concerns in Derbyshire, Lancashire, and Scotland, were so extensive and numerous, as to show at once his astonishing power of transacting business, and his all-grasping spirit. In many of these he had partners, but he generally managed in such a way, that, whoever lost, he himself was a gainer. So unbounded was his confidence in the success of his machinery, and in the national wealth to be produced by it, that he would make light of discussions on taxation, and say that *he* would pay the national debt! His speculative schemes were vast and daring; he contemplated entering into the most extensive mercantile transactions, and buying up all the cotton in the world, in order to make an enormous profit by the monopoly; and from the extravagance of some of these designs, his judicious friends were of opinion, that if he had lived to put them in practice, he might have overset the whole fabric of his prosperity.

Moses Brown introduced Mr. Slater to Oziel Wilkinson of Pawtucket, R. I., as a suitable place for him to board; as the stranger came into the house, the two daughters, as is not uncommon, ran out of sight; but Hannah lingered with curiosity, and looked through an opening in the door: Samuel saw her eyes, and was interested in her favour. He loved at first sight, but it was sincere, it was permanent, nothing but death could have severed the ties which endeared him to Hannah Wilkinson. He was happy in fixing his affections so soon on one who loved him, and on one so worthy; that loadstone served to bind him to Pawtucket, when every thing else appeared dreary and discouraging. The parents of Hannah being Friends, they could not consistently give consent to her marriage out of the society, and talked of sending her away some distance to school; which occasioned Mr. Slater to say,—"You may send her where you please, but I will follow her to the ends of the earth."

Though absorbed in perplexing business, his hours of relaxation were cheering; he spent them in telling Hannah and her sister the story of his early life, the tales of his home, of his family connections, and of his father-land.

This introduction was one of the favourable circumstances that

finally secured his success. In Oziel Wilkinson's family, he found a father and mother, who were kind to him as their own son. He was not distrustful of his ability to support a family—did not wait to grow rich before marriage, but was willing to take his bride for better and for worse, and she received the young Englishman as the man of her choice, and the object of her first love. This connection wlth Oziel Wilkinson was of great service to him, as a stranger, inexperienced in the world beyond his peculiar sphere. Besides, it is well known, that sixty years since, the contrast of character of New England men and manners, in men of business, and other peculiarities, were very great between the two countries. He found consolation in that family, he found a *home*. Those who have left their native country, know something of what Slater felt when he was "home-sick." On seeing the old and worthless machinery, as Moses Brown expressed it, "Samuel felt *down-hearted*." No one knows the heart of a stranger but he who has been from home in a strange land, without an old acquaintance, without a tried friend to whom he could unbosom his anxieties—without confidence in those around him, and others without confidence towards him. These are sorrows only known to the sufferer who knows the heart of a stranger, and no sympathies can be expected but from those who have trodden in the same path. Mr. Slater always treated the numerous strangers who flocked to him for advice, assistance, or employment, with marked attention, without partiality and without hypocrisy.

It is easy to conceive that his correspondence with his old schoolmaster must have been highly gratifying to his feelings. In that way he heard of what they were doing in Belper, and proved the truth of the assertion, how valuable is good news from a far country.

BELPER, 11th Jan. 1792.

My dear friend,—I am much obliged to you for the favour of your letter, and with pleasure embrace this opportunity of answering it; though the Atlantic rolls between us, I hope our friendship will remain undiminished. I wish you every felicity which the honourable state you have entered into can afford—may you enjoy a long life of domestic comfort and prosperous fortunes, is my sincere wish. I myself have ventured to put on the shackles of matrimony, and find in it those charms which I in vain sought for in the idle and dissipated pursuits of a single life—though I am willing to hope I never materially trespassed against the laws of decorum.

I have delayed writing, some weeks, in order to be able to answer some of your enquiries more decidedly than I am at present able to do. This is the most important era which the history of the world has ever furnished. All is agitation and confusion; what the event will be, God only knows.

You have no doubt heard of the fate of the combined armies against France, and the success of the French commanders, Dumourier, Castine, &c., in Brabant and Germany. They have carried all before them; but I fear the French, elated with victory, are now aiming at too much. They seem, contrary to their former declarations, to be actuated by the desire of conquest. They have added Savoy to the republic as an 84th department. I am a warm admirer of the French revolution, as it is likely to establish the liberty of twenty-six millions of my species; but I lament, grievously lament, the many disorders with which it has been attended. The fate of the king I cannot send you, though it will finally be decided in a few days; they are now trying him, his defence has been heard by counsel; Deseze, his first counsel, dealt long and ably on the acts of the new constitution, which declares the inviolability of the king's person. I believe the business will be finally decided by the people at large, in their primary assemblies; and I believe that perpetual banishment will be the sentence. At least I hope this, for if they touch his life, there is not a state in Europe but what will join the detestable crusade against them. Indeed, there is something in the fate of monarchs which is interesting to the mind; I know it is a remain of the doctrine of divine right, which was formerly so prevalent in all countries. I own I shall feel hurt if they touch Louis's life, though I think him guilty. Much, very much, depends on the event, not only to France, but the world. France, I believe, is pretty free from internal commotions at present; but various preparations are making for the next campaign, in Germany, Prussia, Russia, &c. *Britain* and Holland, too, are arming to fall upon her next spring. They have given umbrage to their high mightinesses by attempting to open the river Scheldt. We, you know, are in alliance with Holland and Prussia; we, that is, our government, must assist them for that reason, but perhaps more for others, which will readily occur to you. A republic like France, cannot be a pleasant thing to a certain description of men, and I believe all that can be done will be done to crush it. But an armament is nothing with us; it is but an annual advertisement; we have had four in as many years, yet no war. However, I believe we have now a pretext for a war with France. Yesterday's papers inform us that an English sloop of war received a shot from the batteries at Brest,—quere, did not she go to provoke them? I believe the people in general of this country do not wish for war. Every thinking man knows we have a flourishing trade, which war must very much injure; he knows, too, that we have a public debt of upwards of two hundred and seventy millions, and a revenue to raise in these times of peace of seventeen mllions annually, yet we are purse proud. As to the stadtholder, I cannot suppose he has forgotten the disturbances of his people four years since. Does he think they have forgotten it? If he puts his finger in this fire, I am much mistaken if he will not have to call in Prussia and us to quell them again. Spain has declared her intention of neutrality in case the king's life is spared. I would here ask you what part America will take in case Britain does declare war against France. I think I can see it. I believe America will not overtly assist her by declaring formal war; but your ports will be open to France; you will fit out privateers under French colours. I fear, my friend, this will be the case, and that harmony which exists between this country and you will be suspended, perhaps to the inconvenience of both. It is rumoured that Turkey is arming

against Russia, but of the truth of this I can say nothing. This country, with respect to politics, never stood in so precarious a situation. Societies have been formed in various places for the discussion of constitutional subjects for the purpose of promoting a reform of parliament. Government has taken the alarm, and loyal meetings are calling in every considerable town in the kingdom to testify their adherence to the present government. Much difference of opinion prevails in parliament, and the business is discussed in a very intemperate manner, every night in every inn and alehouse in the kingdom. I am a friend to reform, because our representation is unequal, and dislike the conduct of both of the parties, because I think them both wrong. I am well assured that our present government, a mild and good constitution compared with others, is best for us; but many things call loudly for amendment. A few persons have avowed republican principles, and insisted too much for the introduction of French politics to this country. For America, I am sensible a republican (that is, the representative) form of government is best. But for Britain, a limited monarchy, certain. I have no room to give you my reasons for this. —— made an able and manly speech at the opening of parliament. It will find its way to America, and is well worth perusal; it has been published some time. Burke rants against reformers and the "swinish multitude," as usual. Thomas Paine is one of the members of the French convention; he has been tried for treason. Rights of Man, parts 1 and 2, and Common Sense, condemned as a libel on our constitution. Many other persons are in prison, and in the courts of justice, for publishing what are termed seditious writings. French refugees are so numerous, and government is so alarmed, that a bill is now in the house of commons and will soon be passed, entitled the "Alien Bill," which will empower officers to search all foreigners who may arrive in Britain, and scrutinise them as to their means of living here, and their business. How will your independent republican merchants like this? From this you will see that this is not the happiest of countries. Happy America, thou hast no such foes—thou art free; and thy sons and daughters are not harassed by political arts. I have said nothing on local subjects, as I supposed your other friends would supply that. John Spencer, senr. was lately drowned. Sir R. Arkwright is *dead*. James Liggit is at Canterbury—I believe doing well. Messrs. Strutts go on swimmingly—they are erecting a very large mill at Belper; and Mr. George is beginning to build himself a noble house on the bridge hill, just above the watering troughs. Present my respects to Mrs. Slater, and believe me yours very sincerely,

T. J.

To Samuel Slater, North Providence, North America.

This letter from Mr. Jackson, shows that he was an intelligent man; and he appears to have continued his correspondence with his pupil.

Smith Wilkinson, Esq., the principal owner of that fine estate, called the Pomfret factory, Connecticut, has favoured me with his early recollections in relation to the commencement of the business in Pawtucket, as the following extract will evince:—

"Mr. Slater boarded in my father's family, at which time there were only a few houses, while building his first machinery, and in the course of the year was married to my sister Hannah, who died in 1812, leaving six sons quite young, having buried four children. When the manufacturing business first commenced in Pawtucket, it may be very naturally supposed that it was frequently a subject of conversation, especially in a family so immediately connected with it. I recollect to have heard frequent conversations on the subject, in which the state and progress of the business was discussed.

"An attempt to manufacture cotton was made at Derby, in Connecticut, under the patronage of Colonel Humphreys, late minister to Spain. One at or near Hurlgate, New York, under the patronage of Mr. Livingston, was commenced, but failed, and was abandoned. I believe nearly all the cotton factories in this country, from 1791 to 1805, were built under the direction of men who had learned the art or skill of building machinery, in Mr. Slater's employ. Mr. Slater used to spin both warp and filling on the water-frame up to 1803. The operations of manufactories up to 1817, were confined to spinning yarn only, which was put out in webs, and wove by hand-loom weavers. Mules for spinning filling had not then been introduced. The cotton used to be put out to poor families in the country, and whipped on cords, stretched on a small frame about three feet square, and the motes and specks were picked out by hand, at four to six cents per pound, as it might be, for cleanness."

From the above, it appears, that at the commencement of the manufacturing business, Mr. Slater was under the necessity of hiring mechanics, or workmen, in iron and wood, of the then common trades of the country, and teaching them the trade of building machinery; in consequence of which, he made very slow progress, in erecting his first and second establishments; it being the custom then, and for many years after, not only by him, but of all who went into the business, to erect machine shops; generally in the basement or first story of the building, where all the machinery was constructed. In 1798, Mr. Slater entered into company with Oziel Wilkinson, Timothy Green, and William Wilkinson, the two latter, as well as himself, having married daughters of Oziel Wilkinson. He built the second mill, on the east side of Pawtucket river, the firm being Samuel Slater & Co., himself holding one half of the stock.

A short time afterwards, his hands in this mill revolted; five or six of them went to Cumberland, and erected a small mill, owned

by Elisha Waters, and some others named Walcot. From these men and their connections, several factories were commenced in various parts of the country, and in fact most of the establishments erected from 1790 to 1809, were built by men who had, either directly or indirectly, drawn their knowledge of the business from Pawtucket, the cradle of the cotton business. Mr. Slater used to work cotton from Cayenne, Surinam, and Hispaniola, and made first quality of yarn. Some time after, when short cotton began to be used, he mixed about one third—he called the yarn of such, second quality, making fifteen cents per lb. difference. Thus while No. 12 was eighty-four cents of second quality, No. 12 of first quality was ninety-nine cents per lb.

Mr. Samuel Slater, on the establishment of the old mill, introduced among the labourers therein such regulations, as his previous observations of cotton mills in Derbyshire had shown to be useful and applicable to the circumstances of an American population. Amongst these, that which every philanthropist will deem the most important, was the system of *Sunday-school instruction**—which had been for some time in full operation, at all the mills of Messrs. Strutt and Arkwright, when Mr. Slater left England.

These schools, the first of the kind in America, are still continued at the present day. They have been copied, and extended with the extension of the cotton manufacture through this country; and they have prompted the establishment of similar schools in our seaport towns and in foreign countries. It was from Pawtucket that they were introduced into Providence in 1815, by the young men of the latter place, one of whom, William Jenkins, had been a clerk with Mr. Slater. These institutions were at first considered

* Twelve hundred persons are employed in the cotton factories of Mr. Thomas Ashton, of Hide, England. This gentleman has erected commodious dwellings for his work-people, with each of which he has connected every convenience that can minister to comfort. He resides in the immediate vicinity, and has frequent opportunities of maintaining a cordial association with his operatives. Their houses are well furnished, clean, and their tenants exhibit every indication of health and happiness. Mr. Ashton has also built a school, where 640 children, chiefly belonging to his establishment, are instructed on Tuesdays, in reading, writing, arithmetic, &c. A library, connected with this school, is eagerly resorted to, and the people frequently read after the hours of labour have expired. An infant school is, during the week, attended by 280 children, and in the evenings others are instructed by masters selected for the purpose. The factories themselves are certainly excellent examples of the cleanliness and order which may be attained, by a systematic and persevering attention to the habits of the artisans.

as charity schools only; and the teachers paid by the young men. They were subsequently taken under the care and patronage of the different religious societies, by whom they have been made to serve the purpose of biblical instruction. In addition to these schools for Sunday instruction, the establishment and support of common day schools was promoted at all the manufactories in which Mr. Slater was interested; and in some cases, the teachers were wholly paid by himself. Regular and stated public worship, also, was liberally supported at those points where the people could be most conveniently assembled. A strict, though mild and paternal scrutiny of the conduct of the workpeople was maintained; and prudent and effectual regulations against disorderly and immoral behaviour secured the peace, harmony, and quiet, of the mill companies. The introduction of manufacturing was thus, in every place, a harbinger of moral and intellectual improvement, to the inhabitants of the vicinage, and the numerous operatives from remote and secluded parts of the country, attracted to the manufacturing villages by the employment, comforts, and conveniences which they afforded. Hundreds of families of the latter description, originally from places where the general poverty had precluded schools and public worship, brought up illiterate and without religious instruction, and disorderly and vicious in consequence of their lack of regular employment, have been transplanted to these new creations of skill and enterprise; and by the ameliorating effects of study, industry, and instruction, have been reclaimed, civilised, Christianised. Not a few of them have accumulated and saved, by close application and moderate economy, very handsome estates. Indeed, such have been the blessed results of concentrating and giving employment to a population formerly considered almost useless to the community, that there is among our manufacturing population at this moment, a greater number of males, of from twenty to thirty years old, who are worth from $300 to $1000 each, and of marriageable females worth from $100 to $800 each, than can be found in any population, out of the manufacturing villages.

The impulse given to industry and production by the cotton manufacture has not been confined to one branch of business alone; but has been felt in every sort of employment, useful to the community. We need not, in this place, enlarge upon the close affinity and mutual dependence of these various employments; they are obvious to every mind which has acquired the habit of tracing results to their causes in the endless relations of society. As a general fact, it is undoubtedly true, that the advance of our

country, in the production and manufacture of wool and iron, has been greatly accelerated by the cotton manufacture; and that *those* branches of industry have always been deeply affected by the temporary reverses which *this* branch has experienced. Mr. Slater was, for many years, and at the time of his death, concerned in woollen and iron, as well as cotton manufactories; and his observation and sagacity never suffered him to question the identity of their interests.*

There was another point on which his views and sentiments, though decried by some, as too disinterested and liberal in any matter of business, were truly wise and sagacious, and fully concurred in by his partners. He always maintained that legislative protection would be beneficial to himself as well as others,—to those already established in business and having an ample capital, as to those who were just beginning, and with little or no capital. This opinion, maugre all the huckstering calculations and short-sighted views of would-be-monopolists, was certainly the best for himself. Monopoly, in this country, and by any man or set of men subject to our laws, is unattainable, either by legislation or combination. It is, or ought to be, excluded from all the calculations of a sober and practical business mind. There was, therefore, nothing in their preoccupation of the cotton business that gave them an advantage over other manufacturers, except their skill and capital. Of these advantages, legislation could not or would not deprive them; and *with them on their side*, they could extend their investments as fast, certainly with as much profit, as those who were without them, or with capital only. Events have fully sustained these views. The fostering protection of the government, up to the election of the president who now is, brought forward and established many adventurers who had begun without money or skill, but have since acquired both; whilst those

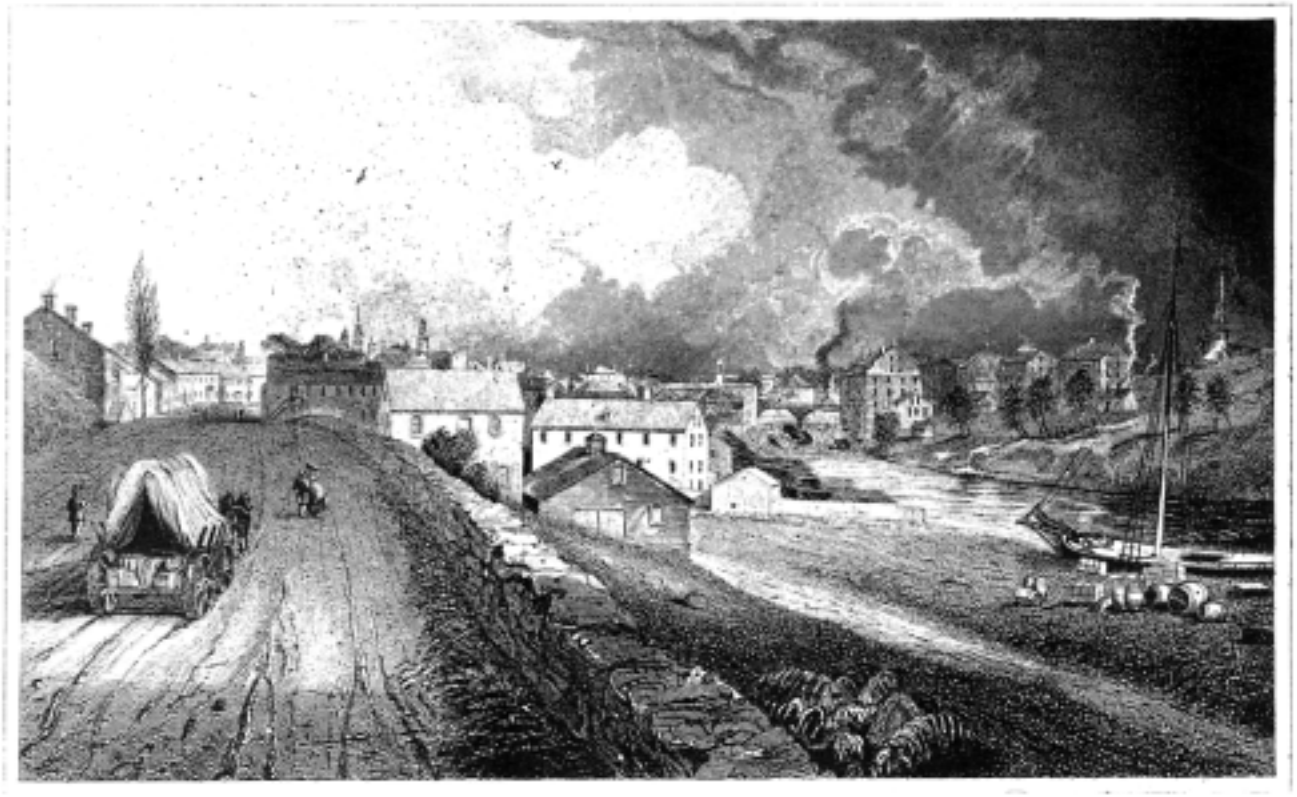
* Their subsequent business, up to the year 1806, turned their thoughts upon a more extended investment in spinning. John Slater, brother of Samuel, had arrived from England, and had, most probably, brought with him a knowledge of the recent improvements of the English spinners. The now flourishing village of Slatersville, in Smithfield, was then projected; and John Slater embarked as a partner, and in June of the same year, removed to Smithfield as superintendent of the concern. In the spring of 1807, the works were sufficiently advanced for spinning; and they have been, up to the present time, under the very prosperous management of that gentleman, in an uninterrupted state of improvement. This fine estate was first owned, in equal quarters, by the four original partners, but now wholly belongs to John Slater and the heirs of his late brother.

who preceded them in the business are, generally, as far in advance of them as they were before. In the measures adopted by the manufacturing districts of our country to obtain this protection, Mr. Slater was ever a prominent and efficient man; and his name was affixed to the memorials from the people of this vicinity, from time to time presented in the two houses of congress.*

The impression, that Mr. Slater was "*an obscure, humble emigrant*," was a sentiment more general than correct. Few young men were better situated for advancement in life in his own coun-

* A question has been made concerning the constitutional right of the government of the United States to apply this species of encouragement; but there is certainly no good foundation for such a question. The national legislature has express authority "To lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defence and general welfare," with no other qualifications than that "all duties, imposts, and excises, shall be *uniform* throughout the United States: that no capitation or other direct tax shall be laid unless in proportion to numbers ascertained by a census or enumeration taken on the principles prescribed in the constitution;" and that "no tax or duty shall be laid on articles exported from any state." These three qualifications excepted, the power to raise money is plenary and indefinite; and the objects to which it may be appropriated are no less comprehensive, than the payment of the public debts, and the providing for the common defence and general welfare. The terms "general welfare" were, doubtless, intended to signify more than was expressed or imported in those which preceded; otherwise numerous exigencies, incident to the affairs of a nation, would have been left without a provision.

The phrase is as comprehensive as any that could have been used; because it was not fit that the constitutional authority of the Union, to appropriate its revenues, should have been restricted within narrower limits than the "general welfare;" and because this necessarily embraces a vast variety of particulars, which are susceptible neither of specification nor of definition. It is therefore of necessity left to the discretion of the national legislature, to pronounce upon the objects, which concern the "general welfare," and for which, under that description, an appropriation of money is requisite and proper. And there seems to be no room for a doubt, that whatever concerns the general interests of learning, of agriculture, of manufactures, and of commerce, are within the sphere of the national councils, *as far as regards an application of money*. The only qualification of the generality of the phrase in question, which seems to be admissible, is this,—that the object, to which an appropriation of money is to be made, be *general* and not *local;* its operation extending, in fact, or by possibility, throughout the Union, and not being confined to a particular spot. No objection ought to arise to this construction, from a supposition that it should imply a power to do whatever else should appear to congress conducive to the general welfare. A power to appropriate money with this latitude, which is granted in express terms, would not carry a power to do any other thing, not authorised in the constitution, either expressly or by fair implication.—*Hamilton's Report.*



PAWTUCKET.

Benner, Pr.

try; and few in this had more resources at his age than he. Moses Brown's plain manner of speaking of the partner of his son-in-law, led, in some measure, to this mistake; and Mr. Slater, if he knew it, would never take the pains to explain his condition, or do any thing to disabuse public opinion with regard to his personal affairs; for he was never known to boast of any thing relating to himself, whether of property or abilities, being ever acknowledged a modest, unassuming man. Capital alone is not worthy of credit, unless associated with moral qualities in the tradesman; for a prudent man of great industry, integrity, and knowledge in his business, is more worthy of credit without capital, than a rich man, ignorant of his business. Persons who begin with large capitals do not succeed, generally speaking, so well as those who begin with small ones cautiously administered.

It is proper, perhaps, to close this chapter with an extract from a "Short Sketch of the Life of Slater," in the Providence Journal:

"Such are the outlines of the business life of a man, whose skill and knowledge of detail, in a business which, up to the time of his appearance among us, was unknown to this community, were unrivaled, whose commercial views were of the most liberal and enlightened character,—whose energy, perseverance, and untiring diligence, aided in his early efforts by the money and countenance of those who justly appreciated his merits and confidently anticipated his eminence, have triumphed over obstacles which would have discouraged others; have given a new direction to the industry of his adopted country, and opened a new and boundless field to its enterprise. It has rarely fallen to the lot of any single individual to be made an instrument, under Providence, of so much and such widely diffused benefit to his fellow-men, as this man has conferred upon them, without any pretension to high-wrought philanthropy, in the ordinary, unostentatious pursuit of that profession to which he had been educated, as a means of honest and creditable living. Yet, unpretending as he was, and noiseless in that sublimated charity, which is now so fashionable and predominant, his sympathy for the distressed, and his kindness and good will for all, were ever warm, active, practical, and efficient sentiments; based upon steadfast principles, and aiming at the greatest attainable measure of good. In the relief of immediate and pressing want he was prompt and liberal. In the measures which he adopted for its prevention in future, he evinced paternal feeling and judicious forecast. Employment and liberal pay to the able-bodied promoted regularity and cheerfulness in the house, and drove the wolf from its door. 'Direct charity,' he has been